Programming Guide

Keysight FieldFox Handheld Analyzers

KEYSIGHT TECHNOLOGIES

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Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, browse to one of the following URLs, according to the name of your product:

http://www.keysight.com/find/fieldfox

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Periodically, Keysight releases software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Keysight Technical Support website at:

http://www.keysight.com/find/fieldfoxsupport

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SCPI Concepts and Tips

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Last Modified:

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FieldFox Programming Tips

Mode-specific Programming

Although the FieldFox is a single instrument, each FieldFox mode (NA, SA, and so forth) has its own unique set of SCPI commands. Each mode is targeted separately by first issuing the command to select the mode (INSTrument[:SELect]).

Here is a list of commands that are common to ALL modes: Commands Common to All Modes.

Perform Single Triggering

When programming the FieldFox, it is ALWAYS recommended to perform single sweep triggering: INITiate:CONTinuous 0 and INITiate[:IMMediate] followed with *OPC?.

This is because after making measurement settings such as setting frequency, there is NO guarantee that a continuous sweep will complete and data will be collected at the new setting. By following a series of settings with INIT:IMM;*OPC?, then all settings will be updated correctly.

Communicating with the FieldFox using sockets over LAN

Responses to SCPI commands will always be in ASCII string format unless otherwise noted. Long responses may be separated into packets of data (up to 1460 bytes long). Each response is terminated with a LF character. When receiving long responses, search for the LF character to determine that the response is complete.

Do NOT do Binary Block transfers (FORM:DATA REAL,32 or REAL,64) when using over Telnet to port 5024 on FieldFox.

About Calibration Settings

A calibration session that is performed using the front-panel is completely separate from a calibration session that is performed programmatically.

Therefore, calibration settings that are made remotely (such as setting the cal kit and connectors) can NOT be observed from the front-panel user interface. Alternatively, calibration settings are that are made from the FieldFox front panel (user interface) can NOT be queried programmatically.

Correction Methods Explained

The Correction (Calibration) Methods offered for the FieldFox allow you to balance higher accuracy or a faster sweep time. Several methods are available through SCPI that are NOT available using the front-panel user interface. For example, all of the Cal Methods normally available only in NA mode are also available programmatically in CAT modes.

- Definitions
- Cal Methods
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About Calibration Settings

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Definitions

Non-insertable DUT – A device whose connectors could NOT mate together. They either do not have the same type of connector or they have the same gender. This also means that the test port cables could NOT mate together as in the above diagram.

Insertable DUT – A device whose connectors could mate together. They have the same type of connector and opposite or no gender. This also means that the test port cables could mate together, as in the above diagram.

Flush THRU - When the test port cables mate together when measuring an Insertable DUT. The THRU standard has no loss and no electrical length.

Sweep Directions – Relevant to N9923A ONLY.

- Sweep in FORWARD direction means port 1 is the source port and port 2 is the receiver port. Used to measure S11 and S21. (N9912A sweeps in forward direction ONLY)
- Sweep in REVERSE direction means port 2 is the source port and port 1 is the receiver port. Used to measure S22 and S12.

Full 2-Port and QSOLT Cals result in correction that requires background measurement sweeps in both directions, regardless of the displayed measurements. The displayed traces are updated at a slower rate than Enhanced Response and 1-port cals, which require sweeps in one direction only.

Cal Methods

1-Port (OSL)

- Insertablility - Not Relevant
- S-parameters Corrected: S11 or S22 (N9923)
- Standards: OPEN, SHORT, LOAD
- Sweeps in ONE direction.

FULL 2-Port (N9923A with Opt 122)

- Mechanical or QuickCal (Opt 111 or 112)
- Corrects all S-parameters.
- Non-Insertable or Insertable DUT
- Standards: OPEN, SHORT, LOAD on BOTH ports. Known (characterized) THRU between ports.
- Sweeps in BOTH directions.

Note: Because FULL 2-Port method requires a known THRU connection between the test ports, it is better to use **SOLR**, which yields the same level of accuracy with ANY (unknown) THRU connection. SOLR is performed when calibrating both ports from the front-panel user interface.

SOLR (Short-Open-Load-Reciprocal Thru) (All models with Full 2-port option)

Also known as Unknown Thru calibration.

- Mechanical Cal ONLY
- Most comprehensive calibration. Corrects all S-parameters.
- Non-Insertable or Insertable DUT
- Standards: OPEN, SHORT, LOAD on BOTH ports. Any THRU between ports.
- Sweeps in BOTH directions.

QSOLT (All models with Full 2-port option)

- Mechanical Cal ONLY
- Quicker to perform than Full 2-port. Corrects all S-parameters.
- Insertable DUT only
- Standards: OPEN, SHORT, LOAD on ONE port. Flush THRU between ports.
- Sweeps in BOTH directions.

Enhanced Response Cal

- Forward (all models) **OR** Reverse (All models with Full 2-port option)
- Mechanical or QuickCal (Opt 111 or 112)
- Faster measurements than Full 2-Port because sweeps in one direction ONLY.
- Insertable DUT only
- S-parameters Corrected: S21 and S11 (Forward) OR S12 and S22 (Reverse)

- Standards: OPEN, SHORT, LOAD on ONE port. Flush THRU between ports.

Response Cals

- Least accurate Cal type - correct Magnitude ONLY.
- Mechanical Cal ONLY
- Perform same as Data/Memory or THRU Normalization
- Standards: OPEN **or** SHORT (1-port) **or** THRU (2-port)

Summary

N9912A - CAT and NA

Cal Methods click to learn more	**Command** click to see command	**Ports <p>**	**Req'd Options**
QuickCals			
1-port OSL	QCAL:CAL <p>	1	111
Enhanced Response	QCAL:ERES <p>	1,2	111, 110
Mechanical Cals - specify connector and cal kit			
1-port OSL	SOLT1 <p>	1	None
Enhanced Response	ERES <p>	1,2	110
Response Cals			
Open Response	OPEN <p>	1	None
Short Response	SHORT <p>	1	None
Thru Response	THRU <p>	1,2	110

N9912A Options

- CAT Mode - Standard
- Option 110 - Adds 2-port (Fwd) measurements
- Option 111 - Adds QuickCal
- Option 303 - Adds NA Mode

All models with Full 2-port option - CAT and NA

Cal Methods click to learn more	**Command** click to see command	**Ports <p>**	**Req'd Options**
QuickCals			
1-port OSL or Full 2 port	QCAL:CAL <p>	1 (1-port)	112
		2 (1-port)	122,112

		1,2 (2-port)	122,112
Enhanced Response	QCAL:ERES <p>	1,2 (Fwd)	112
		2,1 (Rev)	122,112
Mechanical Cals - specify connector and cal kit			
1-port OSL	SOLT1 <p>	1	None
		2	122
Full 2 port	SOLT2 <p>	1,2	122, 211[1]
Unknown Thru	SOLR <p>	1,2	122, 211[1]
QSOLT	QSOLT <p>	1,2 or 2,1	122, 211[1]
Enhanced Response	ERES <p>	1,2	None
		2,1	122
Response Cals			
Open Response	OPEN <p>	1	None
		2	122
Short Response	SHORT <p>	1	None
		2	122
Thru Response	THRU <p>	1,2	None

1. N9923A requires Option 122. For FieldFox N9914/5/6/7/8A and N995xA models with firmware versions ≥A.07.00, Option 211 is required. Option 211 requires Option 210.

N9923A Options

- NA Mode - Standard
- Option 112 - Adds QuickCal
- Option 122 - Adds Full 2-port (Fwd and Rev) Measurements
- Option 305 - Adds CAT Mode

Options for N9914/5/6/7/8A and N995xA models

- Option 211 - Adds Full 2-port (Fwd and Rev) Measurements - Requires Option 210
- Option 210 - Adds Vector Network Analyzer (VNA) with transmission/reflection (T/R) capability

Options for All other N992x models

- Option 112 - Adds QuickCal
- Option 211 - Adds Full 2-port (Fwd and Rev) Measurements
- Option 305 - Adds CAT Mode

How the FieldFox Error Queue Works

Errors work as follows:

1. Errors are logged to the central logger, visible with the FieldFox GUI. Press **System 7** then **Service Diagnostics**, then **Error Log**.
2. Errors originating from a specific client (connected program) are logged to the queue for that client. Each client has its own queue. So if you have two socket connections (not recommended), and the first one sends a bad command, the second one does NOT get a 'Header not found' error logged in its queue. Only the first one will see that error on SYST:ERR?
3. 'Global' errors (those that occur independent of a connected client), are logged to the central logger (per #1) and to all currently connected SCPI client error queues.
4. SCPI socket (port 5025) and Telnet (port 5024) clients are independent and dynamic. If there is no current connection (or connections), then no error queue for that connection (or connections) exist(s), and no 'Global' errors are logged there because there is no place to log them.

However, the VXI parser always exists in FieldFox firmware even if no clients are connected to it. This is the connection typically used by Keysight I/O Libraries (unless 'socket' connection is checked). So it will always queue 'Global' errors that occur, and a client that connects via the VXI interface after the errors occur may still query out those errors.

You can bind a C# program to the C# VISA wrapper provided with Keysight I/O Libraries in order to use the VXI interface to FieldFox, if you plan to connect after the errors occur to query them out of the FieldFox.

In cases where a persistent error is occurring (like ADC Overload), currently, the error queue for the VXI parser (which receives these errors, as mentioned above) is unbounded, and will accumulate errors until instrument memory is exhausted. This occurs unless a VXI client connects and clears the VXI parser's error queue (using SYST:ERR?).

Instrument Console (IC)

IC is a free utility that can be used to run simple example programs to control the FieldFox.

This utility is NOT supported. Use 'As-is'.

Download Instrument Console at http://na.support.keysight.com/fieldfox/download_files/ic.zip

Unzip, then double-click on IC.exe to install.

Note: IC requires .**NET** (version 2.0 or later). If IC does NOT run, then download .NET at: http://www.microsoft.com/net/download.aspx

Hint

IC can be used with IO libraries or by directly connecting to an IP address.

If an error is continuously returned, try increasing the timeout. (-t <time in seconds).

Then reconnect by issuing -a <address>

IC Command Summary:

[?|help]	shows this help screen
-a <address>	sets a new address, e.g. 192.168.1.1 <address> can be an IP address, a VISA address or alias, LAN hostname, or InstrumentConsole alias.
-d	detach from currently connected instrument.
-clear	Clear IO stream. Experimental.
-r	re-attach to currently connected instrument.

-t<?>	returns current timeout
-t< time in secs>	sets a new timeout, e.g. "-t .010" for 10ms
-w <time in msecs>	wait (pause) execution for the specified amount of time
-err[-|?]	set/remove/query automatic SYST:ERR? after sending a command/query string
-visa?	List VISA instruments and aliases.
-alias x=[y]	Adds an alias 'x' for instrument name 'y' If y is omitted, alias x is cleared.
-alias?	Returns existing aliases.
-sp <script path>	Sets ';' delimited path to locate scripts.
-sp?	Returns the script path.
-p [Message]	Pauses execution, prints optional Message, user must press return to continue.
-v|-verify <$n<==|!=>value >	verify value in $n, where n=0 is most recent result (0<=n<=9) e.g. "-v $0==1" will pass after a *OPC? IC will exit with -1 if verify test fails.
!<string>	performs ShellExecute on <string>
$<filename>	opens filename and executes all lines of text Lines beginning with # in the 1st column are treated as comments
<string>	sends command to the instrument
<string>?[args]	sends a command, then reads back data
[exit|quit]	quits the program

Alpha support has been added for I/O redirection so that data can be read to/from files as part of sending command strings.

E.g.: SENS:FREQ:STAR < freq.txt where freq.txt contains a string such as "3e9"

or

SENS:FREQ:STAR? > freq.txt to dump the start frequency to freq.txt

This program also allows binaries to be properly redirected to a file, e.g. to save and get a screenshot PNG file, you can now do this (and it works without corrupting the PNG file):

MMEM:STOR:IMAG "my.png" this saves a png file on the FieldFox.

MMEM:DATA? "my.png" > my.png this transfers the file to the PC.

The Rules and Syntax of SCPI

Most of the commands used for controlling instruments on the GPIB are SCPI commands. The following sections will help you learn to use SCPI commands in your programs.

Branches on the Command Tree

All major functions on the analyzer are assigned keywords which are called ROOT commands. Under these root commands are branches that contain one or more keywords. The branching continues until each analyzer function is assigned to a branch. A root command and the branches below it is sometimes known as a subsystem.

For example, under **`CALCulate`** are several branch commands.

Sometimes the same keyword, such as **STATE**, is used in several branches of the command tree. To keep track of the current branch, the analyzer's command parser uses the following rules:

- **Power On and Reset** - After power is cycled or after `*RST`, the current path is set to the root level commands.
- **Message Terminators** - A message terminator, such as a <NL> character, sets the current path to the root command level. Many programming language output statements send message terminators automatically.
- **Colon (:)** - When a colon is between two command keywords, it moves the current path down one level in the command tree. For example, the second colon in `:SOURCE:POWER` specifies that `POWER` is one level below `SOURCE`. When the colon is the first character of a command, it specifies that the following keyword is a root level command. For example, the first colon in **`:SOURCE:POWER`** specifies that source is a root level command.

Note: You can omit the leading colon if the command is the first of a new program line. For example, the following two commands are equivalent:
`SOUR:POW:ATT:AUTO`
`:SOUR:POW:ATT:AUTO`

- **<WSP>** - Whitespace characters, such as <tab> and <space>, are generally ignored. There are two important exceptions:
  - Whitespace inside a keyword, such as `:CALC ULATE`, is not allowed.
  - Most commands end with a parameter. You must use whitespace to separate these ending parameters from commands. **Always refer to the command documentation**. In the following example, there is whitespace between `STATE` and `ON`.

  `CALCULATE:LIMit:STATE ON`
- **Comma (,)** - If a command requires more than one parameter, you must separate adjacent parameters using a comma. For example, the `SYSTEM:TIME` command requires three values to set the analyzer clock: one for hours, one for minutes, and one for seconds. A message to set the clock to 8:45 AM would be `SYSTEM:TIME 8,45,0`. Commas do not affect the current path.
- **Semicolon(;)** - A semicolon separates two commands in the same message without changing the current path. See Multiple Commands later in this topic.

- **IEEE 488.2 Common Commands** - Common commands, such as *RST, are not part of any subsystem. An instrument interprets them in the same way, regardless of the current path setting.

Command and Query

A SCPI command can be an Event command, Query command (a command that asks the analyzer for information), or both. The following are descriptions and examples of each form of command. GPIB Command Finder lists every SCPI command that is recognized by the analyzer, and its form.

Form	Examples
Event commands - cause an action to occur inside the analyzer.	**:INITIATE:IMMEDIATE**
Query commands - query only; there is no associated analyzer state to set.	**:SYSTem:ERRor?**
Command and query - set or query an analyzer setting. The query form appends a question mark (?) to the set form	**:FORMat:DATA ! Command** **:FORMat:DATA? ! Query**

Multiple Commands

You can send multiple commands within a single program message. By separating the commands with semicolons the current path does not change. The following examples show three methods to send two commands:

1. **Two program messages:**

   ```
   :SENSE:FREQUENCY:START 1e9;
   :SENSE:FREQUENCY:STOP 2e9
   ```

2. **One long message**. A colon follows the semicolon that separates the two commands causing the command parser to reset to the root of the command tree. As a result, the next command is only valid if it includes the entire keyword path from the root of the tree:

   ```
   :SENSE:FREQUENCY:START 1e9;:SENSE:FREQUENCY:STOP 2e9
   ```

3. **One short message**. The command parser keeps track of the position in the command tree. Therefore, you can simplify your program messages by including only the keyword at the same level in the command tree.

   ```
   SENSE:FREQUENCY:START 1e9;STOP 2e9
   ```

Common Commands and SCPI Commands

You can send Common commands and SCPI commands together in the same message. (For more information on these types of commands see GP-IB Fundamentals.) As in sending multiple SCPI commands, you must separate them with a semicolon.

Example of Common command and SCPI commands together

```
*RST;SENSE:FREQUENCY:CENTER 5MHZ;SPAN 100KHZ
```

Command Abbreviation

Each command has a long form and an abbreviated short form. The syntax used in this Help system use uppercase characters to identify the short form of a particular keyword. The remainder of the keyword is lower case to complete the long form.

SENS - Short form
SENSE - Long form

Either the complete short form or complete long form must be used for each keyword. However, the keywords used to make a complete SCPI command can be a combination of short form and long form.

The following is **unacceptable** - The first three keywords use neither short or long form.

SOURc:Powe:Atten:Auto on

The following is **acceptable** - All keywords are either short form or long form.

SOUR:POWer:ATT:AUTO on

In addition, the analyzer accepts lowercase and uppercase characters as equivalent as shown in the following equivalent commands:

source:POW:att:auto ON
Source:Pow:Att:Auto on

Optional [Bracketed] Keywords

You can omit some keywords without changing the effect of the command. These optional, or default, keywords are used in many subsystems and are identified by brackets in syntax diagrams.

Example of Optional Keywords

The SENSe keyword is always optional. Therefore, both of the following commands are equivalent:

:SENS:BWID 1e3
:BWID 1e3
The syntax in this Help system looks like this:
[:SENSe]:BWID

Vertical Bars | Pipes

Vertical bars, or "pipes", can be read as **"or"**. They are sometimes used in syntax diagrams to separate alternative parameter options.

Example of Vertical Bars:

SOURce:POWer:ATTenuation:AUTO <on|off>

Either ON or OFF is a valid parameter option.

MIN and MAX Parameters

The special form parameters "MINimum" and "MAXimum" can be used with commands that specify single frequency (Hz) and time (seconds) as noted in the command documentation. **Note**: Also with these commands, kHZ, MHz, and GHz are accepted as suffixes/units.

The short form (min) and long form (minimum) of these two keywords are equivalent.

- **MAX**imum refers to the largest value that the function can currently be set to
- **MIN**imum refers to the smallest value that the function can currently be set to.

For example, the following command sets the start frequency to the smallest value that is currently possible:

SENS:FREQ:START MIN

In addition, the max and min values can also be queried for these commands.

For example, the following command returns the smallest value that Start Frequency can currently be set to:

SENS:FREQ:START? MIN

An error will be returned if a numeric parameter is sent that exceeds the MAX and MIN values.

For example, the following command will return an "Out of range" error message.

`SENS:FREQ:START 1khz`

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29-Jan-2012 New topic

SCPI Errors

SCPI Errors

- -100 to -200 Command Errors
- -200 to -299 Execution Errors
- -300 to -399 SCPI Specified Device-Specific Errors
- -400 to -800 Query and System Errors
- 100 to 200 FieldFox-specific Errors

See Also

How to Query the Error Queue

-100 to -200 Command Errors

A command error indicates that the test set's GPIB parser has detected an IEEE 488.2 syntax error. When one of these errors is generated, the command error bit in the event status register is set.

-100	std_command	Command - This event bit (Bit 5) indicates a syntax error, or a semantic error, or a GET command was entered, see IEEE 488.2, 11.5.1.1.4.
-101	std_invalidChar	Invalid character - Indicates a syntactic elements contains a character which is invalid for that type.
-102	std_syntax	Syntax - Indicates that an unrecognized command or data type was encountered. For example, a string was received when the device does not accept strings.
-103	std_invalidSeparator	Invalid separator - The parser was expecting a separator and encountered an illegal character. For example, the semicolon was omitted after a program message unit.
-104	std_wrongParamType	Data type -The parser recognized a data element different than one allowed. For example, numeric or string data was expected but block data was encountered.
-105	std_GETNotAllowed	GET not allowed - Indicates a Group Execute Trigger was received within a program message. Correct the program so that the GET does not occur within the program code.
-108	std_tooManyParameters	Parameter not allowed - Indicates that more parameters were received than expected for the header. For example, *ESE common command only accepts one parameter, so *ESE 0,1 is not allowed.
-109	std_tooFewParameters	Missing parameter - Indicates that less parameters were received than required for the header. For example, *ESE requires one parameter,

		*ESE is not allowed.
-110	std_cmdHeader	Command header - Indicates an error was detected in the header. This error is used when the device cannot detect the more specific errors -111 through -119.
-111	std_headerSeparator	Header separator - Indicates that a character that is not a legal header separator was encountered while parsing the header.
-112	std_IDTooLong	Program mnemonic too long - Indicates that the header contains more that twelve characters, see IEEE 488.2, 7.6.1.4.1.
-113	std_undefinedHeader	Undefined header - Indicates the header is syntactically correct, but it is undefined for this specific device. For example, *XYZ is not defined for any device.
-114	std_suffixOutOfRange	Header suffix out of range - Indicates the value of a header suffix attached to a program mnemonic makes the header invalid.
-120	std_numericData	Numeric data - This error, as well as errors
-121	std_invalidCharInNumber	Invalid character in number - Indicates an invalid character for the data type being parsed was encountered. For example, an alpha in a decimal numeric or a "9" in octal data.
-123	std_exponentTooLarge	Exponent too large - Indicates the magnitude of an exponent was greater than 32000, see IEEE 488.2, 7.7.2.4.1.
-124	std_decimalTooLong	Too many digits - Indicates the mantissa of a decimal numeric data element contained more than 255 digits excluding leading zeros, see IEEE 488.2, 7.7.2.4.1.
-128	std_numericNotAllowed	Numeric data not allowed - Indicates that a legal numeric data element was received, but the device does not accept one in this position for the header.
-130	std_suffix	Suffix - This error, as well as errors -131 through -139, are generated when parsing a suffix. This particular error message is used if the device cannot detect a more specific error.
-131	std_badSuffix	Invalid suffix - Indicates the suffix does not follow the syntax described in IEEE 488.2, 7.7.3.2, or the suffix is inappropriate for this device.
-134	std_suffixTooLong	Suffix too long - Indicates the suffix contain more than 12 characters, see IEEE 488.2, 7.7.3.4.
-138	std_suffixNotAllowed	Suffix not allowed - Indicates that a suffix was encountered after a numeric element that does not allow suffixes.
-140	std_charData	Character data - This error, as well as errors
-141	std_invalidCharData	Invalid character data - Indicates that the character data element contains an invalid character or the particular element received is not valid for the header.
-144	std_charDataTooLong	Character data too long - Indicates the character data element contains more than twelve characters, see IEEE 488.2, 7.7.1.4.
-148	std_charNotAllowed	Character data not allowed - Indicates a legal character data element was encountered where prohibited by the device.

-150	std_stringData	String data - This error, as well as errors
-151	std_stringInvalid	Invalid string data - Indicates that a string data element was expected, but was invalid, see IEEE 488.2, 7.7.5.2. For example, an END message was received before the terminal quote character.
-158	std_stringNotAllowed	String data not allowed - Indicates that a string data element was encountered but was not allowed by the device at this point in parsing.
-160	std_blockData	Block data - This error, as well as errors -161 through -169, are generated when parsing a block data element. This particular error message is used if the device cannot detect a more specific error.
-161	std_badBlock	Invalid block data - Indicates a block data element was expected, but was invalid, see IEEE 488.2, 7.7.6.2. For example, and END message was received before the end length was satisfied.
-168	std_blockNotAllowed	Block data not allowed - Indicates a legal block data element was encountered, but not allowed by the device at this point in parsing.
-170	std_expr	Expression - This error, as well as errors -171 through -179, are generated when parsing an expression data element. This particular error message is used if the device cannot detect a more specific error.
-171	std_invalidExpression	Invalid expression - Indicates the expression data element was invalid, see IEEE 488.2, 7.7.7.2. For example, unmatched parentheses or an illegal character.
-178	std_exprNotAllowed	Expression data not allowed - Indicates a legal expression data was encountered, but was not allowed by the device at this point in parsing.
-180	std_macro	Macro - This error, as well as error -181 through -189, are generated when defining a macro or execution a macro. This particular error message is used if the device cannot detect a more specific error.
-181	std_validOnlyInsideMacro	Invalid outside macro definition - Indicates that a macro parameter place holder was encountered outside of a macro definition.
-183	std_invalidWithinMacro	Invalid inside macro definition - Indicates that the program message unit sequence, sent with a *DDT or a *DMC command, is syntactically invalid, see IEEE 488.2, 10.7.6.3.
-184	std_macroParm	Macro parameter - Indicates that a command inside the macro definition had the wrong number or type of parameters.

-200 to -299 Execution Errors

These errors are generated when something occurs that is incorrect in the current state of the instrument. These errors may be generated by a user action from either the remote or the manual user interface

-200	std_execGen	Execution - This event bit (Bit 4) indicates a PROGRAM DATA element following a header was outside the legal input range or otherwise inconsistent with the device's capabilities, see IEEE 488.2, 11.5.1.1.5.
-201	std_invalidWhileInLocal	Invalid while in local
-202	std_settingsLost	Settings lost due to rtl
-203	std_commandProtected	Command protected - Indicates that a legal password-protected program command or query could not be executed because the command was

		disabled.
-210	std_trigger	Trigger
-211	std_triggerIgnored	Trigger ignored
-212	std_armIgnored	Arm ignored
-213	std_initIgnored	Init ignored
-214	std_triggerDeadlock	Trigger deadlock
-215	std_armDeadlock	Arm deadlock
-220	std_parm	Parameter - Indicates that a program data element related error occurred.
-221	std_settingsConflict	Settings conflict - Indicates that a legal program data element was parsed but could not be executed due to the current device state.
-222	std_dataOutOfRange	Data out of range - Indicates that a legal program data element was parsed but could not be executed because the interpreted value was outside the legal range defined by the devices
-223	std_tooMuchData	Too much data - Indicates that a legal program data element of block, expression, or string type was received that contained more data than the device could handle due to memory or related device-specific requirements.
-224	std_illegalParmValue	Illegal parameter value - Indicates that the value selected was not part of the list of values given.
-225	std_noMemoryForOp	Out of memory - The device has insufficient memory to perform the requested operation.
-226	std_listLength	Lists not same length - Attempted to use LIST structure having individual LIST's of unequal lengths.
-230	std_dataCorruptOrStale	Data corrupt or stale - Indicates invalid data, a new reading started but not completed since the last access.
-231	std_dataQuestionable	Data questionable - Indicates that measurement accuracy is suspect.
-232	std_invalidFormat	Invalid format
-233	std_invalidVersion	Invalid version - Indicates that a legal program data element was parsed but could not be executed because the version of the data is incorrect to the device. For example, a not supported file version, a not supported instrument version.
-240	std_hardware	Hardware - Indicates that a legal program command or query could not be executed because of a hardware problem in the device.
-241	std_hardwareMissing	Hardware missing - Indicates that a legal program command or query could not be executed because of missing device hardware. For example, an option was not installed.
-250	std_massStorage	Mass storage - Indicates that a mass storage error occurred. The device cannot detect the more specific errors described for errors -251 through -259.
-251	std_missingMassStorage	Missing mass storage - Indicates that a legal program command or query

		could not be executed because of missing mass storage.
-252	std_missingMedia	Missing media - Indicates that a legal program command or query could not be executed because of missing media. For example, no disk.
-253	std_corruptMedia	Corrupt media - Indicates that a legal program command or query could not be executed because of corrupt media. For example, bad disk or wrong format.
-254	std_mediaFull	Media full- Indicates that a legal program command or query could not be executed because the media is full. For example, there is no room left on the disk.
-255	std_directoryFull	Directory full - Indicates that a legal program command or query could not be executed because the media directory was full.
-256	std_fileNotFound	File name not found - Indicates that a legal program command or query could not be executed because the file name was not found on the media.
-257	std_fileName	File name - Indicates that a legal program command or query could not be executed because the file name on the device media was in error. For example, an attempt was made to read or copy a nonexistent file.
-258	std_mediaProtected	Media protected - Indicates that a legal program command or query could not be executed becuse the media was protected. For example, the write-protect switch on a memory card was set.
-260	std_expression	Expression
-261	std_math	Math in expression
-270	std_macroExecution	Macro - Indicates that a macro related execution error occurred.
-271	std_macroSyntax	Macro syntax - Indicates that a syntactically legal macro program data sequence, according to IEEE 488.2, 10.7.2, could not be executed due to a syntax error within the macro definition.
-272	std_macroExec	Macro execution - Indicates that a syntactically legal macro program data sequence could not be executed due to some error in the macro definition, see IEEE 488.2, 10.7.6.3.
-273	std_badMacroName	Illegal macro label - Indicates that the macro label was not accepted, it did not agree with the definition in IEEE 488.2, 10.7.3
-274	std_macroPlaceholderMa	cro parameter - Indicates that the macro definition improperly used a macro parameter placeholder, see IEEE 4882, 10.7.3.
-275	std_macroTooLong	Macro definition too long - Indicates that a syntactically legal macro program data sequence could not be executed because the string of block contents were too long for the device to handle, IEEE 488.2, 10.7.6.1.
-276	std_macroRecursion	Macro recursion - Indicates that a syntactically legal macro program data sequence count not be executed because it would be recursive, see IEEE 488.2, 10.7.6.6.
-277	std_cantRedefineMacro	Macro redefinition not allowed - Indicates that redefining an existing macro label, see IEEE 488.2, 10.7.6.4.
-278	std_macroNotFound	Macro header not found - Indicates that a legal macro label in the

		*GMS?, see IEEE 488.2, 10.13, could not be executed because the header was not previously defined.
-280	std_program	Program
-281	std_cantCreateProgram	Cannot create program
-282	std_illegalProgramName	Illegal program name
-283	std_illegalVarName	Illegal variable name
-284	std_programRunning	Program currently running
-285	std_programSyntax	Program syntax
-286	std_programRuntime	Program runtime
-290	std_memoryUse	Memory use
-291	std_execOutOfMemory	Out of memory
-292	std_nameNotFound	Referenced name does not exist
-293	std_nameAlreadyExists	Referenced name already exists
-294	std_incompatibleType	Incompatible type

-300 to -399 SCPI Specified Device-Specific Errors

A device-specific error indicates that the instrument has detected an error that occurred because some operations did not properly complete, possibly due to an abnormal hardware or firmware condition. For example, an attempt by the user to set an out of range value will generate a device specific error. When one of these errors is generated, the device specific error bit in the event status register is set.

-300	std_deviceSpecific	Device specific - This event bit (Bit 3) indicates that a device operation did not properly complete due to some condition, such as overrange see IEEE 488.2, 11.5.1.1.6.
-310	std_system	System
-311	std_memory	Memory - Indicates some physical fault in the devices memory, such as a parity error.
-312	std_PUDmemoryLost	PUD memory lost - Indicates protected user data saved by the *PUD command has been lost, see IEEE 488.2, 10.27.
-313	std_calMemoryLost	Calibration memory lost - Indicates that nonvolatile calibration data used by the *CAL? command has been lost, see IEEE 488.2, 10.2.
-314	std_savRclMemoryLost	Save/recall memory lost - Indicates that the nonvolatile data saved by the *SAV command has been lost, see IEEE 488.2, 10.33.
-315	std_configMemoryLost	Configuration memory lost - Indicates that nonvolatile configuration data saved by the device has been lost.
-320	std_storageFault	Storage fault - Indicates that the firmware detected a fault when using data storage. This is not an indication of physical damage or failure of any mass storage element.
-321	std_outOfMemory	Out of memory - An internal operation needed more memory than was available
-330	std_selfTestFailed	Self-test failed - Indicates a problem with the device that is not covered by

		a specific error message. The device may require service.
-340	std_calFailed	Calibration failed - Indicates a problem during calibration of the device that is not covered by a specific error.
-350	std_queueOverflow	Queue overflow - Indicates that there is no room in the queue and an error occurred but was not recorded. This code is entered into the queue in lieu of the code that caused the error.
-360	std_comm	Communication - This is the generic communication error for devices that cannot detect the more specific errors described for error -361 through -363.
-361	std_parity	Parity in program message - Parity bit not correct when data received for example, on a serial port.
-362	std_framing	Framing in program message - A stop bit was not detected when data was received for example, on a serial port (for example, a baud rate mismatch).
-363	std_inputBufferOverrun	Input buffer overrun - Software or hardware input buffer on serial port overflows with data caused by improper or nonexistent pacing.

-400 to -800 Query and System Errors

A Query error is generated either when data in the instrument's GPIB output queue has been lost, or when an attempt is being made to read data from the output queue when no output is present or pending.

-400	std_queryGen	Query - This event bit (Bit 2) indicates that an attempt to read data from the Output Queues when no output is present or pending, to data in the Output Queue has been lost see IEEE488.2, 11.5.1.1.7.
-410	std_interrupted	Query INTERRUPTED - Indicates the test set has been interrupted by a new program message before it finishes sending a RESPONSE MESSAGE see IEEE 488.2, 6.3.2.3.
-420	std_unterminated	Query UNTERMINATED - Indicates an incomplete Query in the program see IEEE 488.2, 6.3.2.2.
-430	std_deadlocked	Query DEADLOCKED - Indicates that the Input Buffer and Output Queue are full see IEEE 488.2, 6.3.1.7.
-440	std_responseNotAllowed	Query UNTERMINATED after indefinite response - Indicates that a query was received in the same program message after a query requesting an indefinite response was executed see IEEE 488.2, 6.5.7.5.
-500	std_powerOn	Power on
-600	std_userRequest	User request
-700	std_requestControl	Request control
-800	std_operationComplete	Operation complete

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Analyzer-Specific (Positive) SCPI Errors

-115	UnexpectedNumberOfParameters	The number of parameters received does not correspond to the number of parameters expected.

Last Modified:

4-Aug-2009 Cosmetic mods

Examples

FieldFox Programming Examples

- NA
- VVM
- VVS
- Calibration
- ECal
- FOPS
- Guided Calibration
- Markers
- Memory Commands
- C# Example Program (Make a connection)
- Read Block Data using C#
- Transfer Image to PC

MATLAB Examples

- Binary Block File Transfer via VISA
- Acquire S21 Data via LAN as Socket (Port 5025)

Python Example

- Import SA Data as ASCII

VEE Examples

- Get NA Formatted Data as Real 32 BinBlock
- Get_NA Formatted Data_as_ASCII_Output
- SpecAn Get Data as ASCII Output
- Trigger Synch Sweep Complete

See Also

How the FieldFox Error Queue Works

Instrument Console (IC)

SCPI Concepts and Tips

NA Mode Setup

This example shows how to:

- Create a simple NA Mode setup with 4-window configuration
- Set format, scale, frequency, IFBW, Averaging
- Set triggering to Single
- Read Data
- Clear Averaging

Note: In the following example:

"-p" indicates a user prompt.

"#" indicates a comment

This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

```
# Preset Instrument and Hold
*RST
# Change to NA Mode and wait until changed
INST:SEL "NA";*OPC?
# 4 window configuration
DISP:WIND:SPL D12_34
#change window 4 to R1 measurement
CALC:PAR4:DEF R1
#Select window 4
CALC:PAR4:SEL
#change window 4 format to SWR
CALC:FORMat SWR
# Autoscale window 1
DISP:WIND:TRAC1:Y:AUTO
# Set Center Freq
SENS:FREQ:CENT 2e9
# Set Freq Span
SENS:FREQ:SPAN 500e6
#set IFBW to 10 kHz
BWID 10e3
# Set averaging to 5 sweeps
AVER:COUNt 5
#Select window 1
CALC:PAR1:SEL
# Set to HOLD mode; wait
INIT:CONT 0;*OPC?
# Trigger FIVE measurements
# Wait between each
INIT:IMMediate;*OPC?
INIT:IMMediate;*OPC?
INIT:IMMediate;*OPC?
INIT:IMMediate;*OPC?
INIT:IMMediate;*OPC?
#Read formatted data from selected trace (1)
```

```
CALC:DATA:FDATa?
#Clear averaging
AVER:CLEar
#And do anther sweep
INIT:IMMediate;*OPC?
```

Last Modified:

23-Aug-2011	New command

VVM Mode Example

The following example sets up a VVM measurement.

Note: In the following example:

"-p" indicates a user prompt.

"#" indicates a comment

This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

```
# Preset Instrument
SYST:PRESet;*OPC?
# Change to VVM Mode and wait until changed
INST:SEL "VVM";*OPC?
# Set to single sweep
INIT:CONT 0;*OPC?
# Setup the instrument for 1-port cable trimming
CALC:PAR:DEF S11
# Set Center Freq
SENS:FREQ:CENT 2e9
# Take a sweep to ensure you get a valid point on your new frequency.
INIT:IMM;*OPC?
# Attach the Reference cable
-p "Attach Reference Cable"
# Zero the display
SENS:CORR:ZERO:STAT ON;*OPC?
# Take another sweep to show the zero in action
INIT:IMM;*OPC?
# Prompt to attach a cable
-p "Attach Cable to Trim"
```

```
# Put into freerun mode
INIT:CONT ON
```

VVS Example

The following example sets up the VVS (variable voltage source).

Note: In the following example:

"-p" indicates a user prompt.

"#" indicates a comment

This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

The following example focuses on reliable switching (On and Off) of the VVS. The key is to make sure that the query reflects the current condition. This is important because the query result is NOT always updated.

The following is **psuedo code** as the Instrument Console has limited programming capability.

```
#This section ensures that the VVS is indeed ON after being tripped.
# Send VVS query
SYST:VVS?
# If "TRIPPED" is returned, then disable VVS
SYST:VVS:ENAB 0
# Wait 50 ms, then enable.
SYST:VVS:ENAB 1
# wait 50 ms, then repeat query.
SYST:VVS?
# If ON, then finished. Otherwise, send ENABle again, and then another
query.

#This section ensures that the VVS is indeed OFF.
# Send VVS query
SYST:VVS?
# If "TRIPPED" is returned, then disable VVS
# If OFF, then finished. Otherwise...
SYST:VVS:ENAB 0
# wait 50 ms, then repeat query.
SYST:VVS?
# wait 50 ms, then repeat query.
# If OFF, then finished. Otherwise, send ENABle 1, then ENABle 0, and then
another query.
SYST:VVS:ENAB 1
```

```
# Wait 50 ms.
SYST:VVS:ENAB 0
# wait 50 ms, then repeat query.
SYST:VVS?
```

Calibration Examples

The following examples show how to perform various calibrations in CAT and NA modes.

About Calibration Settings

A calibration session that is performed using the front-panel is completely separate from a calibration session that is performed programmatically.

Therefore, calibration settings that are made remotely (such as setting the cal kit and connectors) can NOT be observed from the front-panel user interface. Alternatively, calibration settings are that are made from the FieldFox front panel (user interface) can NOT be queried programmatically.

Guided Cal

- Guided Calibration (separate topic)
- ECal (separate topic)

Mechanical Cals

- 1-Port OSL
- 2- Port SOLR
- 2-Port QSOLT
- 2-Port Enhanced Response
- THRU Response

QuickCals

- 1-Port QuickCal
- 2-Port Non-Insertable QuickCal
- 2-Port Insertable QuickCal
- Enhanced Response QuickCal

Note: To Cal a VVM mode measurement, perform a Cal in CAT or NA mode, then switch to VVM mode.

See Also

CAT Mode Commands

NA Mode Commands

See All Programming Examples

Note: In the following examples:
"-p" indicates a user prompt.

"#" indicates a comment

Examples can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

1- Port OSL Cal on port 1

To perform a 1-port cal on port 2, replace all the '1' arguments with '2'.

```
# Select a Type N male, 50 ohm connector
# as the DUT connector to be attached to port 1.
# Be careful with the dashes in -M- for the following command.
# Some editors will change the character.
CORR:COLL:CONN 1, "Type N -M-,50"
# select the calkit to use.
CORR:COLL:CKIT:LABel 1,"85032B/E"
# Select 1-port cal (SOLT1) on port 1
CORR:COLL:METH:SOLT1 1
-p attach load to port 1
CORR:COLL:LOAD 1;*OPC?
-p attach short to port 1
CORR:COLL:SHOR 1;*OPC?
-p attach open to port 1
CORR:COLL:OPEN 1;*OPC?
# Finish and apply the cal
CORR:COLL:SAVE 0
```

2-Port SOLR Cal

```
# Setup 2-port SOLR Unknown Thru Cal between ports 1 and 2*
# Use the Type N male T kit on both ports
# Cal with either insertable or non-insertable connectors
# Do NOT use on N9912A
corr:coll:ckit:lab 1, "1250-3607"
corr:coll:ckit:lab 2, "1250-3607"
# Be careful with the dashes in -M- for the following command.
# Some editors will change the character.
corr:coll:conn 1,"Type N -M-,50"
corr:coll:conn 2,"Type N -M-,50"
CORR:COLL:METH:SOLR 1,2
-p Attach load to port 1
corr:coll:load 1;*OPC?
-p Attach short to port 1
corr:coll:shor 1;*OPC?
-p Attach open to port 1
corr:coll:open 1;*OPC?
-p Attach load to port 2
```

```
corr:coll:load 2;*OPC?
-p Attach short to port 2
corr:coll:shor 2;*OPC?
-p Attach open to port 2
corr:coll:open 2;*OPC?
-p Attach thru between ports 1 and 2
corr:coll:thru 1,2;*OPC?
corr:coll:save 0
```

2-Port QSOLT

```
# Setup 2-port QSOLT between port 1 and 2 using the T kit on port 1*
# OSL standards measured on port 2 - not available from the GUI
# For insertable DUTs ONLY
# Do NOT use on N9912A
corr:coll:ckit:lab 1, "1250-3607"
# Be careful with the dashes in -M- for the following command.
# Some editors will change the character.
corr:coll:conn 1,"Type N -M-,50"
corr:coll:conn 2,"Type N -F-,50"
corr:coll:meth:QSOL 1,2
-p Attach load to port 1
corr:coll:load 1;*OPC?
-p Attach short to port 1
corr:coll:shor 1;*OPC?
-p Attach open to port 1
corr:coll:open 1;*OPC?
-p Attach thru between ports 1 and 2
corr:coll:thru 1,2;*OPC?
corr:coll:save 0
```

2-Port Enhanced Response

```
# Enhanced Response requires an insertable DUT
# N9923A, calibrate measurements in either forward or reverse direction.
# N9912A, calibrate measurements in forward direction ONLY.
# This example is forward direction
# Choose the 85052D kit for port 1 and also port 2
corr:coll:ckit:lab 1, "85052D"
corr:coll:ckit:lab 2, "85052D"
# Choose connectors for port 1 and then port 2
# Be careful with the dashes in -M- for the following command.
# Some editors will change the character.
```

```
corr:coll:conn 1,"3.5 mm -M-,50"
corr:coll:conn 2,"3.5 mm -F-,50"
# Choose Enhanced Response forward
# For reverse measurement, use <2,1> and measure stds on port 2
corr:coll:meth:ERES 1,2
# Start measuring standards:
-p Attach short to port 1
corr:coll:shor 1;*OPC?
-p Attach open to port 1
corr:coll:open 1;*OPC?
-p Attach load to port 1
corr:coll:load 1;*OPC?
-p Connect ports 1 and 2 with Flush Thru
corr:coll:thru 1,2;*OPC?
#  Saves the finished calibration
corr:coll:save 0
```

THRU Response - Normalization

```
# Correct transmission measurements
# N9912A must have Opt 110
SENS:CORR:COLL:METH:THRU 1,2
-p Attach thru now
SENS:CORR:COLL:THRU 1,2;*OPC?
# Finish and apply the cal
SENS:CORR:COLL:SAVE 0
```

QuickCals

1-Port QuickCal

```
CORR:COLL:METH:QCAL:CAL 1
# First step required to measure internal standards
# Port 1 must be left open
CORR:COLL:INT 1;*OPC?
-p (Optional) Attach load to port
CORR:COLL:LOAD 1;*OPC?
CORR:COLL:SAVE 0
```

2-Port Non-Insertable QuickCal*

```
# Setup full 2-port cal between port 1 and 2 using QuickCal.
# For a non-insertable DUT (both Type N -M-)- performs SOLR
# Measure INT OPEN, SHORT on BOTH ports
# The load measurement steps are optional.
# Do NOT use on N9912A
```

```
# Be careful with the dashes in -M- for the following commands.
# Some editors will change the character.
corr:coll:conn 1,"Type N -M-,50"
corr:coll:conn 2,"Type N -M-,50"
corr:coll:meth:QCAL:CAL 1,2
-p Leave port 1 and port 2 open (no connection)
corr:coll:int 1;*OPC?
corr:coll:int 2;*OPC?
-p Attach a load to port 1
corr:coll:load 1;*OPC?
-p Attach a load to port 2
corr:coll:load 2;*OPC?
-p Connect ports 1 and 2 using any adapter/thru
corr:coll:thru 1,2;*OPC?
corr:coll:save 0
```

2-Port Insertable QuickCal*

```
# Setup full 2-port QuickCal between port 1 and 2
# For an Insertable DUT - performs QSOLT cal
# Measure INT OPEN, SHORT on ONLY one port
# Best to measure INT OPEN, SHORT on port without jumper cable
# The load measurement steps are optional.
# Do NOT use on N9912A
# Be careful with the dashes in -M- for the following command.
# Some editors will change the character.
corr:coll:conn 1,"Type N -M-,50"
corr:coll:conn 2,"Type N -F-,50"
corr:coll:meth:QCAL:CAL 1,2
-p Leave port 1 and port 2 open (no connection)
corr:coll:int 1;*OPC?
-p Attach a load to port 1
corr:coll:load 1;*OPC?
-p Attach a load to port 2
corr:coll:load 2;*OPC?
-p Connect ports 1 and 2 using any adapter/thru
corr:coll:thru 1,2;*OPC?
corr:coll:save 0
```

Enhanced Response QuickCal

```
# Enhanced Response requires an Insertable DUT
```

```
# N9923A, calibrate measurements in either forward or reverse direction.
# N9912A, calibrate measurements in forward direction ONLY.
# This example is forward direction
# For reverse measurement, use <2,1> and measure stds on port 2
# Choose connectors for port 1 and then port 2
# Be careful with the dashes in -M- for the following command.
# Some editors will change the character.
corr:coll:conn 1,"3.5 mm -M-,50"
corr:coll:conn 2,"3.5 mm -F-,50"
CORR:COLL:METH:QCAL:ERES 1,2
# Step 1 - Ports 1 and 2 must be left open
-p Leave ports 1 and 2 OPEN
CORR:COLL:INT 1;*OPC?
# Step 2 - (Optional)
-p Attach load to port 1
CORR:COLL:LOAD 1;*OPC?
# Step 3 - Connect ports
-p connect port 1 and port 2
CORR:COLL:THRU 1,2;*OPC?
CORR:COLL:SAVE 0
```

ECal Calibration

ECal requires the use of the Guided Cal acquisition command:

[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire

The following two 'Guided' commands are optional:

[:SENSe]:CORRection:COLLect:GUIDed:SCOunt

[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt

Note: In the following example:

"-p" indicates a user prompt.

"#" indicates a comment

This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

Relevant ECal module commands:

- [:SENSe]:CORRection:COLLect:CKIT:LABel
- [:SENSe]:CORRection:COLLect:ECAL:AORient

The following program performs a **2-port** SOLR calibration using an ECal module that is connected to a FieldFox.

A 2-port ECal may have 1 or 3 three steps depending on if 'simple ECal' is set and if the ECal is insertable (can connect to both test ports simultaneously). If one of those conditions is NOT true, then the cal will require 3 steps.

If you would like to use the 3 step cal process, ensure that CORR:COLL:ECAL:SIMP 0 has been set.

A **1-port ECal** would require only 1 step.

If you would like to use 1 step simple cal ensure that CORR:COLL:ECAL:SIMP 1 has been set.

The :CORRection:COLLect:GUIDed:SCOunt? command is used to query the number of steps required.

The following example is for a **2-port** SOLR cal that uses 3 steps.

```
# First setup a 2-port measurement between port 1 and 2
#
# Change the following line to your DUT/ECal module connector type and gender.
# Be careful with the dashes in -F- for the following command.
# Some editors will change the character.
corr:coll:conn 1,"Type N -F-,50"
corr:coll:conn 2,"Type N -F-,50"
# Change to your model ECal module
corr:coll:ckit:lab 1, "N4431A"
corr:coll:ckit:lab 2, "N4431A"
CORR:COLL:METH:SOLR 1,2
# ECal requires the use of the Guided cal acquisition
# do a For/Next loop, query the number of steps (N)
# CORR:COLL:GUID:SCO?
# CORR:COLL:GUID:STEP:PROM? <step num> // query the prompt (optional, but recommended!)
# CORR:COLL:GUID:STEP:ACQ <step num>;*OPC?
# Otherwise, measure all three stds for SOLR ECal w/o prompts
CORR:COLL:GUID:STEP:ACQ 1;*OPC?
CORR:COLL:GUID:STEP:ACQ 2;*OPC?
CORR:COLL:GUID:STEP:ACQ 3;*OPC?
# Finish
CORR:COLL:SAVE 0
```

FOPS Measurement

The following example sets up a VVM measurement.

Note: In the following example:

"-p" indicates a user prompt.

"#" indicates a comment

This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

```
# Preset Instrument
SYST:PRESet;*OPC?
#Select USB Power Meter
inst "Power Meter"
#Set the max number of ps readings and tolerance settings?
TOL 0.1
POINt:READ:MAX 2
#Select FOPS
SWE:TYPE SWEPt
#Set frequencies
SOUR:FREQ:STAR .5e9
SOUR:FREQ:STOP 1.5e9
SOUR:REC:OFFS .05e9
FREQ:STEP 50e6
#Set Forward sweep
SWE:RX FORWARD
#Set Power Level
SOUR:POW 0
#Set dwell time
POIN:DWEL .05
#Measure Source Power
-p "Connect the power sensor"
INIT:CONT 0
INITiate:IMMediate;*OPC?
SOURce:POWer:MEMorize;*OPC?
TRACe:MEASurement Gain
```

Guided Calibration

The following C# example program performs a 1-port cal:

```
//
// Performs a 1-port guided cal on the specified port with the specified connector
// for that port and kit for that port.
//
```

```
// port – port number to perform the 1-port calibration on
// connector – the connector name for the DUT connector, e.g. "Type N -M-,50"
// kitLabel – the label of the calkit to use, e.g. "1250-3607"
//
void Do1PortGuidedCal(int port, string connector, string kitLabel)
{
        Instrument.Write(string.Format("sens:corr:coll:conn {0},{1}", port, connector));
        Instrument.Write (string.Format("sens:corr:coll:ckit:lab {0},{1}",port,kitLabel));
        Instrument.Write (string.Format("sens:corr:coll:meth:SOLT1 {0}", port));

  int steps = ReadInt("SENS:CORR:COLL:GUID:SCOunt?");
  for(int s = 1; s <= steps; ++s)
  {
      string steptext = Instrument.ReadString(string.Format("SENS:CORR:COLL:GUID:STEP:PROM? {0}",s));
      PromptUser(steptext); // blocks until user confirms they've performed the requested action
      Instrument.Write (string.Format("SENS:CORR:COLL:GUID:STEP:ACQ {0}",s));
      Instrument.ReadInt("*OPC?");
  }
  Console.Write("Saving...");
  Instrument.Write ("CORR:COLL:SAVE 0");
  Instrument.ReadInt("*OPC?");
  Console.WriteLine("Done ");
}
```

Marker Example

This example shows how to create and move Delta Markers.

Note: In the following example:
"-p" indicates a user prompt.
"#" indicates a comment
This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

```
# Preset Instrument and Hold
*RST
# Change to NA Mode and wait until changed
INST:SEL "NA";*OPC?
# Set Center Freq
SENS:FREQ:CENT 2e9
```

```
# Set Freq Span
SENS:FREQ:SPAN 500e6
# Setup the instrument to measure Insertion Loss
CALC:PAR:DEF S21
# Set to single trigger
INIT:CONT 0
# Take a single sweep at new freq and measurement
INIT:IMM;*OPC?
# Create reference marker
CALC:MARK1 NORM
# Move the marker to 1.75 GHz
CALC:MARK1:X 1.75e9
# Change to Delta Marker
CALC:MARK1 DELT
# Move the delta marker to 2.0 GHz
CALC:MARK1:X 2e9
# Take a sweep
INIT:IMM;*OPC?
# Read the Y axis values of the marker
# First value is mag, second is zero
CALC:MARK1:Y?
```

Memory Command Examples

These commands are used for memory storage and retrieval.

See also MMEM:DATA.

Note: If you attempt to save a filename that has already been saved at the specified memory location, the FieldFox displays the following error message:

Error -257, File name error; Storage Path "[INTERNAL]:\my_file" is not allowed.

:MMEMory:DATA "<file_name>",#ABC

This command writes <data> into "<file_name>", where <data> is in 488.2 block format.

The FieldFox expects to see waveform data as block data (binary files). The IEEE standard 488.2-1992 section 7.7.6 defines block data. The following example shows how to structure SCPI command for downloading waveform data where #ABC represents the block data.

"<file_name>"	The file name can be the short name, full file path, or NVWFM format. • Use the short name (*"my_file"*); the file will be stored in the default internal FieldFox directory: *[INTERNAL]:\InternalSD\UserData*.

- **Use the file path: "[INTENAL]*:\my_data_folder\my_file"***
  (recommended)
  Note: You will need to create "my_data_folder", before saving your data.
- Other examples of storage location syntax:
  "[USBDISK]*:\my_data_folder\my_file"*
  "[SDCARD]*:\my_data_folder\my_file"*
- Examples of deleting files. See also MMEM:DEL.

```
Delete file from active drive/folder
MMEM:DEL "MyOldFile.sta"

'Delete file from USB
MMEM:DEL "[USBDISK]:\MyOldFile.sta"
```

#	This character indicates the beginning of the data block.
A	Number of decimal digits present in B
B	Decimal number specifying the number of data bytes to follow in C
C	Actual binary waveform data

Note: The following commands are *not* supported for non-volatile waveform memory (NVWFM).

:MMEMory:CATalog? "<file_system>"

This query outputs a list of the files from the specified file system. The return data will be in the following form:
<mem_used>,<mem_free>{,"<file_listing>"}.

:MMEMory:CDIRectory "[<directory_name>]", "[<directory_name>]"

:MMEMory:CDIRectory?

This command changes the directory name for a file system. If no parameter is specified, the directory is set to the *RST value. At *RST, this value is set to the default user data directory. The query returns the full path of the default directory.

:MMEMory:COPY "<file_name>","<file_name>"

This command makes a duplicate of the requested file.

:MMEMory:DELete "<file_name>",<directory_name>

This command removes a file from the specified directory.

:MMEMory:MDIRectory <directory_name>

This command creates a new directory where the <directory name> parameter specifies the name of the new directory.

```
:MMEMory:MOVE "<src_file>","<src_file_1>"
This command renames the src_file to src_file_1.

:MMEMory:RDIRectory <directory_name>
This command removes a directory where the <directory_name> parameter
specifies the name of the directory to be removed. All files and
directories under the specified directory are also removed.
```

Last Modified:

22sep2017	Added 10.00.

C# Example Program

The following C# example demonstrates how to send SCPI commands to the FieldFox using a TCP socket connection over a LAN connection.

- It is NOT necessary that you know C# to write a SCPI program. It is ONLY necessary that you understand basic SCPI syntax. You can add or replace the SCPI commands in this example program with your own.
- If you ARE familiar with C#, you can Download the project files here. (Internet connection required).

Note: You can also send single SCPI commands to the FieldFox using this free Instrument Console program.

Requirements

To connect to the FieldFox and run SCPI programs, you must first download and install the Visual C# Express software from: http://www.microsoft.com/express/download/

Once the program is installed, search the PC hard drive for csc.exe. This file could be in the C:\Windows\Microsoft.NET directory.

NOTE: If more than one folder contains csc.exe, use the folder with the latest revision.

Write the SCPI program

The following procedure uses the example filename MyProgram.cs. You can use any filename that you like.

1. Copy the text in the shaded are below into a Notepad file and name it MyProgram.cs.
2. Write your SCPI program between the //Start your program here and //End your program here lines. Several example lines are provided to demonstrate the syntax in which the SCPI commands must be contained. See the SCPI Command Reference and Program Examples for more information.

Run the SCPI Program

Record the dynamically-assigned IP address of the FieldFox.

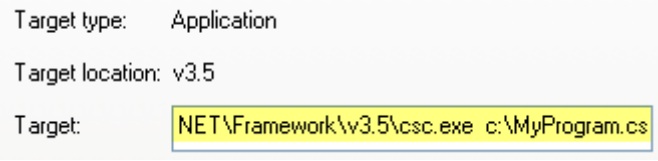
1. Shut down the FieldFox.
2. Connect the FieldFox to the Internet using a LAN connection.
3. Power ON the FieldFox.

4. On the FieldFox, press System, then System Configuration, then LAN.
5. Record the Current IP Address
6. Compile your program by executing csc.exe MyProgram.cs. This creates a file named MyProgram.exe in the same directory as csc.exe.
7. Run your SCPI program by executing MyProgram.exe <FieldFox IP Address>. For example: MyProgram.exe 192.121.1.101

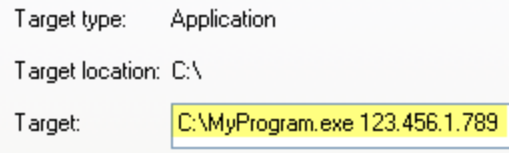
To make this process more convenient:

The following steps show how to create shortcuts on your PC desktop to compile and run MyProgram.exe.

1. Using Windows Explorer, navigate to the folder that contains csc.exe. **NOTE:** If more than one folder contains csc.exe, use the folder with the latest revision.
2. Right-click csc.exe then click **Create Shortcut**.
3. Drag the shortcut file to the PC desktop.
4. Right-click on the desktop shortcut, then click **Properties**.
5. Append a space, the full path, and filename to the end of the "Target" as in the following image. This example shows MyProgram.cs is saved to the C:\ folder.



6. After performing a compile, perform the same ‘shortcut’ procedure for MyProgram.exe except, instead of appending the path and filename, append the IP address of the FieldFox.



Copy the text in the following shaded area to a Notepad file.

```
using System;
using System.Collections.Generic;
using System.Text;
using System.Net.Sockets;
using System.IO;
namespace Network.Connect
{
    class Program
    {
        static TelnetConnection tc;
        static int Main(string[] args)
        {
            // defaultHostName is host name to use if one is not specified
on the command line.
            string defaultHostName = "192.168.1.1";
```

```
            string hostName = defaultHostName;
            if( args.Length == 1 )
            {
                // If command line contains a '?' character, interpret
this as help.
                if( args[0].Contains("?"))
                {
                    Console.WriteLine("Usage: N9912A_CS_Example.exe
<hostName>\n\n"+
                        "Where optional hostName is an ip address or host
name.\n" +
                        "If no hostName is supplied, the default
("+defaultHostName+") is used.\n\n"+
                        "e.g. N9912A_CS_Example.exe 10.10.1.1\n\nor\n\n" +
                        "N9912A_CS_Example.exe A-N9912A-22762");
                    return 0; // exit.
                }
                // Record hostname passed in on command line.
                hostName = args[0];
            }
            try
            {
                tc = new TelnetConnection();
                tc.ReadTimeout = 10000; // 10 sec
                // open socket on hostName, which can be an IP address, or
use host name (e.g. "A-N9912A-22762") used in lieu of IP
address
                tc.Open(hostName);
                if( tc.IsOpen )
                {
                    //Start your program here
                    Write("SYST:PRES;*OPC?");
                    Write("*IDN?");
                    Write("SENS:FREQ:STAR?");
                    Write("SENS:FREQ:STAR 3e9");
                    Write("SENS:FREQ:STAR?");
                    Write("SYST:ERR?");
                    Write("SYST:HELP:HEAD?");
                    //End your program here
                    tc.Dispose();
                    Console.WriteLine("Press any key to exit.");
                    Console.ReadKey(); // continue after reading a key
from the keyboard.
```

```
                }
                else
                {
                    Console.WriteLine("Error opening " + hostName);
                    return -1;
                }
                //FieldFox Programming Guide 5
            }
            catch(Exception e)
            {
                Console.WriteLine(e.ToString());
                return -1;
            }
            // exit normally.
            return 0;
        }
        /// <summary>
        /// Write a SCPI command to the telnet connection.
        /// If the command has a '?', then read back the response and
print
        /// it to the Console.
        /// </summary>
        /// <remarks>
        /// Note the '?' detection is naive, as a ? could occur in the
middle
        /// of a SCPI string argument, and not actually signify a SCPI
query.
        /// </remarks>
        /// <param name="s"></param>
        static void Write(string s)
        {
            Console.WriteLine(s);
            tc.WriteLine(s);
            if (s.IndexOf('?') >= 0)
                Read();
        }
        /// <summary>
        /// Read the telnet connection for a response, and print the
response to the
        /// Console.
        /// </summary>
        static void Read()
        {
```

```
            Console.WriteLine(tc.Read());
        }
    }
#region TelnetConnection - no need to edit
    /// <summary>
    /// Telnet Connection on port 5025 to an instrument
    /// </summary>
    public class TelnetConnection : IDisposable
    {
        TcpClient m_Client;
        NetworkStream m_Stream;
        bool m_IsOpen = false;
        string m_Hostname;
        int m_ReadTimeout = 1000; // ms
        public delegate void ConnectionDelegate();
        public event ConnectionDelegate Opened;
        public event ConnectionDelegate Closed;
        public bool IsOpen { get { return m_IsOpen; } }
        public TelnetConnection() { }
        public TelnetConnection(bool open) : this("localhost", true) { }
        public TelnetConnection(string host, bool open)
        {
            if (open)
                Open(host);
        }
        void CheckOpen()
        {
            if (!IsOpen)
                throw new Exception("Connection not open.");
        }
        public string Hostname
        {
            get { return m_Hostname; }
        }
        public int ReadTimeout
        {
            set { m_ReadTimeout = value; if (IsOpen) m_Stream.ReadTimeout
= value; }
            get { return m_ReadTimeout; }
        }
        public void Write(string str)
        {
```

```
            //FieldFox Programming Guide 6
            CheckOpen();
            byte[] bytes = System.Text.ASCIIEncoding.ASCII.GetBytes(str);
            m_Stream.Write(bytes, 0, bytes.Length);
            m_Stream.Flush();
        }
        public void WriteLine(string str)
        {
            CheckOpen();
            byte[] bytes = System.Text.ASCIIEncoding.ASCII.GetBytes(str);
            m_Stream.Write(bytes, 0, bytes.Length);
            WriteTerminator();
        }
        void WriteTerminator()
        {
            byte[] bytes =
System.Text.ASCIIEncoding.ASCII.GetBytes("\r\n\0");
            m_Stream.Write(bytes, 0, bytes.Length);
            m_Stream.Flush();
        }
        public string Read()
        {
            CheckOpen();
            return System.Text.ASCIIEncoding.ASCII.GetString(ReadBytes());
        }
        /// <summary>
        /// Reads bytes from the socket and returns them as a byte[].
        /// </summary>
        /// <returns></returns>
        public byte[] ReadBytes()
        {
            int i = m_Stream.ReadByte();
            byte b = (byte)i;
            int bytesToRead = 0;
            var bytes = new List<byte>();
            if ((char)b == '#')
            {
                bytesToRead = ReadLengthHeader();
                if (bytesToRead > 0)
                {
                    i = m_Stream.ReadByte();
                    if ((char)i != '\n') // discard carriage return after
```

```
length header.
                        bytes.Add((byte)i);
                }
            }
            if (bytesToRead == 0)
            {
                while (i != -1 && b != (byte)'\n')
                {
                    bytes.Add(b);
                    i = m_Stream.ReadByte();
                    b = (byte)i;
                }
            }
            else
            {
                int bytesRead = 0;
                while (bytesRead < bytesToRead && i != -1)
                {
                    i = m_Stream.ReadByte();
                    if (i != -1)
                    {
                        bytesRead++;
                        // record all bytes except \n if it is the last
char.
                        if (bytesRead < bytesToRead || (char)i != '\n')
                            bytes.Add((byte)i);
                    }
                }
            }
            return bytes.ToArray();
        }
        int ReadLengthHeader()
        {
            int numDigits = Convert.ToInt32(new string(new char[] {
(char)m_Stream.ReadByte() }));
            string bytes = "";
            for (int i = 0; i < numDigits; ++i)
                bytes = bytes + (char)m_Stream.ReadByte();
            return Convert.ToInt32(bytes);
        }
        public void Open(string hostname)
        {
```

```
            if (IsOpen)
                Close();
            m_Hostname = hostname;
            m_Client = new TcpClient(hostname, 5025);
            m_Stream = m_Client.GetStream();
            m_Stream.ReadTimeout = ReadTimeout;
            m_IsOpen = true;
            if (Opened != null)
                Opened();
        }
        public void Close()
        {
            if (!m_IsOpen)
                //FieldFox Programming Guide 7
                return;
            m_Stream.Close();
            m_Client.Close();
            m_IsOpen = false;
            if (Closed != null)
                Closed();
        }
        public void Dispose()
        {
            Close();
        }
    }
#endregion
}
```

Read Block Data using Csharp

The following example program illustrates how to parse block data using C#.

```
/// <summary>
/// Generates a IEEE block header for the specified size.
/// </summary>
/// <remarks>
/// The block header is of the form #[digit indicating number of digits to follow][length]
/// e.g. 201 bytes -> "#3201
///      9999 bytes -> "#49999"
///      0    bytes -> "#10"
```

```
/// </remarks>
/// <param name="size">Size of the block.</param>
/// <returns>Block header size string.</returns>
string GenerateBlockHeader(int size)
{
    string sz = size.ToString();
    return "#" + sz.Length.ToString() + sz;
}
/// <summary>
/// Parses a partially digested IEEE block length header, and returns
/// the specified byte length.
/// </summary>
/// <remarks>
/// The Stream pointer is assumed to point to the 2nd character of the block header
/// (the first digit of the actual length).  The caller is assumed to have parsed the
/// first two block header characters (#?, where ? is the number of digits to follow),
/// and converted the "number of digits to follow" into the int argument to this function.
/// </remarks>
/// <param name="numDigits">Number of digits to read from the stream that make up the
/// length in bytes.</param>
/// <returns>The length of the block.</returns>
int ReadLengthHeader(int numDigits)
{
    string bytes = string.Empty;
    for (int i = 0; i < numDigits; ++i)
        bytes = bytes + (char)Stream.ReadByte();
    return Convert.ToInt32(bytes);
}
```

Transfer Image to PC

This example shows how to transfer an image (screenshot) on the FieldFox to a remote PC.

Note: In the following example:

"#" indicates a comment

This example can be copied into a text editor, saved as a *.txt file, and run using the free Keysight Instrument Console program. Learn more.

```
# Store screen to my.png into the current directory on the FieldFox
```

```
# The default directory is the userdata directory on the instrument.
MMEM:STOR:IMAG "my.png"
# Transfers the contents of my.png as a BINBLOCK
# The file data that is returned by the 2nd command depends on the
programming environment.
# Environments like VEE, Matlab, C/VISA, etc. all deal with BINBLOCK
transfers in their own way.
MMEM:DATA? "my.png"
# Optionally delete of file from instrument's local storage
MMEM:DEL "my.png"
```

MATLAB

MATLAB - Binary Block File Transfer Via VISA

This is a MATLAB example that enables you to control the FieldFox family of Combination Analyzers via a VISA resource string.

- The program first clears the error queue and all status registers via the "*CLS" command.

- The *IDN? identification query is then asserted and the resultant string is read.

- The application stores a PNG file,'Test_Image.PNG',to the internal memory of the targeted FieldFox (FF) analyzer.

- Next the stored PNG image file,'Test_Image.PNG', is transferred from the FieldFox to the controlling PC via the MMEM:DATA? query. This transfer is by default always an IEEE-754 binary bin-block transfer.

- The .PNG file save on the controlling PC is stored as 'C:\Temp\TransferedTestImage.png'

- Lastly, the system error queue is checked at conclusion of the application. If no errors were generated the response to the "SYST:ERR?" then the query will still read "+0, "No Error"".

Note: In the following example:

"%","{%*" indicates a comment

"*}" indicates the end of a comment

```
%{
Sample MATLAB program for the Keysight Technologies FieldFox (FF) handheld
combination analyzers.
The sample program connects to a FF Family handheld combination analyzer
thru a VISA resource string.
The program first clears the error queue and all status registers via the
"*CLS" command. The *IDN? identification query is then asserted and the
resultant string is read.
The application stores a PNG file,'Test_Image.PNG',to the internal memory
of the targeted
FieldFox (FF) analyzer.
```

```
Next the stored PNG image file,'Test_Image.PNG', is transferred from the
FF to the controlling PC via
the MMEM:DATA? query. This transfer is by default always an IEEE-754
binary bin-block transfer.
The .PNG file save on the controlling PC is stored as
'C:\Temp\TransferedTestImage.png'
As a wrap up the system error queue is checked at conclusion of the
application. If no errors were generated the response to the "SYST:ERR?"
query will still be "+0, "No Error"".
%}
%Remove all interfaces to instrument
instrreset
% find all previously created objects
oldobjs = instrfind;
% If there are any existing objects
if (~isempty(oldobjs))
    % close the connection to the instrument
    fclose(oldobjs);
    % and free up the object resources
    delete(oldobjs);
end

% Remove the object list from the workspace.
clear oldobjs;
%{
Define FieldFox (FF) interface, this is the VISA resource string. Replace
this VISA
resource string with your controlling PC's FieldFox VISA resource string
as appropriate.
For this applicaiton the 'agilent' I/o libraries are utilized.
%}
fieldFox = visa('agilent', 'TCPIP0::156.140.159.126::inst0::INSTR');
% Buffer size must precede open command
set(fieldFox,'InputBufferSize', 640000);
set(fieldFox,'OutputBufferSize', 640000);
% Open session to fieldFox based on VISA resource string
fopen(fieldFox);
% Clear the event status registers and all errors which may be in the
FieldFox's queue.
fprintf(fieldFox, '*CLS');
% Check to ensure the error queue is clear. Response is "+0, No Error"
fprintf(fieldFox, 'SYST:ERR?');
[errIdentifyStart,~] = fscanf(fieldFox, '%c');
```

```
['Initial error check results: ', errIdentifyStart]
% Query instrument identification string
fprintf(fieldFox, '*IDN?');
[idn,~] = fscanf(fieldFox, '%c');
['Instrument identified as: ', idn]
% Set the FF mass storage to the internal drive
fprintf(fieldFox, 'MMEM:CDIR "[INTERNAL]:"');
% Binary efforts here
% First store an image to the local FF memory.
fprintf(fieldFox, 'MMEM:STOR:IMAG "TestImage.png"');
% Query image via MMEM:DATA? 'yourFileNameHere.mimeExtensionType'
fprintf(fieldFox, 'MMEM:DATA? "TestImage.png"');

% Dump return bits to a variable 'screenPNG' via a MATLAB binblockread
call.
% MATLAB binblockread supports five 8-bit bin block read types:
%   uchar, schar, int8, unit8, char.
% Of these uint8, uchar, char % all functioned without corrupting the
binary bits,
% i.e., the resultant file transfer preserved the data integrity of the
original
% file without corruption.
screenPNG = binblockread(fieldFox,'uint8'); fread(fieldFox,1);
% Write bits to file as PNG file save
% From MATLAB help (in command window 'help fid' to view details)
% 'FID = fopen(FILENAME) opens the file FILENAME for read access'.
% FILENAME is the name of the file to be opened. Thus, in this case open
% C:\Temp\TransferedTestImage.png
% The 'w' indicates 'open file for writing; discard existing contents'
fid = fopen('C:\Temp\TransferedTestImage.png','w');
fwrite(fid,screenPNG,'uint8');
fclose(fid);
% As a last step query the fieldFox error queue and ensure no errors have
% occurred since initiation and completion of the program
fprintf(fieldFox, 'SYST:ERR?');
[errIdentifyStop,~] = fscanf(fieldFox, '%c');
['Final error check results: ', errIdentifyStop]
% Close session connection
fclose(fieldFox);
delete(fieldFox);
clear fieldFox;
%Import the saved image into MATLAB workspace
```

```
importedImage = imread('C:\Temp\TransferedTestImage.png')
image(importedImage)
['Initial error check results: ', errIdentifyStart]
['Instrument identified as: ', idn]
['Final error check results: ', errIdentifyStop]
```

MATLAB - Binary Block File Transfer Via LAN as Socket at Port 5025

This is a MATLAB example that enables you to control the FieldFox family of Combination Analyzers. This example does not rely the VISA libraries or a VISA connection. Connection to the targeted analyzer is via TCP/IP and sockets at port number 5025, as supported by the Keysight Technologies FieldFox handheld combination analyzers.

- The sample program sets the Keysight Technologies FieldFox handheld analyzer to "NA" (network analyzer) mode.
- The DUT is a 177MHz wideband band-pass filter.
- The application then acquires S21 transmission data and frequency stimulus data via binary bin-block data transfers.
- The resultant data is plotted in the MatLab GUI as a logMag versus frequency X-Y plot.

Note: In the following example:
"%" indicates a comment

```
% Instantiate connection to Keysight FieldFox via LAN as Socket at Port
5025
% Alter the TCPIP address to match your targeted FieldFox IP address.
    fieldFox = tcpip('156.140.155.106',5025);
%Set input and output buffer defualt sizes
    set(fieldFox, 'InputBufferSize', 8096);
    set(fieldFox, 'OutputBufferSize', 8069);
% Default binary data read is BigEndian resulting in corrupt data.
% Modify return of binary data from default BigEndian to LittleEndian
% via MathWorks SET command
    set(fieldFox,'ByteOrder', 'littleEndian')
% Open session to fieldFox at address / port as noted above.
    fopen(fieldFox);
% 'Hello World' equivalent, i.e. Identification Query String
    fprintf(fieldFox,'*IDN?\n');
    myId = fscanf(fieldFox,'%c')
% Clear the status registers and all potential error indications within
the
% error queue prior to starting applications. Also, check the error queue
```

```
via
% 'SYST:ERR?' error query and ensure the error indication is '0, "No
Error".
    fprintf(fieldFox,'*CLS\n');
    fprintf(fieldFox,'SYST:ERR?\n');
    initErrCheck = fscanf(fieldFox,'%c')
% Set Instrument and various other important items
    % Instrument mode to Network Analyzer
    fprintf(fieldFox,'INST:SEL ''NA''')
    % Trigger mode to continuous off
    fprintf(fieldFox,'INIT:CONT 0\n')
    % Set start and stop frequencies. DUT is a wideband 177MHz bandpass
filter (BPF).
    fprintf(fieldFox,'FREQ:STAR 60E6;STOP 300E6\n')
    % Set number of trace points
    fprintf(fieldFox,'SWE:POIN 101\n')
    % Trace 1 to measurement of S21 and select that measurement as active
    fprintf(fieldFox,'CALC:PAR1:DEF S21;SEL\n')
    % Hold off for operation complete to ensure settings
    fprintf(fieldFox,'*OPC?\n')
    done = fscanf(fieldFox,'%1d')

% Trigger single sweep with hold off via *OPC? Operation Complete Query.
% For long sweeps times there may be a TCPIP hold off or time out setting
that
% must be increased.
    fprintf(fieldFox,'INIT;*OPC?\n')
    trigComplete = fscanf(fieldFox,'%1d')

%Query FORMATTED data from fieldFox
    % Set data format to real-32 bin block transfer
    fprintf(fieldFox, 'FORM:DATA REAL,32\n')
    fprintf(fieldFox,'CALC:DATA:FDATA?\n')
    myBinData = binblockread(fieldFox,'float')
    % There will be a line feed not read, i.e. hanging. Read it to clear
buffer.
    % If you do not read the hanging line feed a -410, "Query Interrupted
    % Error" will occur
    hangLineFeed = fread(fieldFox,1)

%Query of x-axis stimulus
      % Set data format to real-64 bin block transfer. Real 64 bit to
ensure
```

```
    % Hz resolution in GHz capable analyzers.
    fprintf(fieldFox, 'FORM:DATA REAL,64\n')
    fprintf(fieldFox,'SENS:FREQ:DATA?\n')
    myBinStimulusData = binblockread(fieldFox,'double')
    % There will be a line feed not read, i.e. hanging. Read it to clear
buffer.
    hangLineFeed = fread(fieldFox,1)
    % Within the MatLab GUI display data and stimulus numbers and plot
same
    display myBinData
    display myBinStimulusData

    % MatLab plot related commands and efforts:

    % Convert FieldFox returned frequency data to units of MHz
    myStimulusDataMHz = myBinStimulusData/1E6

   clear title xlabel ylabel

   plot(myStimulusDataMHz, myBinData)
   title('S21 :  177MHz Band Pass Filter')
   xlabel('Frequency (MHz)')
   ylabel ('Log Mag (dB)')

% Check Error Queue. A "*CLS" was asserted at the beginning of the
% application. This will clear the entire error queue. Upon completion of
% the application the error queue is queried a final time. If the
% application is written correctly and there are no hardware failures the
% final error query check via 'SYST:ERR?' should return '0, "No Error"
else
% the application is in error.
    fprintf(fieldFox, 'SYST:ERR?')
    finalErrCheck = fscanf(fieldFox, '%c')
%Close session to instrument prior to completion
    fclose(fieldFox);
```

Python Example

This is a python example that enables you to control the FieldFox family of Combination Analyzers to import SA data as ASCII.

- Imports the pyvisa libraries and operating system dependent functionality;

- Establishes a visa resource manager;

- Opens a connection to the FieldFox based on the instrument's VISA address as acquired via Keysight Connection Expert;
- Sets the visa time out (increasing the timeout as compared to the default).
- Clears the event status register and thus clears the error queue;
- Defines an error check function and checks the system error queue;
- Presets the FieldFox unit; performs a *IDN?, sets the analyzer to Spectrum Analyzer mode,
- Then queries the number of points, start frequency and stop frequency.
- Executes a synchronized single sweep.
- Queries the spectrum analyzer trace data, builds a linear array to compute the stimulus array, and
- Plots the stimulus - response data as an X-Y trace.

Note: In the following example:
"#" indicates a comment

```
# -*- coding: utf-8 -*-
# Python for Test and Measurement
# Requires VISA installed on controlling PC, 'http://pyvisa.sourceforge.net/pyvisa/'
# Keysight IO Libraries 18.1.22x 32-Bit Keysight VISA (as primary)
# Anaconda Python 4.4.0 32 bit
# pyvisa 3.6.x
# Keysight N9952A 50GHz FieldFox Handheld portable combination analyzer
# running A.10.17 application code
##"""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
## Copyright © 2018 Keysight Technologies Inc. All rights reserved.
##
## You have a royalty-free right to use, modify, reproduce and distribute this
## example / files (and/or any modified version) in any way you find useful, provided
## that you agree that Keysight has no warranty, obligations or liability for any
## Sample Application / Files.
##
##"""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
# Example Description:

# A python sample program utilizing pyvisa to connect and control a Keysight FieldFox
# Family Combination Analyzer.
#
# The application performs the following:

#   Imports the pyvisa libraries and operating system dependent functionality;
#   Establishes a visa resource manager;
#   Opens a connection to the FieldFox based on the instrument's VISA address as
```

```
acquired via Keysight Connection Expert
#   Sets the visa time out (increasing the timeout as compared to the default).
#   Clears the event status register and thus clears the error queue;
#   Defines an error check function and checks the system error queue;
#   Presets the FieldFox unit; performs a *IDN?, sets the analyzer to Spectrum Analyzer mode,
#   then queries the number of points, start frequency and stop frequency.
#   Executes a synchronized single sweep.
#   Queries the spectrum analyzer trace data, builds a linear array to compute the stimulus array,
#   and plots the stimulus - response data as an X-Y trace.
#
# Import the visa libraries
import visa
import os
# The numpy is imported as it is helpful for a linear ramp creation for the stimulus array
import numpy as npStimulusArray
# import module for plotting
import matplotlib.pyplot as stimulusResponsePlot
# A variable to control various events and testing during development.
# by uncommenting the #debug True line, debug will occur, for efficiency, during development.
debug = False
#debug = True
print "Debug flag set to " + str(debug)


# Set variables for ease of change - assumes 'debug is true.
# If debug is set to false then Spectrum Analyzer preset defaults for
# start frequency, stop frequency and number of points are utilized.
numPoints = 21
startFreq = 1.28579E9
stopFreq = 2.28579E9
# Open a VISA resource manager pointing to the installation folder for the Keysight Visa libraries.
rm = visa.ResourceManager('C:\\Program Files (x86)\\IVI Foundation\\VISA\\WinNT\\agvisa\\agbin\\visa32.dll')


# Based on the resource manager, open a session to a specific VISA resource string as provided via
# Keysight Connection Expert
# ALTER LINE BELOW - Updated VISA resource string to match your specific configuration
myFieldFox = rm.open_resource("TCPIP0::156.140.157.162::inst0::INSTR")
```

```
#Set Timeout - 10 seconds
myFieldFox.timeout =  10000
# Clear the event status registers and empty the error queue
myFieldFox.write("*CLS")
# Query identification string *IDN?
myFieldFox.write("*IDN?")
print (myFieldFox.read())
# Define Error Check Function
def Errcheck():
    myError = []
    ErrorList = myFieldFox.query("SYST:ERR?").split(',')
    Error = ErrorList[0]
    if int(Error) == 0:
        print ("+0, No Error!")
    else:
     while int(Error)!=0:
        print ("Error #: " + ErrorList[0])
        print ("Error Description: " + ErrorList[1])
        myError.append(ErrorList[0])
        myError.append(ErrorList[1])
        ErrorList = myFieldFox.query("SYST:ERR?").split(',')
        Error = ErrorList[0]
        myError = list(myError)
    return myError

# Call and print error check results
print (Errcheck())
# Preset the FieldFox and wait for operation complete via the *OPC?, i.e.
# the operation complete query.
myFieldFox.write("SYST:PRES;*OPC?")
print "Preset complete, *OPC? returned : " + myFieldFox.read()
# Set mode to Spectrum Analyzer and wait for operation complete via the *OPC?, i.e.
# the operation complete query.
myFieldFox.write("INST:SEL 'SA';*OPC?")
myFieldFox.read()
# If debug is true then user setting of start frequency, stop frequency and number of
points
if debug:
    myFieldFox.write("SENS:SWE:POIN " + str(numPoints))
    myFieldFox.write("SENS:FREQ:START " + str(startFreq))
    myFieldFox.write("SENS:FREQ:STOP " + str(stopFreq))
```

```
# Determine, i.e. query, number of points in trace for ASCII transfer - query
myFieldFox.write("SENS:SWE:POIN?")
numPoints = myFieldFox.read()
print "Number of trace points " + numPoints
# Determine, i.e. query, start and stop frequencies, i.e. stimulus begin and end points
myFieldFox.write("SENS:FREQ:START?")
startFreq = myFieldFox.read()
myFieldFox.write("SENS:FREQ:STOP?")
stopFreq = myFieldFox.read()
print "FieldFox start frequency = " + startFreq + " stop frequency = " + stopFreq
# Set trigger mode to hold for trigger synchronization
myFieldFox.write("INIT:CONT OFF;*OPC?")
myFieldFox.read()
# Use of Python numpy import to comupte linear step size of stimulus array
# based on query of the start frequency - stop frequency and number of points.
# 'Other' analyzers support a SCPI "SENSe:X?" query which will provide the stimulus
#  array as a SCPI query.
stimulusArray =
npStimulusArray.linspace(float(startFreq),float(stopFreq),int(numPoints))
print stimulusArray
# Assert a single trigger and wait for trigger complete via *OPC? output of a 1
myFieldFox.write("INIT:IMM;*OPC?")
print "Single Trigger complete, *OPC? returned : " + myFieldFox.read()
# Query the FieldFox response data
myFieldFox.write("TRACE:DATA?")
ff_SA_Trace_Data = myFieldFox.read()
print ff_SA_Trace_Data # This is one long comma separated string list of values.
# Use split to turn long string to an array of values
ff_SA_Trace_Data_Array = ff_SA_Trace_Data.split(",")
# Now plot the x - y data
maxResponseVal= max(ff_SA_Trace_Data_Array)
minResponseVal = min(ff_SA_Trace_Data_Array)
#if debug:
print "Max value = " + maxResponseVal + " Min Value = " + minResponseVal

stimulusResponsePlot.title ("Keysight FieldFox Spectrum Trace Data via Python - PyVisa
- SCPI")
stimulusResponsePlot.xlabel("Frequency")
stimulusResponsePlot.ylabel("Amplitude (dBm)")
stimulusResponsePlot.plot(stimulusArray,ff_SA_Trace_Data_Array)
stimulusResponsePlot.autoscale(True, True, True)
```

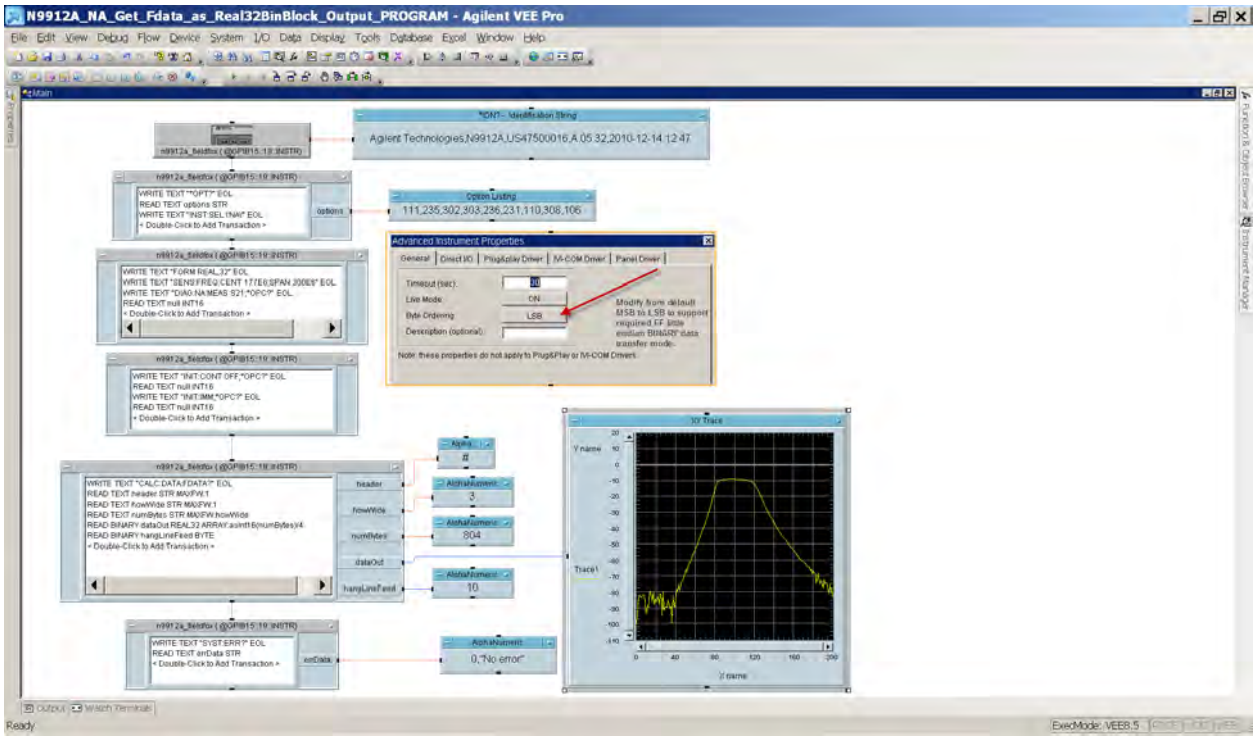
```
stimulusResponsePlot.show()
# Return the FieldFox back to free run trigger mode
myFieldFox.write("INIT:CONT ON")
# Send a corrupt SCPI command end of application as a debug test
if debug:
    myFieldFox.write("INIT:CONT OOOOOOOOO")
# Call the ErrCheck function and ensure no errors occurred between start of program
# (first Errcheck() call and end of program (last Errcheck() call.
print (Errcheck())
# On exit clean a few items up.
myFieldFox.clear()
myFieldFox.close()
```

VEE

Get Formatted Data as Real 32 Binary Block

The following VEE example demonstrates how to configure measurement settings, then read formatted Real 32 bit Binary Block data.

Download N9912A_NA_Get_Fdata_as_Real32BinBlock_Output_PROGRAM.VEE



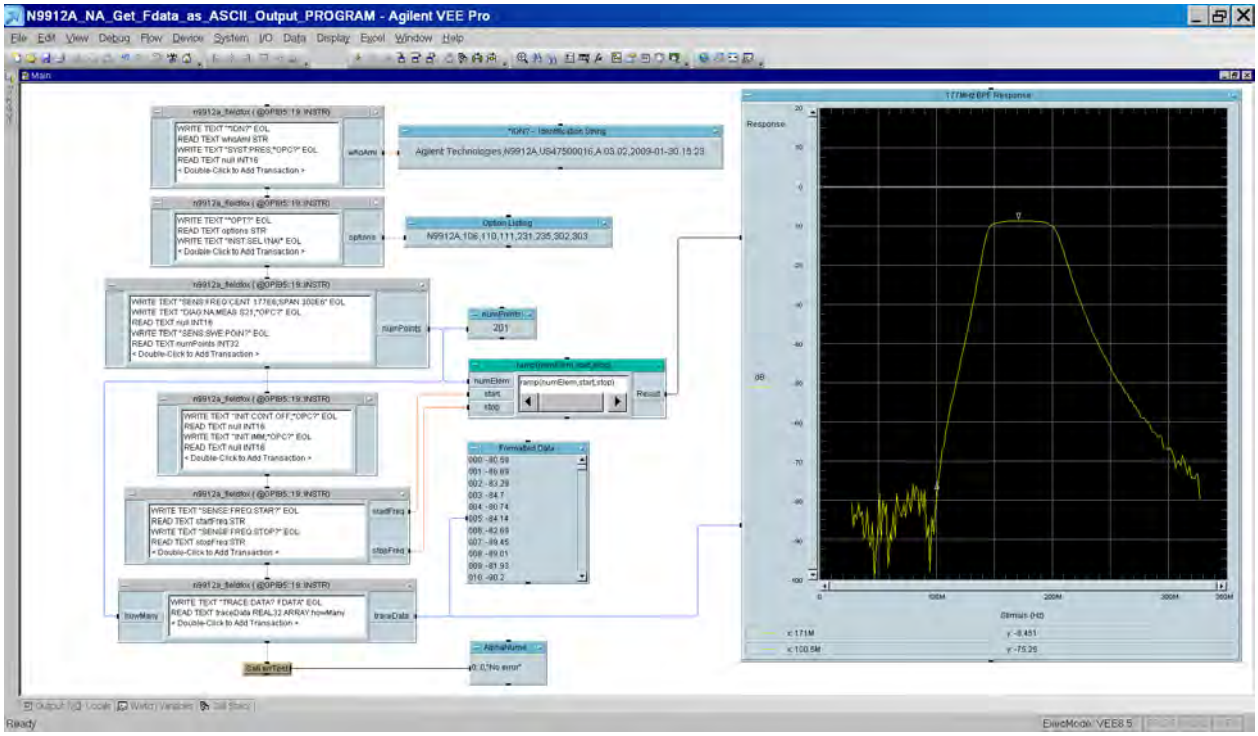
Last Modified:

24-Aug-2011	New topic

Get Formatted Data as ASCII Output

The following VEE example demonstrates how to configure NA measurement settings, then read formatted ASCII data from the FieldFox.

Download N9912A_NA_Get_Fdata_as_ASCII_Output_PROGRAM.VEE



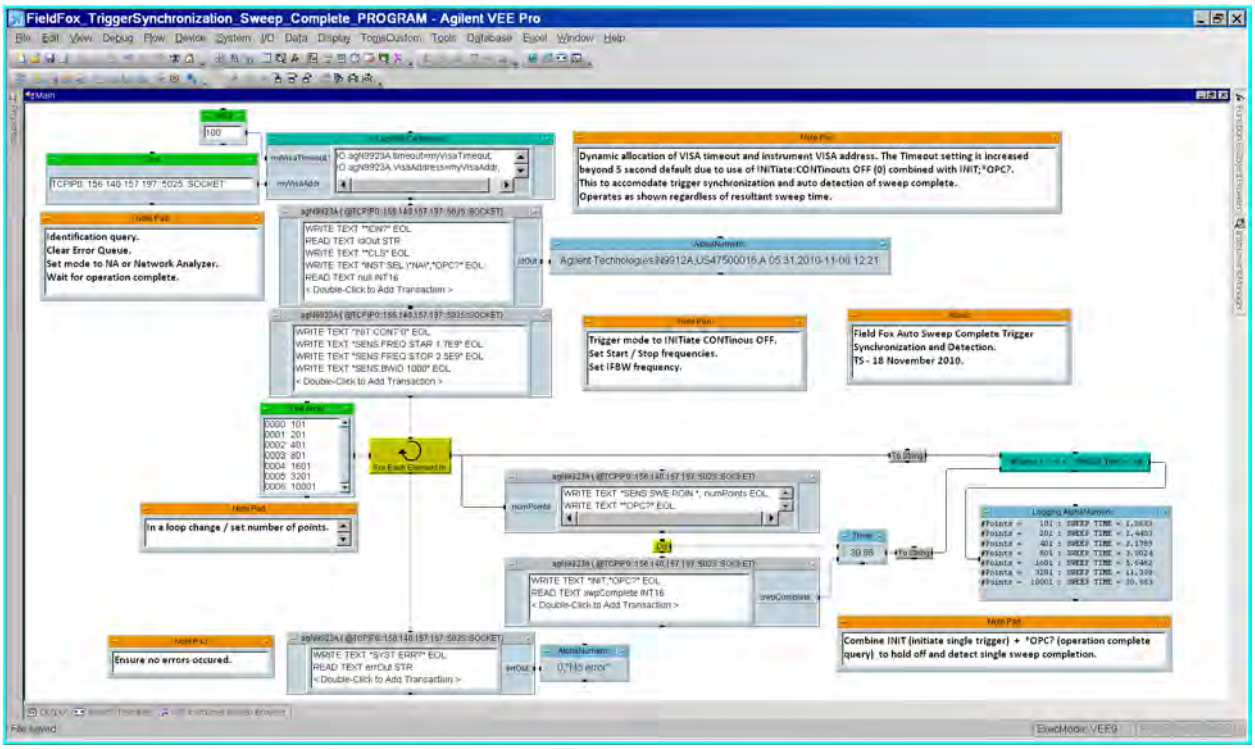
Last Modified:

24-Aug-2011	New topic

Trigger Synch Sweep Complete

The following VEE example demonstrates how to configure measurement settings, set trigger to single, then notify when a sweep is complete.

Download FieldFox_Trigger_Synchronization Sweep_Complete_Program.VEE



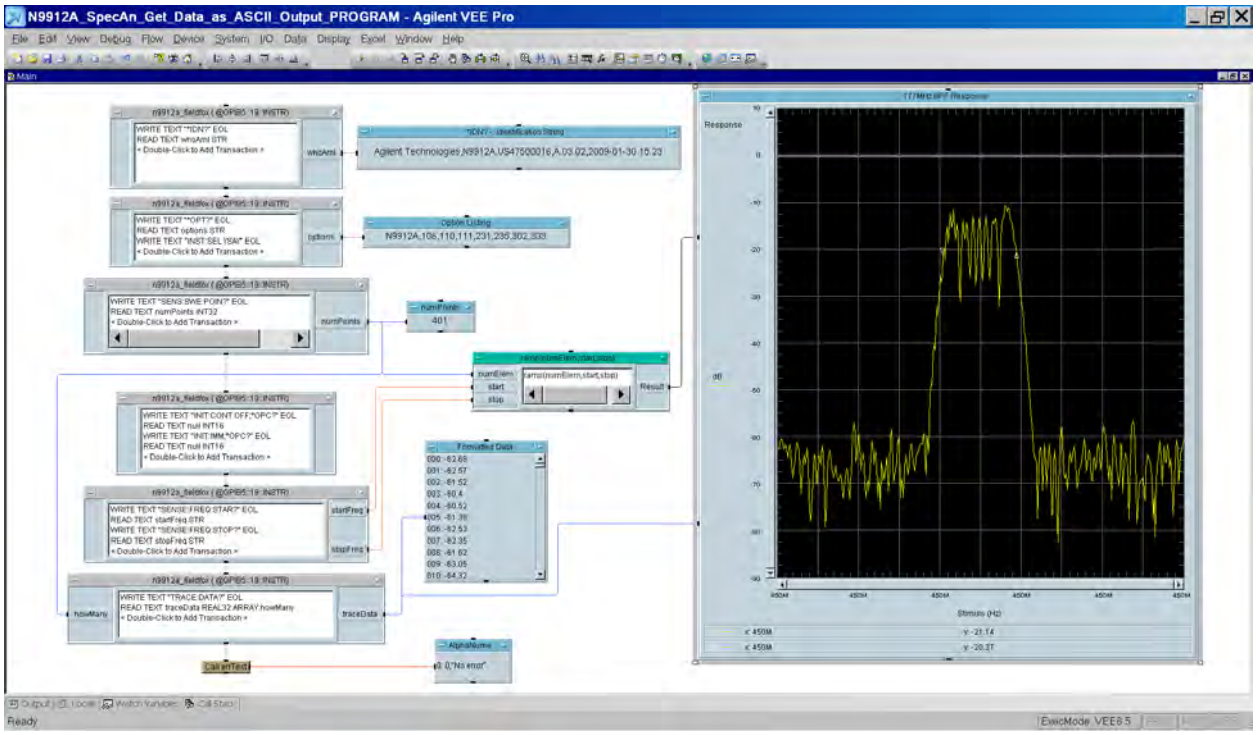
Last Modified:

24-Aug-2011 New topic

SpecAn Get Data as ASCII Output

The following VEE example demonstrates how to configure SA measurement settings, then read formatted ASCII data from the FieldFox.

Download N9912A_SpecAn_Get_Data_as_ASCII_Output_PROGRAM.VEE



Last Modified:

19-Dec-2018	New command

Commands by Mode

CAT Mode Commands

In this topic:

See Also

- Commands that are Common to All Modes
- Correction Methods Explained
- New Programming Commands
- Status Registers

Set and select Traces

Description	Commands
Set and read number of traces	CALCulate:PARameter:COUNt
Change parameter	CALCulate:PARameter:DEFine
Select trace	CALCulate:PARameter:SELect

Sweep Settings

Set center freq	[:SENSe]:FREQuency:CENTer
Set freq span	[:SENSe]:FREQuency:SPAN
Set start freq	[:SENSe]:FREQuency:STARt
Set stop freq	[:SENSe]:FREQuency:STOP
Read X-axis values	[:SENSe]:FREQuency:DATA?
Set resolution (number of points)	[:SENSe]:SWEep:POINts
Set sweep time	[:SENSe]:SWEep:TIME

Read sweep time	[:SENSe]:SWEep:MTIMe?
Set manual source power	SOURce:POWer
Set flat source power	SOURce:POWer:ALC[:MODE]

Averaging

Averaging	[:SENSe]:AVERage:COUNt
Clear Averaging	[:SENSe]:AVERage:CLEar
Image rejection	CALCulate:IREJection:LEVel
Smoothing On/Off	CALCulate[:SELected]:SMOothing[:STATe]
Smoothing aperture	CALCulate[:SELected]:SMOothing:APERture

Display Items

View Memory trace	DISPlay:WINDow:TRACe:MEMory:STATe
View Data trace	DISPlay:WINDow:TRACe:STATe
Scaling - auto	DISPlay:WINDow:TRACe:Y[:SCALe]:AUTO
Scaling - Set bottom of scale	DISPlay:WINDow:TRACe:Y[:SCALe]:BOTTom
Scaling - Set per division	DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision
Scaling - Set reference level	DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel
Scaling - Set reference position	DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition
Scaling - Set top of scale	DISPlay:WINDow:TRACe:Y[:SCALe]:TOP

Limit Lines

Limit line beep	CALCulate[:SELected]:LIMit:SOUNd
Create limit lines	CALCulate[:SELected]:LIMit:LLData
Limit line testing state	CALCulate[:SELected]:LIMit[:STATe]
Limit line testing annotation	CALCulate[:SELected]:LIMit:WARN
Read Pass / Fail	STATus:QUEStionable:LIMit:CONDition?
Build Limit from Trace	None

Markers

Activate a marker	CALCulate[:SELected]:MARKer:ACTivate
Markers - all off	CALCulate[:SELected]:MARKer:AOFF
Markers - coupled	CALCulate[:SELected]:MARKer:COUPled
Marker search - Max	CALCulate[:SELected]:MARKer:FUNCtion:MAXimum
Marker search - Min	CALCulate[:SELected]:MARKer:FUNCtion:MINimum
Marker search - Peak excursion	CALCulate[:SELected]:MARKer:FUNCtion:PEXCursion

Marker search - Peak Next	CALCulate[:SELected]:MARKer:FUNCtion:PNEXt
Marker search - Peak threshold	CALCulate[:SELected]:MARKer:FUNCtion:PTHReshold
Tracking On/Off	CALCulate[:SELected]:MARKer:FUNCtion:TRACking
FieldFox setting => to marker location	CALCulate[:SELected]:MARKer:SET
Marker On/Off	CALCulate[:SELected]:MARKer[:STATe]
Marker => specified trace	CALCulate[:SELected]:MARKer:TRACe
Marker => specified X-axis location	CALCulate[:SELected]:MARKer:X
Read Marker Y-axis location	CALCulate[:SELected]:MARKer:Y?

Math

Math function	CALCulate[:SELected]:MATH:FUNCtion
Data to Memory	CALCulate[:SELected]:MATH:MEMorize

Distance to Fault

DTF - Set bandpasss/lowpass	CALCulate:TRANsform:DISTance:BANDpass
DTF - Set center freq	CALCulate:TRANsform:DISTance:FREQuency:CENTer
DTF - Set max freq span	CALCulate:TRANsform:DISTance:FREQuency:SPAN:MAXimum
DTF - Set min start freq	CALCulate:TRANsform:DISTance:FREQuency:STARt:MINimum
DTF - Set max freq	CALCulate:TRANsform:DISTance:FREQuency:STOP:MAXimum
DTF - Set start distance	CALCulate:TRANsform:DISTance:STARt
DTF - Set stop distance	CALCulate:TRANsform:DISTance:STOP
DTF - Set distance units	CALCulate:TRANsform:DISTance:UNIT
DTF - Set window type	CALCulate:TRANsform:DISTance:WINDow
DTF - Set bandpasss/lowpass	CALCulate:TRANsform:FREQuency[:TYPE]

DTF Cable Specs

Select Auto or Manual setting	[:SENSe]:CORRection:COAX
Set cable loss	[:SENSe]:CORRection:LOSS:COAX
Set velocity factor	[:SENSe]:CORRection:RVELocity:COAX

TDR

Set resolution mode	[:SENSe]:SWEep:TDR:RES
Max stop frequency with Res mode = AUTO	[:SENSe]:SWEep:TDR:AUTO:FREQuency:STOP:MAXimum
TDR marker format	CALCulate[:SELected]:MARKer:TDR:FORMat

Save / Recall Files

Recall Cable data	MMEMory:LOAD:CABLe
Store Cable data	MMEMory:STORe:CABLe
Save data trace to csv file	MMEMory:STORe:FDATa
Save SNP data	MMEMory:STORe:SNP[:DATA]

See other Save / Recall commands

Send / Read Data

Send and read formatted measured data	CALCulate[:SELected]:DATA:FDATA
Send and read formatted memory data	CALCulate[:SELected]:DATA:FMEM
Set data format for read	FORMat[:DATA]

Calibration Commands

See Also

Correction Methods Explained

Calibration Examples

Set and read error term data	[:SENSe]:CORRection:COEFficient[:DATA]
Read number of cal steps	[:SENSe]:CORRection:COLLect:GUIDed:SCOunt
Measure step number	[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire
Prompt for step number	[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt
Measure Quick Cal	[:SENSe]:CORRection:COLLect[:ACQuire]:INT
Measure load	[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD
Measure open	[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN
Measure short	[:SENSe]:CORRection:COLLect[:ACQuire]:SHORt
Measure thru	[:SENSe]:CORRection:COLLect[:ACQuire]:THRU
Set Cal Kit	[:SENSe]:CORRection:COLLect:CKIT:LABel
Catalog all cal kits	[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog?
Set connectors	[:SENSe]:CORRection:COLLect:CONNector
Select method - Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:ERES
Select method - QuickCal	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate
Select method - QuickCal Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse
Select method - Simple Open response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN

Select method - Simple Short response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORt
Select method - Thru response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:THRU
Select method - Short response	[:SENSe]:CORRection:COLLect:METHod:SRESponse
Select method - Open response	[:SENSe]:CORRection:COLLect:METHod:ORESponse
Select method - 1-port SOLT	[:SENSe]:CORRection:COLLect:METHod:SOLT1
Select method - TRL	[:SENSe]:CORRection:COLLect:METHod:TRL
Read method	[:SENSe]:CORRection:COLLect:METHod:TYPE?
Set AutoOrient for ECal	[:SENSe]:CORRection:COLLect:ECAL:AORient
Set simple ECal	[:SENSe]:CORRection:COLLect:ECAL:SIMPle
Omit Isolation	[:SENSe]:CORRection:COLLect:OISolation
Select Medium	[:SENSe]:CORRection:MEDium
Set Waveguide cutoff	[:SENSe]:CORRection:WGCutoff
Select Waveguide standard (CAT only)	[:SENSe]:CORRection:WAVeguide:STANdard
Finish Cal	[:SENSe]:CORRection:COLLect:SAVE
Turn ALL Correction ON and OFF	[:SENSe]:CORRection[:STATe]
Turn User Correction ON and OFF	[:SENSe]:CORRection:USER[:STATe]
Set system impedance	[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]
Set CalReady type	[:SENSe]:CORRection:CALReady:TYPE

Last Modified:

20-Jan-2015	Added 8.0 commands
15-Nov-2013	Added TRL
	Added new commands for A.07.25
	Added several commands (A.06.03)
	Updated

NA Mode Commands

In this topic:

See Also

- Commands that are Common to All Modes
- Correction Methods Explained
- New Programming Commands
- Status Registers

Traces

Description	Commands
Create Measurement	CALCulate:PARameter{1:4}:DEFine
Set and read number of traces	CALCulate:PARameter:COUNt
Select Measurement	CALCulate:PARameter{1:4}:SELect
Set trace format	CALCulate[:SELected]:FORMat
Multi-trace Configurations	DISPlay:WINDow:SPLit
Perform measurement conversion	CALCulate[:SELected]:CONVersion:FUNCtion

Sweep Settings

Set center freq	[:SENSe]:FREQuency:CENTer
Set freq span	[:SENSe]:FREQuency:SPAN
Set start freq	[:SENSe]:FREQuency:STARt
Set stop freq	[:SENSe]:FREQuency:STOP
Read X-axis values	[:SENSe]:FREQuency:DATA?
Set resolution (number of points)	[:SENSe]:SWEep:POINts
Set sweep time	[:SENSe]:SWEep:TIME

Read sweep time	[:SENSe]:SWEep:MTIMe?
Set manual source power	SOURce:POWer
Set flat source power	SOURce:POWer:ALC[:MODE]
Set trigger Internal or External	TRIGger:SOURce
Set polarity of external	TRIGger:SLOPe

IFBW / Average / Smooth / Image Rej

IFBW	[:SENSe]:BWID
Averaging	[:SENSe]:AVERage:COUNt
Clear Averaging	[:SENSe]:AVERage:CLEar
Average (Swp/Point)	[:SENSe]:AVERage:MODE
Smoothing ON/OFF	CALCulate[:SELected]:SMOothing[:STATe]
Smoothing aperture	CALCulate[:SELected]:SMOothing:APERture

Display Items

View Memory trace	DISPlay:WINDow:TRACe:MEMory:STATe
View Data trace	DISPlay:WINDow:TRACe:STATe
Scaling - auto	DISPlay:WINDow:TRACe:Y[:SCALe]:AUTO
Scaling - Set bottom of scale	DISPlay:WINDow:TRACe:Y[:SCALe]:BOTTom
Scaling - Set per division	DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision
Scaling - Set reference level	DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel
Scaling - Set reference position	DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition
Scaling - Set top of scale	DISPlay:WINDow:TRACe:Y[:SCALe]:TOP
Electrical Delay	CALCulate[:SELected]:CORRection:EDELay:TIME
Phase Offset	CALCulate[:SELected]:CORRection:OFFSet:PHASe
Mag Offset	CALCulate[:SELected]:OFFSet[:MAGNitude]
Mag Slope	CALCulate[:SELected]:OFFSet:SLOPe

Limit Lines

Limit line beep	CALCulate[:SELected]:LIMit:SOUNd
Create limit lines	CALCulate[:SELected]:LIMit:LLData
Limit line testing state	CALCulate[:SELected]:LIMit[:STATe]
Limit line testing annotation	CALCulate[:SELected]:LIMit:WARN
Read Pass / Fail	STATus:QUEStionable:LIMit:CONDition?

Build Limit from Trace	None

Markers

Marker On/Off	CALCulate[:SELected]:MARKer[:STATe]
Activate a marker	CALCulate[:SELected]:MARKer:ACTivate
Markers - all off	CALCulate[:SELected]:MARKer:AOFF
Read BW data	CALCulate[:SELected]:MARKer:BWIDth:DATA
Marker search - BW / Q On/Off	CALCulate[:SELected]:MARKer:BWIDth[:STATe]
Markers - coupled	CALCulate[:SELected]:MARKer:COUPled
BW search value	CALCulate[:SELected]:MARKer:FUNCtion:BWIDth:THReshold
Marker search - Max	CALCulate[:SELected]:MARKer:FUNCtion:MAXimum
Marker search - Min	CALCulate[:SELected]:MARKer:FUNCtion:MINimum
Marker search - Peak excursion	CALCulate[:SELected]:MARKer:FUNCtion:PEXCursion
Marker search - Peak Next	CALCulate[:SELected]:MARKer:FUNCtion:PNEXt
Marker search - Peak threshold	CALCulate[:SELected]:MARKer:FUNCtion:PTHReshold
Marker search - Target	CALCulate[:SELected]:MARKer:FUNCtion:TARGet
Marker search - Wrap/No Wrap	CALCulate[:SELected]:MARKer:FUNCtion:TDIRection
Tracking On/Off	CALCulate[:SELected]:MARKer:FUNCtion:TRACking
FieldFox setting => to marker location	CALCulate[:SELected]:MARKer:SET
Marker format	CALCulate[:SELected]:MARKer:FORMat
Marker => specified trace	CALCulate[:SELected]:MARKer:TRACe
Marker => specified X-axis location	CALCulate[:SELected]:MARKer:X
Read Marker Y-axis location	CALCulate[:SELected]:MARKer:Y?

Big Marker Display States (A and B)

Enable Big marker readouts	DISPlay:MARKer:LARGe:STATe
Set font size	DISPlay:MARKer:LARGe:<x>:FONT
Set how the marker is displayed (norm / delta)	DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:MARKer:STATe
Enable a readout line	DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:STATe
Assign a marker number to the readout line	DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:MNUMber
Assign a trace number to the	DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TNUMber

readout line	
Set format for the readout line	DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:FORMat
Set marker tracking	DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TRACking
Set number of traces	DISPlay:MARKer:LARGe:<x>:TRACE:COUNt
Set measurement for the trace	DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:MEASurement
Set format for the trace	DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:FORMat
Enable bandwidth search	DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:BWIDth:STATe

Math

Math function	CALCulate[:SELected]:MATH:FUNCtion
Data to Memory	CALCulate[:SELected]:MATH:MEMorize

Save / Recall Files - Data

Save data trace to csv file	MMEMory:STORe:FDATa
Save SNP data	MMEMory:STORe:SNP[:DATA]

See other Save / Recall commands

Send and read formatted measured data	CALCulate[:SELected]:DATA:FDATa
Send and read formatted memory data	CALCulate[:SELected]:DATA:FMEM
Send and read unformatted measured data	CALCulate[:SELected]:DATA:SDATa
Send and read unformatted memory data	CALCulate[:SELected]:DATA:SMEM
Set read format	FORMat[:DATA]

Port Extensions

Enable	[:SENSe]:CORRection:EXTension[:STATe]
Set port 1	[:SENSe]:CORRection:EXTension:PORT1
Set port 2	[:SENSe]:CORRection:EXTension:PORT2
Set velocity factor	[:SENSe]:CORRection:RVELocity:COAX

Calibration

See Also

Correction Methods Explained

Calibration Examples

Set and read error term data	[:SENSe]:CORRection:COEFficient[:DATA]
Read number of cal steps	[:SENSe]:CORRection:COLLect:GUIDed:SCOunt

Measure step number	[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire
Prompt for step number	[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt
Measure Quick Cal	[:SENSe]:CORRection:COLLect[:ACQuire]:INT
Measure load	[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD
Measure open	[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN
Measure short	[:SENSe]:CORRection:COLLect[:ACQuire]:SHORt
Measure thru	[:SENSe]:CORRection:COLLect[:ACQuire]:THRU
Set Cal Kit	[:SENSe]:CORRection:COLLect:CKIT:LABel
Catalog all cal kits	[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog?
Set connectors	[:SENSe]:CORRection:COLLect:CONNector
Select method - Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:ERES
Select method - QuickCal	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate
Select method - QuickCal Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse
Select method - Simple Open response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN
Select method - Simple Short response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORt
Select method - Thru response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:THRU
Select method - Open response	[:SENSe]:CORRection:COLLect:METHod:ORESponse
Select method - Short response	[:SENSe]:CORRection:COLLect:METHod:SRESponse
Select method - 1-port SOLT	[:SENSe]:CORRection:COLLect:METHod:SOLT1
Select method - TRL	[:SENSe]:CORRection:COLLect:METHod:TRL
Read method	[:SENSe]:CORRection:COLLect:METHod:TYPE?
Set AutoOrient for ECal	[:SENSe]:CORRection:COLLect:ECAL:AORient
Set simple ECal	[:SENSe]:CORRection:COLLect:ECAL:SIMPle
Omit Isolation	[:SENSe]:CORRection:COLLect:OISolation
Select Medium	[:SENSe]:CORRection:MEDium
Set Waveguide cutoff	[:SENSe]:CORRection:WGCutoff
Finish Cal	[:SENSe]:CORRection:COLLect:SAVE

Turn ALL Correction ON and OFF	[:SENSe]:CORRection[:STATe]
Turn User Correction ON and OFF	[:SENSe]:CORRection:USER[:STATe]
Set system impedance	[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]
Set CalReady type	[:SENSe]:CORRection:CALReady:TYPE

Time Domain (Opt 010)

Enable	CALCulate[:SELected]:TRANsform:TIME:STATe
Start time	CALCulate[:SELected]:TRANsform:TIME:STARt
Stop time	CALCulate[:SELected]:TRANsform:TIME:STOP
Center time	CALCulate[:SELected]:TRANsform:TIME:CENTer
Span time	CALCulate[:SELected]:TRANsform:TIME:SPAN
Lowpass or BandPass	CALCulate[:SELected]:TRANsform:TIME: [TYPE]
Step or Impulse	CALCulate[:SELected]:TRANsform:TIME:STIMulus
Step rise time	CALCulate[:SELected]:TRANsform:TIME:STEP:RTIMe
Impulse width	CALCulate[:SELected]:TRANsform:TIME:IMPulse:WIDTh
Kaiser Bessel width	CALCulate[:SELected]:TRANsform:TIME:KBESsel
Set Lowpass freq.	CALCulate[:SELected]:TRANsform:TIME:LPFREQuency

Time Domain Gating

Enable	CALCulate[:SELected]:FILTer[:GATE]:TIME:STATe
Start time	CALCulate[:SELected]:FILTer[:GATE]:TIME:STARt
Stop time	CALCulate[:SELected]:FILTer[:GATE]:TIME:STOP
Center time	CALCulate[:SELected]:FILTer[:GATE]:TIME:CENTer
Span time	CALCulate[:SELected]:FILTer[:GATE]:TIME:SPAN
Gating shape	CALCulate[:SELected]:FILTer[:GATE]:TIME:SHAPe
Bandpass or notch	CALCulate[:SELected]:FILTer[:GATE]:TIME

Last Modified:

13-Nov-2013	Added TRL command
6-Mar-2013	Added new commands (A.06.25)
18-Oct-2012	Added new commands (A.06.00)

SA Mode Commands

In this topic:

See Also

- Commands that are Common to All Modes
- Status Registers

Frequency

Description	Command
Center freq	[:SENSe]:FREQuency:CENTer
Step size for up/down keys	[:SENSe]:FREQuency:CENTer:STEP
Step size auto/manual	[:SENSe]:FREQuency:CENTer:STEP:AUTO

Freq span	[:SENSe]:FREQuency:SPAN
Span to full	[:SENSe]:FREQuency:SPAN:FULL
Span to zero	[:SENSe]:FREQuency:SPAN:ZERO
Start freq	[:SENSe]:FREQuency:STARt
Stop freq	[:SENSe]:FREQuency:STOP
Frequency annotation method	[:SENSe]:FREQuency:ANNotation[:SELect]

Radio Standard

Channel number center	[:SENSe]:RADio:CHANnel:CENTer
Uplink or Downlink	[:SENSe]:RADio:CHANnel:DIRection
Start channel	[:SENSe]:RADio:CHANnel:STARt
Channel step size	[:SENSe]:RADio:CHANnel:STEP
Stop channel	[:SENSe]:RADio:CHANnel:STOP
Select standard	[:SENSe]:RADio:STANdard[:SELect]
Freq or Chan	[:SENSe]:RADio:TEUNit

Gain/Atten

Attenuation value	[:SENSe]:POWer[:RF]:ATTenuation
Atten Auto/Manual	[:SENSe]:POWer[:RF]:ATTenuation:AUTO
Set external gain value	[:SENSe]:POWer[:RF]:EXTGain
Preamp ON/OFF	[:SENSe]:POWer[:RF]:GAIN[:STATe]
Read number of traces.	[:SENSe]:QUANtity:TACTive?

Sweep

Sweep time (Non-zerospan)	[:SENSe]:SWEep:ACQuisition
Sweep time (Zerospan)	[:SENSe]:SWEep:TIME
Read sweep time	[:SENSe]:SWEep:MTIMe?
Auto / Manual	[:SENSe]:SWEep:ACQuisition:AUTO
Sweep points	[:SENSe]:SWEep:POINts
Sweep Type	[:SENSe]:SWEep:TYPe
Reverse sweep (Step sweep and Opt. 209 only)	[:SENSe]:FREQuency:SPAN:DREVerse

Scale / Units

Auto Scale trace	DISPlay:WINDow:TRACe:Y[:SCALe]:AUTO
Per division	DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision

Reference level	DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel
Reference position	DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition
Log / Linear scale	[:SENSe]:AMPLitude:SCALe
Set Units	[:SENSe]:AMPLitude:UNIT
Read ONLY - Bottom scale value	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:BOTTom
Read ONLY - Top scale value	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:TOP

Average

Average count	[:SENSe]:AVERage:COUNt
Averaging type	[:SENSe]:AVERage:TYPE
Restart trace averaging	INITiate:RESTart

Video / Res Bandwidth

Manual Res BW value	[:SENSe]:BANDwidth[:RESolution]
Choose Auto or Manual Res BW	[:SENSe]:BANDwidth[:RESolution]:AUTO
Manual Video BW value	[:SENSe]:BANDwidth:VIDeo
Choose Auto or Manual Video BW	[:SENSe]:BANDwidth:VIDeo:AUTO
IF Output	[:SENSe]:BANDwidth:IF:OUT

Trace Type/Detector

Set Trace Type	TRACe{1:4}:TYPE
Detector function	[:SENSe]:DETector:FUNCtion

Alignments (InstAlign)

Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]
Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]
RF burst now (Not applicable to ERTA)	[:SENSe]:ALIGnment:BURSt:NOW
RF burst state (Not applicable to ERTA)	[:SENSe]:ALIGnment:BURSt[:STATe]

Limit / Display Lines

Limit line beep	CALCulate[:SELected]:LIMit:SOUNd
Create limit lines	CALCulate:LIMit:LLData
Limit line testing state	CALCulate:LIMit[:STATe]

Limit line testing annotation	CALCulate:LIMit:WARN
Display Line level setting	DISPlay:WINDow:TRACe:Y:DLINe
Display Line state	DISPlay:WINDow:TRACe:Y:DLINe:STATe
Read Pass/Fail	STATus:QUEStionable:LIMit:CONDition?
Build Limit from Trace	None

Markers

Select a marker	CALCulate:MARKer:ACTivate
Markers - all off	CALCulate:MARKer:AOFF
Audio Beep on Marker	CALCulate:MARKer:AUDio:BEEP
Markers - Fixed delta reference marker state.	CALCulate:MARKer:DREF:FIXed
Frequency counter marker ON/OFF	CALCulate:MARKer:FCOunt[:STATe]
Read Frequency Count	CALCulate:MARKer:FCOunt:X?
Set Noise Marker and Band Power Marker	CALCulate:MARKer:FUNCtion
Band power span	CALCulate:MARKer:FUNCtion:BAND:SPAN
Band power mode	CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO
Interval power span	CALCulate:MARKer:FUNCtion:INTerval:SPAN
Interval power mode	CALCulate:MARKer:FUNCtion:INTerval:SPAN:AUTO
Marker search - Max	CALCulate:MARKer{1:6}:FUNCtion:MAXimum
Marker search - Min	CALCulate:MARKer{1:6}:FUNCtion:MINimum
Marker search - Peak excursion	CALCulate:MARKer{1:6}:FUNCtion:PEXCursion
Marker search - Peak left	CALCulate:MARKer{1:6}:FUNCtion:PLEFt
Marker search - Peak Next	CALCulate:MARKer{1:6}:FUNCtion:PNEXt
Marker search - Peak right	CALCulate:MARKer{1:6}:FUNCtion:PRIGht
Marker search - Peak threshold	CALCulate:MARKer{1:6}:FUNCtion:PTHReshold
Noise marker On/Off	CALCulate:MARKer:NOISe[:STATe]
Marker -> Setting	CALCulate:MARKer:SET
Move marker to center freq	CALCulate:MARKer:SET:CENTer
Move marker to ref level	CALCulate:MARKer:SET:REFLevel
Signal Tracking	CALCulate:MARKer:STRack

Marker On/Off	CALCulate:MARKer[:STATe]
Move marker to other trace	CALCulate:MARKer:TRACe
Move/read marker X-axis position	CALCulate:MARKer:X
Read marker Y-axis position	CALCulate:MARKer:Y?

Read / Save Data

See Also: Read Current Channel Measurement Data

Read Trace Data	TRACe{1:4}:DATA
Saves trace to CSV file.	MMEMory:STORe:FDATa

Independent Source / Tracking Generator

CW or S/R	SOURce:MODE
CW Frequency	SOURce:FREQuency[:CW]
Normalize	SOURce:NORMalize
Power Level (All models EXCEPT N9912A)	SOURce:POWer
Max Power (All models EXCEPT N9912A)	SOURce:POWer:MAXimum
Attenuation (power) N9912A ONLY	SOURce:POWer:ATTenuation
Enable Source Tracking	SOURce:TRACking

Source Tracking Offset

Enable	SOURce:TOFFset:ENABle
Set frequency	SOURce:TOFFset:FREQuency
Reverse frequency	SOURce:TOFFset:REVerse

Field Strength (Corrections)

All corrections ON	[:SENSe]:AMPLitude:CORRections[:STATe]

Receiver (or ONLY one) Antenna/Cables

Antenna corrections ON	[:SENSe]:AMPLitude:CORRections:ANTenna[:STATe]
Cable corrections ON	[:SENSe]:AMPLitude:CORRections:CABLe[:STATe]
Load Antenna file	MMEMory:LOAD:ANTenna
Store Antenna file	MMEMory:STORe:ANTenna
Clear Antenna correction values	[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault
Load Cable file	MMEMory:LOAD:CABLe
Store Cable file	MMEMory:STORe:CABLe

Clear Cable correction values	[:SENSe]:AMPLitude:CORRections:CABLe:DEFault

Source Antenna/Cables

Antenna corrections ON	[:SENSe]:AMPLitude:CORRections:SANTenna[:STATe]
Cable corrections ON	[:SENSe]:AMPLitude:CORRections:SCABle[:STATe]
Load Antenna file	MMEMory:LOAD:SANTenna
Store Antenna file	MMEMory:STORe:SANTenna
Clear Antenna correction values	[:SENSe]:AMPLitude:CORRections:SANTenna:DEFault
Load Cable file	MMEMory:LOAD:SCABle
Store Cable file	MMEMory:STORe:SCABle
Clear Cable correction values	[:SENSe]:AMPLitude:CORRections:SCABle:DEFault

Trigger Settings

Trigger Type (Ext/Vid/RFBurst/Freerun)	TRIGger[:SEQuence]:SOURce
Trigger Slope (Pos/Neg)	TRIGger[:SEQuence]:SLOPe
Trigger Delay	TRIGger[:SEQuence]:DELay
Trigger Delay ON/OFF	TRIGger[:SEQuence]:DELay:STATe
Trigger Level	TRIGger[:SEQuence]:VIDeo:LEVel
Auto trigger time	TRIGger[:SEQuence]:ATRigger
Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe
Trigger Position	TRIGger[:SEQuence]:POSition
Trigger Position ON/OFF	TRIGger[:SEQuence]:POSition:STATe

FFT Gating

Enable gating	TRIGger[:SEQuence]:FGATe[:STATe]
Set gate delay	TRIGger[:SEQuence]:FGATe:DELay
Display the gating window	TRIGger[:SEQuence]:FGATe:VIEW[:STATe]
Set X-axis time span for the gating window	TRIGger[:SEQuence]:FGATe:VIEW:TIME
Set the width of the gated area within the gating window	TRIGger[:SEQuence]:FGATe:WIDTh

Record/Playback Actions

Pause	RECPlayback:ACTion:PAUSe
Play	RECPlayback:ACTion:PLAY
Record	RECPlayback:ACTion:RECord

Tag position	RECPlayback:ACTion:SPOSition
Stop	RECPlayback:ACTion:STOP
Trace position	RECPlayback:ACTion:TPOSition

Record/Playback Configuration

Frequency Mask Trigger (FMT) data	RECPlayback:CONFig:FMTRigger:LLData
FMT enable	RECPlayback:CONFig:FMTRigger:ENABle
Playback Time Interval	RECPlayback:CONFig:PTINterval
Record Segment Counting Length	RECPlayback:CONFig:RSCLength
Record Source	RECPlayback:CONFig:RSOurce
Record Time Interval	RECPlayback:CONFig:RTINerval
Record Time limit	RECPlayback:CONFig:RTLSeconds

Record/Playback Sessions

Clear all records	RECPlayback:SESSion:CARecords
Close	RECPlayback:SESSion:CLOSe
Create new session	RECPlayback:SESSion:NEW
Open session	RECPlayback:SESSion:OPEN?
Storage device	RECPlayback:SESSion:SDEVice
Trace record limit	RECPlayback:SESSion:TRLimit
Is a session open?	STATus:OPERation:SAMode:CONDition?

Select Channel Measurement

All channel meas OFF	[:SENSe]:MEASurement:AOFF
Select channel meas	[:SENSe]:MEASurement:CHANnel
Select Interference Analysis (Opt 236) display.	[:SENSe]:MEASurement:INTerference
Preset channel meas	[:SENSe]:MEASurement:PRESet
Tune and Listen demod type	[:SENSe]:MEASurement:TAListen
Power percent for Occupied Bandwidth	[:SENSe]:OBW:PPOW

Read Current Channel Measurement Data

Channel Power, Occupied Bandwidth, or Adjacent Channel Power

Read current channel measurement data	CALCulate:MEASurement:DATA?

Channel Measurement Setup

Averaging ON/OFF	[:SENSe]:CMEasurement:AVERage:ENABle
Integration BW	[:SENSe]:CMEasurement:IBW
RCC filter state	[:SENSe]:CMEasurement:RRCFilter
RCC filter value	[:SENSe]:CMEasurement:RRCFilter:ALPHa

Adjacent Channel Power Setup

Reference value	[:SENSe]:ACPower:MREFerence
Reference method	[:SENSe]:ACPower:MREFerence:AUTO
Meas Type	[:SENSe]:ACPower:MTYPe
Limit testing On/Off	[:SENSe]:ACPower:LIMit[:STATe]
Offset bandwidths	[:SENSe]:ACPower:OFFSet:BWIDth
Offset frequencies	[:SENSe]:ACPower:OFFSet:FREQuency
Offset states	[:SENSe]:ACPower:OFFSet:STATe
Lower offset limits	[:SENSe]:ACPower:OFFSet:LLIMit
Upper offset limits	[:SENSe]:ACPower:OFFSet:ULIMit

Interference Analyzer Settings

Blue power level	[:SENSe]:SPECtrogram:BPLevel
Red power level	[:SENSe]:SPECtrogram:RPLevel
Time/Delta marker state	[:SENSe]:SPECtrogram:TMARker:STATe
Time/Delta marker location	[:SENSe]:SPECtrogram:TMARker:VALue
Spectrogram display setting	[:SENSe]:SPECtrogram:VIEW
Waterfall angle	[:SENSe]:SPECtrogram:WANGle

Tune and Listen Settings

Volume	[:SENSe]:TAListen:AVOLume- **OBSOLETE**
Demod ON / OFF	[:SENSe]:TAListen:DSTate
Demod type	[:SENSe]:TAListen:DTYPe
Listen tme	[:SENSe]:TAListen:LTIMe
Tune freq	[:SENSe]:TAListen:TFReq

General Status

ADC Over-range status	CALCulate:MEASurement:WAOR?

Last Modified:

19-sep-2016	Corrected/Added SA reverse sweep SCPI command (step sweep only). (:FREQ:SPAN:DREV)

25-Mar-2014	Added new commands (A.06.25)
25-Mar-2014	Added new commands (A.06.00)

RTSA Mode Commands (A.90.xx and Greater Firmware Only)

In this topic:

Frequency

Description	Command
Center freq	[:SENSe]:FREQuency:CENTer
Step size for up/down keys	[:SENSe]:FREQuency:CENTer:STEP
Step size auto/manual	[:SENSe]:FREQuency:CENTer:STEP:AUTO
Freq span	[:SENSe]:FREQuency:SPAN
Span to full	[:SENSe]:FREQuency:SPAN:FULL
Start freq	[:SENSe]:FREQuency:STARt
Stop freq	[:SENSe]:FREQuency:STOP

Frequency annotation method	[:SENSe]:FREQuency:ANNotation[:SELect]
Gain/Atten	
Attenuation value	[:SENSe]:POWer[:RF]:ATTenuation
Atten Auto/Manual	[:SENSe]:POWer[:RF]:ATTenuation:AUTO
Set external gain value	[:SENSe]:POWer[:RF]:EXTGain
Preamp ON/OFF/AUTO	[:SENSe]:POWer[:RF]:GAIN[:STATe]
Sweep	
Selects between Density, Spectrogram, & Real-Time Spectrum traces	[:SENSe]:MEASure
Selects the acquisition time in the Density & Real-time Traces.	[:SENSe]:ACQuisition:TIME
Sets the acquisition time in the Density & Real-time Traces to AUTO.	[:SENSe]:ACQuisition:TIME:AUTO
Scale / Units	
Per division	DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision
Reference level	DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel
Reference position	DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition
Average	
Average count	[:SENSe]:AVERage:COUNt
Restart trace averaging	INITiate:RESTart
Res Bandwidth	
Manual Res BW value	[:SENSe]:BANDwidth[:RESolution]
Choose Auto or Manual Res BW	[:SENSe]:BANDwidth[:RESolution]:AUTO
Query ration of Span to Res BW	[:SENSe]:FREQuency:SPAN:BANDwidth[:RESoulution]:RATio?
Trace Type/Detector	
Set Trace Type	TRACe{1:4}:TYPE
Detector function	[:SENSe]:DETector:TRACe{1:4}:FUNCtion
Retrieves trace data	:TRACe:DATA?
Defaults all traces back to their default state	:TRACe:PRESet:ALL
Alignments (InstAlign)	
Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]

Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]
RF burst now	[:SENSe]:ALIGnment:BURSt:NOW
RF burst state	[:SENSe]:ALIGnment:BURSt[:STATe]
Channel equalization now	[:SENSe]:ALIGnment:CHEQ:NOW
Channel equalization state	[:SENSe]:ALIGnment:CHEQ[:STATe]

Limit / Display Lines

Display Line level setting	DISPlay:WINDow:TRACe:Y:DLINe
Display Line state	DISPlay:WINDow:TRACe:Y:DLINe:STATe

Markers

Select a marker	CALCulate:MARKer{1:6}:ACTivate
Markers - all off	CALCulate:MARKer{1:6}:AOFF
Markers - Fixed delta reference marker state.	CALCulate:MARKer{1:6}:DREF:FIXed
Marker search - Max	CALCulate:MARKer{1:6}:FUNCtion:MAXimum
Marker search - Min	CALCulate:MARKer{1:6}:FUNCtion:MINimum
Marker search - Peak excursion	CALCulate:MARKer{1:6}:FUNCtion:PEXCursion
Marker search - Peak left	CALCulate:MARKer{1:6}:FUNCtion:PLEFt
Marker search - Peak Next	CALCulate:MARKer{1:6}:FUNCtion:PNEXt
Marker search - Peak right	CALCulate:MARKer{1:6}:FUNCtion:PRIGht
Marker search - Peak threshold	CALCulate:MARKer{1:6}:FUNCtion:PTHReshold
Move marker to center freq	CALCulate:MARKer{1:6}:SET:CENTer
Move marker to ref level	CALCulate:MARKer{1:6}:SET:REFLevel
Marker On/Off	CALCulate:MARKer{1:6}[:STATe]
Move marker to other trace	CALCulate:MARKer{1:6}:TRACe
Move/read marker X-axis position	CALCulate:MARKer{1:6}:X
Read marker Y-axis position	CALCulate:MARKer{1:6}:Y?
Enable/Disables a displayed marker table	:DISPlay:TABle:MARKer

Read / Save Data

See Also: Read Current Channel Measurement Data

Read Trace Data	TRACe{1:4}:DATA

Saves trace to CSV file.	MMEMory:STORe:FDATa

Source

Trigger Settings

Auto trigger time	TRIGger[:SEQuence]:ATRigger
Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe
Trigger Delay	TRIGger[:SEQuence]:DELay
Trigger Delay ON/OFF	TRIGger[:SEQuence]:DELay:STATe
Trigger Frame Offset value	:TRIGger[:SEQuence]:FRAMe:OFFSet
Trigger Frame Offset Reset	:TRIGger[:SEQuence]:FRAMe:OFFSet:DISPlay:RESet
Set the period of the internal periodic timer clock	:TRIGger[:SEQuence]:FRAMe:PERiod
Sets the holdoff time between triggers	:TRIGger[:SEQuence]:HOLDoff
Sets the level for the trigger	:TRIGger[:SEQuence]:LEVel
Trigger Type (Ext/Vid/RFBurst/Freerun)	TRIGger[:SEQuence]:SOURce
Trigger Slope (Pos/Neg)	TRIGger[:SEQuence]:SLOPe

Record/Playback Actions

Pause	RECPlayback:ACTion:PAUSe
Play	RECPlayback:ACTion:PLAY
Record	RECPlayback:ACTion:RECord
Tag position	RECPlayback:ACTion:SPOSition
Stop	RECPlayback:ACTion:STOP
Trace position	RECPlayback:ACTion:TPOSition

Record/Playback Configuration

Playback Time Interval	RECPlayback:CONFig:PTINterval
Record Segment Counting Length	RECPlayback:CONFig:RSCLength
Record Source	RECPlayback:CONFig:RSOurce
Record Time Interval	RECPlayback:CONFig:RTINerval
Record Time limit	RECPlayback:CONFig:RTLSeconds

Record/Playback Sessions

Clear all records	RECPlayback:SESSion:CARecords
Close	RECPlayback:SESSion:CLOSe
Create new session	RECPlayback:SESSion:NEW

Open session	RECPlayback:SESSion:OPEN?
Storage device	RECPlayback:SESSion:SDEVice
Trace record limit	RECPlayback:SESSion:TRLimit
Is a session open?	STATus:OPERation:SAMode:CONDition?

Density

Density blue limit percentage	[:SENSe]:DENSity:BPLevel
Density red limit percentage	[:SENSe]:DENSity:RPLevel
Persistense values	:DISPlay:VIEW:DENSity:PERSistence
Persistence Infinite (enables/disables)	:DISPlay:VIEW:DENSity:PERSistence:INFinite
Enables/Disables Show Density graphics	:DISPlay:VIEW:DENSity:STATe

Spectrogram

Spectrogram blue limit percentage	[:SENSe]:SPECtrogram:BPLevel
Spectrogram red limit percentage	[:SENSe]:SPECtrogram:RPLevel
Time per division values	[:SENSe]:SPECtrogram:TPDivision
View choice	[:SENSe]:SPECtrogram:VIEW

Last Modified:

20-sep-2016	Added new RTSA mode commands (9.50)

I/Q Analyzer (IQA) Mode Commands (A.09.xx and Greater Firmware Only)

In I/Q Analyzer (IQA) mode there are two main types of measurements: Spectrum and Waveform.

Here is the recommended procedure when querying trace-data or using marker-data using SCPI commands:

1. Set the Measurement to the desired type, if not already set:

   - For Spectrum data, use the :CONFigure:SPECtrum command to set the measurement to Spectrum.

   - For Waveform data, use the :CONFigure:WAVeform command to set the measurement to Waveform.

2. Change to **Single** acquisition mode by using INITiate:CONTinuous **OFF**, if the unit is *not* already in Single acquisition mode.

3. Execute one acquisition by using INITiate:IMMediate.

4. Perform the data-query (trace and/or marker) using the corresponding SCPI command.

Caution: Data integrity is not guaranteed if the above sequence of steps are not followed.

In this topic:

- Frequency
- Gain/Atten
- Acquisition
- Scale / Units
- Average
- Video/ Resolution BW
- Measurement/Display
- Trace Type
- Alignments (InstAlign)
- Limit / Display Lines
- Markers
- Read / Save Data
- I/Q Capture
- Trigger Settings
- FFT (Spectrum)
- Sample
- Waveform

See Also

- Commands that are Common to All Modes
- Status Registers

Frequency

Description	Command
Center	[:SENSe]:FREQuency:CENTer
Span	[:SENSe]:FREQuency:SPAN
Gain/Atten	
Attenuation value	[:SENSe]:POWer[:RF]:ATTenuation
Atten Auto/Manual	[:SENSe]:POWer[:RF]:ATTenuation:AUTO
External gain	[:SENSe]:POWer[:RF]:EXTGain
Preamp state	[:SENSe]:POWer[:RF]:GAIN:AUTO
Preamp ON/OFF	[:SENSe]:POWer[:RF]:GAIN[:STATe]
Acquisition	
Enable/Disable acquisition mode	INITiate:CONTinuous
Restart trace averaging	INITiate:RESTart
Scale / Units	
Auto Scale (IMAGinary)	TRACe:IMAGinary:Y:AUTO
Per division (IMAGinary)	TRACe:IMAGinary:Y:PDIVision

Reference level (IMAGinary)	TRACe:IMAGinary:Y:RLEVel
Reference position (IMAGinary)	TRACe:IMAGinary:Y:RPOSition
Auto Scale (PHASe)	TRACe:PHASe:Y:AUTO
Per division (PHASe)	TRACe:PHAse:Y:PDIVision
Reference level (PHASe)	TRACe:PHASe:Y:RLEVel
Reference position (PHASe)	TRACe:PHASe:Y:RPOSition
Auto Scale (POLar)	TRACe:POLar:Y:AUTO
Reference level (POLar)	TRACe:POLar:Y:RLEVel
Auto Scale (REAL)	TRACe:REAL:Y:AUTO
Per division (REAL)	TRACe:REAL:Y:PDIVision
Reference level (REAL)	TRACe:REAL:Y:RLEVel
Reference position (REAL)	TRACe:REAL:Y:RPOSition
Log/Linear scale (SPECtrum)	TRACe:SPECtrum:AMPLitude:SCALe
Unit (SPECtrum)	TRACe:SPECtrum:AMPLitude:UNIT
Auto Scale (SPECtrum)	TRACe:SPECtrum:Y:AUTO
Per division (SPECtrum)	TRACe:SPECtrum:Y:PDIVision
Reference level (SPECtrum)	TRACe:SPECtrum:Y:RLEVel
Reference position (SPECtrum)	TRACe:SPECtrum:Y:RPOSition
Auto Scale (UPHase)	TRACe:UPHase:Y:AUTO
Per division (UPHase)	TRACe:UPHase:Y:PDIVision
Reference level (UPHase)	TRACe:UPHase:Y:RLEVel
Reference position (UPHase)	TRACe:UPHase:Y:RPOSition
Log/Linear scale (RF Envelope)	TRACe:WAVeform:AMPLitude:SCALe
Unit (RF Envelope)	TRACe:WAVeform:AMPLitude:UNIT
Auto Scale (RF Envelope)	TRACe:WAVeform:Y:AUTO
Per division (RF Envelope)	TRACe:WAVeform:Y:PDIVision
Reference level (RF Envelope)	TRACe:WAVeform:Y:RLEVel
Reference position (RF Envelope)	TRACe:WAVeform:Y:RPOSition

Average

Average count	[:SENSe]:AVERage:COUNt
Averaging type	[:SENSe]:AVERage:TYPE

Restart trace averaging	INITiate:RESTart

Video / Res Bandwidth

IF bandwidth (IF BW)	[:SENSe]:DIF:BANDwidth
Resolution bandwidth (Res BW)	[:SENSe]:SPECtrum:BANDwidth[:RESolution]
Resolution bandwidth mode (Res BW mode)	[:SENSe]:SPECtrum:BANDwidth[:RESolution]:AUTO

Measurement/Display

Configure query (Spectrum/Waveform)	:CONFigure?
Configure Spectrum command	:CONFigure:SPECtrum
Configure Waveform command	:CONFigure:WAVeform
Waveform view selection	:DISPlay:WAVeform:VIEW[:SELect]
Selected window	:DISPlay:WINDow[:SELect]
Window display trace (SPECtrum/WAVeform/PHASe/POLar/UPHase/REAL/IMAGinary/TIMesummary)	:DISPlay:WINDow<*n*>:DATA
Window State (Enable/Disable)	:DISPlay:WINDow<*n*>:STATe

Trace Type

Spectrum trace type	:TRACe:SPECtrum<*n*>:TYPE
Waveform trace type	:TRACe:WAVeform<*n*>:TYPE

Alignments (InstAlign)

Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]
Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]
RF burst now	[:SENSe]:ALIGnment:BURSt:NOW
RF burst state	[:SENSe]:ALIGnment:BURSt[:STATe]
Channel equalization now	[:SENSe]:ALIGnment:CHEQ:NOW
Channel equalization state	[:SENSe]:ALIGnment:CHEQ[:STATe]

Limit / Display Lines

Display Line state	DISPlay:WINDow:TRACe:Y:DLINe:STATe
Display line (IMAGinary)	TRACe:IMAGinary:Y:DLINe
Display line (PHASe)	TRACe:PHASe:Y:DLINe
Display line (REAL)	TRACe:REAL:Y:DLINe

Display line (SPECtrum)	TRACe:SPECtrum:Y:DLINe
Display line (UPHase)	TRACe:UPHase:Y:DLINe
Display line (RF envelope)	TRACe:WAVeform:Y:DLINe

Markers

Markers all disabled (Spectrum)	CALCulate:SPECtrum:MARKer:AOFF
Continuous peak search (Spectrum) - (disable/enable)	CALCulate:SPECtrum:MARKer:CPSearch[:STATe]
Markers - Fixed delta reference marker state (Spectrum) - (disable/enable)	CALCulate:SPECtrum:MARKer:DREF:FIXed
Marker search - Peak excursion (Spectrum)	CALCulate:SPECtrum:MARKer:FUNCtion:PEXCursion
Marker search - Peak threshold (Spectrum)	CALCulate:SPECtrum:MARKer:FUNCtion:PTHReshold
Set Noise Marker and Band Power Marker (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:FUNCtion
Band power span	CALCulate:SPECtrum:MARKer:FUNCtion:BAND:SPAN
Band power mode	CALCulate:SPECtrum:MARKer:FUNCtion:BAND:SPAN:AUTO
Marker search - Maximum (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:FUNCtion:MAXimum
Marker search - Minimum (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:FUNCtion:MINimum
Marker search - Peak left (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:FUNCtion:PLEFt
Marker search - Peak right (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:FUNCtion:PRIGht
Read phase (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:PHASe?
Move marker to center frequency (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:SET:CENTer
Move marker to reference level (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:SET:RLEVel
Move marker to another specified trace (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:TRACe
Move/read marker X-axis position (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:X
Read marker Y-axis position (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>:Y?
Marker State (Spectrum)	CALCulate:SPECtrum:MARKer<*n*>[:STATe]

Markers - all disabled (Waveform)	CALCulate:WAVeform:MARKer:AOFF
Coupled marker X value (Waveform)	CALCulate:WAVeform:MARK:COUPle:X
Markers - coupled (Waveform)	CALCulate:WAVeform:MARKer:COUPle[:STATe]
Continuous peak search (Waveform) - (disable/enable)	CALCulate:WAVeform:MARKer:CPSearch[:STATe]
Fixed delta / reference markers (Waveform) - (disable/enable)	CALCulate:WAVeform:MARKer:DREF:FIXed
Marker search - Peak excursion (Waveform)	CALCulate:WAVeform:MARKer:FUNCtion:PEXCursion
Marker search - Peak threshold (Waveform)	CALCulate:WAVeform:MARKer:FUNCtion:PTHReshold
Set result trace to marker (Waveform)	CALCulate:WAVeform:MARKer<*n*>:DATA
Set Noise Marker and Interval Span Marker (Waveform)	CALCulate:WAVeform:MARKer<*n*>:FUNCtion
Interval span (Waveform)	CALCulate:WAVeform:MARKer:FUNCtion:INTerval:SPAN
Interval span mode (Waveform)	CALCulate:WAVeform:MARKer:FUNCtion:INTerval:SPAN:AUTO
Marker search - Maximum (Waveform)	CALCulate:WAVeform:MARKer<*n*>:FUNCtion:MAXimum
Marker search - Minimum (Waveform)	CALCulate:WAVeform:MARKer<*n*>:FUNCtion:MINimum
Marker search - Next Peak (Waveform)	CALCulate:WAVeform:MARKer<*n*>:FUNCtion:PNEXt
Move marker to another specified trace (Waveform)	CALCulate:WAVeform:MARKer<*n*>:TRACe
Move/read marker X-axis position (Waveform)	CALCulate:WAVeform:MARKer<*n*>:X
Read marker Y-axis position (Waveform)	CALCulate:WAVeform:MARKer<*n*>:Y?
Marker State (Waveform)	CALCulate:WAVeform:MARKer<*n*>[:STATe]
Display marker table (Spectrum)	DISPlay:TABLe:MARKer:SPECtrum
Display marker table (Waveform)	DISPlay:TABLe:MARKer:WAVeform

Read / Save

See Also: I/Q Capture

Store CSV file	MMEMory:STORe:FDATa
Store MAT file	MMEMory:STORe:MAT
Store SDF file	MMEMory:STORe:SDF
Store TXT file	MMEMory:STORe:TXT
Reads the trace data (IMAGinary)	TRACe:IMAGinary:DATA?
Reads the trace data (PHASe)	TRACe:PHASe:DATA?
Reads the trace data (POLar)	TRACe:POLar:DATA?
Reads the trace data (REAL)	TRACe:REAL:DATA?
Reads the trace data (SPECtrum)	TRACe:SPECtrum<*n*>:DATA?
Reads the raw I/Q data (SPECtrum)	TRACe:SPECtrum:RAWiq?
Returns the trace data (UPHase)	TRACe:UPHase:DATA?
Reads the trace data (RF Envelope)	TRACe:WAVeform<*n*>:DATA?
Reads the raw I/Q data (WAVeform)	TRACe:WAVeform:RAWiq?

I/Q Capture

See Also: Read / Save

Initiate I/Q capture	INITiate:IQCapture
Device storage (i.e., INT, USB, or SD)	MMEMory:STORe:IQCapture:DEVice
File count	MMEMory:STORe:IQCapture:FCOunt
File count mode	MMEMory:STORe:IQCapture:FCOunt:MULTiple
File name	MMEMory:STORe:IQCapture:FNAMe
File type (i.e., CSV, TXT, SDF, or MAT)	MMEMory:STORe:IQCapture:FTYPe
Start data capture	MMEMory:STORe:IQCapture:STARt
Stop data capture	MMEMory:STORe:IQCapture:STOP
Capture length	[:SENSe]:MEASure:CAPTure:LENGth
Capture time	[:SENSe]:MEASure:CAPTure:TIME
Reads the I/Q data	TRACe:IQCapture:DATA?

Trigger Settings

Auto trigger time	TRIGger[:SEQuence]:ATRigger

Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe
Trigger Delay (EXTernal)	TRIGger[:SEQuence]:EXTernal:DELay
Trigger Delay ON/OFF (EXTernal)	TRIGger[:SEQuence]:EXTernal:DELay:STATe
Trigger slope (Pos/Neg) - (EXTernal)	TRIGger[:SEQuence]:EXTernal:SLOPe
Trigger Delay (RFBurst)	TRIGger[:SEQuence]:RFBurst:DELay
Trigger Delay ON/OFF (RFBurst)	TRIGger[:SEQuence]:RFBurst:DELay:STATe
Glitch Mask (RFBurst)	TRIGger[:SEQuence]:RFBurst:GLIMask
Trigger Level (RFBurst)	TRIGger[:SEQuence]:RFBurst:LEVel
Trigger slope (Pos/Neg) - (RFBurst)	TRIGger[:SEQuence]:RFBurst:SLOPe
Trigger type (Freerun/External/Video/RF Burst)	TRIGger[:SEQuence]:SOURce
Trigger Delay (VIDeo)	TRIGger[:SEQuence]:VIDeo:DELay
Trigger Delay ON/OFF (VIDeo)	TRIGger[:SEQuence]:VIDeo:DELay:STATe
Trigger Level (VIDeo)	TRIGger[:SEQuence]:VIDeo:LEVel
Trigger slope (Pos/Neg) - (VIDeo)	TRIGger[:SEQuence]:VIDeo:SLOPe

FFT (Spectrum)

FFT analysis length	[:SENSe]:SPECtrum:FFT:ANALysis:LENGth
FFT window length control (Enable/Disable)	[:SENSe]:SPECtrum:FFT:LENGth:AUTO
FFT window	[:SENSe]:SPECtrum:FFT:WINDow

Sample

Sample period	[:SENSe]:MEASure:SPERiod
Sample rate	[:SENSe]:MEASure:SRATe

Waveform

Start time	[:SENSe]:WAVeform:STARt
Stop time	[:SENSe]:WAVeform:STOP

Last Modified:

01nov2017	Added I/Q Mode (10.1x)

USB Power Meter Mode Commands

- Core USB Power Meter commands
- FOPS-(Option 208) unique commands

See Also

- Commands that are Common to All Modes
- Pulse Measurements (Option 330) commands
- Status Registers

Core USB Power Meter commands

Description	Command
Set relative Power Meter measurements	CALCulate:RELative[:MAGNitude]:AUTO
Performs external power meter zeroing.	CALibration:ZERO:TYPE:EXT
Set Minimum scale value	DISPlay[:WINDow]:ANALog:LOWer
Set Maximum scale value	DISPlay[:WINDow]:ANALog:UPPer
Set PM resolution	DISPlay[:WINDow][:NUMeric]:RESolution
Query USB sensor for serial number & model	:DISPlay:MODel:DATA?
Set number of sweep averages.	[:SENSe]:AVERage:COUNt
Set averaging mode	[:SENSe]:AVERage[:MODE]
Set Step Detection	[SENSe]:AVERage:SDETect
Set Offset value.	[:SENSe]:CORRection:GAIN2[:INPut][:MAGNitude]
Set Offset ON | OFF state	[:SENSe]:CORRection:GAIN2:STATe
Set frequency	[:SENSe]:FREQuency
Read measurement data	[:SENSe]:TRACe[:DATA]?
Set the minimum (lower) limit value.	[:SENSe]:TRACe:LIMit:LOWer
Set the lower ON | OFF State.	[:SENSe]:TRACe:LIMit:LOWer:STATe
Set the maximum (upper) limit value.	[:SENSe]:TRACe:LIMit:UPPer
Set the upper ON | OFF State.	[:SENSe]:TRACe:LIMit:UPPer:STATe

Set Source Enable	SOURce:ENABle
Set Source power level	SOURce:POWer
Set PM units	UNIT:POWer

FOPS (Option 208) unique commands

- Normalization
- Setup
- Display Annotation and Scaling
- Markers
- Trace Math

See Also: Example Program

Perform Normalization

There is NO unique FOPS command to MEASURE the source power.

Instead, use the following method:

1. Prompt to connect the power sensor to port 1 RF Output reference plane.
2. Send INIT:CONT 0
3. Send INITiate[:IMMediate]
4. Send SOURce:POWer:MEMorize to store the data trace to memory.
5. Send [:SENSe]:TRACe:MEASurement to display your measurement choice.

FOPS Setup

Description	Command
Specify swept frequency	[:SENSe]:SWEep:TYPE
Center frequency	SOURce:FREQuency:CENTer
Frequency span	SOURce:FREQuency:SPAN
Start frequency	SOURce:FREQuency:STARt
Stop frequency	SOURce:FREQuency:STOP
Offset frequency	SOURce:RECeiver:OFFSet
Number of points	[:SENSe]:SWEep:POINts
Frequency step size	[:SENSe]:FREQuency:STEP
Set dwell time	[:SENSe]:POINt:DWELl
Receiver sweep direction	[:SENSe]:SWEep:RX
Power sensor	[:SENSe]:TOL

tolerance	
Max number of PS readings	[:SENSe]:POINt:READ:MAX

Display Annotation and Scaling

Description	Command
Grid ON/OFF	DISPlay:GRID
Method used to annotate frequency	DISPlay:ANNotation:FREQuency
Autoscale the trace	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:AUTO
Scaling - per division	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:PDIVision
Scaling - reference position	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:RPOSition
Scaling - reference level	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:RLEVel

Markers

Description	Command
Select a marker	CALCulate[:SELected]:MARKer:ACTivate
Marker ON/OFF	CALCulate[:SELected]:MARKer[:STATe]
Move a marker	CALCulate[:SELected]:MARKer:X
Read marker amplitude	CALCulate[:SELected]:MARKer:Y?
Set marker to Max	CALCulate[:SELected]:MARKer:FUNCtion:MAXimum
Set marker to Min	CALCulate[:SELected]:MARKer:FUNCtion:MINimum
Amp. markers ON/OFF	CALCulate[:SELected]:AMPLitude:MARKer:STATe
Amp. marker 1	CALCulate[:SELected]:AMPLitude:MARKer:Y1|Y
Amp. marker 2	CALCulate[:SELected]:AMPLitude:MARKer:Y2
Delta Amp. markers ON/OFF	CALCulate[:SELected]:AMPLitude:MARKer:DELTa:STATe

Trace Math

Description	Command
Store a data trace to memory	CALCulate[:SELected]:MATH:MEMorize
Read data trace	CALCulate[:SELected]:TRACe:DATA
Read memory trace	CALCulate:[SELected]:FMEM:DATA?

Show Data /Mem trace	DISPlay:WINDow:TRACe

Built-in Power Meter (CPM) Mode Commands

- Frequency and Power
- Radio Standards
- Read Data
- Alignments (InstAlign)
- Display
- Limit Lines

See Also

- Commands that are Common to All Modes
- Status Registers

Frequency and Power

Description	Command
Set frequency	[:SENSe]:FREQuency
Step size for up/down keys	[:SENSe]:FREQuency:CENTer:STEP
Freq span	[:SENSe]:FREQuency:SPAN
Attenuation value	[:SENSe]:POWer[:RF]:ATTenuation

Radio Standard

Channel number center	[:SENSe]:RADio:CHANnel:CENTer
Uplink or Downlink	[:SENSe]:RADio:CHANnel:DIRection
Channel step size	[:SENSe]:RADio:CHANnel:STEP
Select standard	[:SENSe]:RADio:STANdard[:SELect]
Freq or Chan	[:SENSe]:RADio:TEUNit

Read Data

Read measurement data	[:SENSe]:TRACe[:DATA]?

Alignments (InstAlign)

Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]

Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]

Display

Display units	[:SENSe]:AMPLitude:UNIT
Set Minimum scale value	DISPlay[:WINDow]:ANALog:LOWer
Set Maximum scale value	DISPlay[:WINDow]:ANALog:UPPer
Set PM resolution	DISPlay[:WINDow][:NUMeric]:RESolution
Enable averaging	[:SENSe]:AVERage[:ENABle]
Set number of sweep averages.	[:SENSe]:AVERage:COUNt
Make relative measurements	CALCulate:RELative[:MAGNitude]:AUTO
Set Offset value.	[:SENSe]:CORRection:GAIN2[:INPut][:MAGNitude]
Set Offset ON | OFF state	[:SENSe]:CORRection:GAIN2:STATe

Limit Lines

Set the minimum (lower) limit value.	[:SENSe]:TRACe:LIMit:LOWer
Set the lower ON | OFF State.	[:SENSe]:TRACe:LIMit:LOWer:STATe
Set the maximum (upper) limit value.	[:SENSe]:TRACe:LIMit:UPPer
Set the upper ON | OFF State.	[:SENSe]:TRACe:LIMit:UPPer:STATe

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Last Modified:

1-Apr-2014	Added CPM commands (A.07.50)

VVM Mode Commands

See Also:

VVM Cable Trimming Example

Commands that are Common to All Modes

Description	Command
Create measurement	CALCulate:PARameter:DEFine
Averaging	[:SENSe]:AVERage:COUNt
Zeroing	[:SENSe]:CORRection:ZERO:STATe [:SENSe]:CORRection:ZERO:REFerence

Set frequency	[:SENSe]:FREQuency:CENTer
Read points (always 2)	[:SENSe]:SWEep:POINts
Set power	SOURce:POWer
Read data	TRACe:DATA
IF Bandwidth	[:SENSe]:BWID
Resolution	DISPlay[:WINDow][:NUMeric]:RESolution

Pulse Measurements (Option 330) Commands

The following commands are part of the USB Power Meter mode.

- Select a Measurement / Trace
- Time / Frequency
- Average and Bandwidth Video
- Scale
- Display
- Trigger
- Markers
- Limits
- Read / Save Data

See Also

- USB PM Mode Commands
- Commands that are Common to All Modes
- Status Registers

Select a Measurement / Trace

Description	Command
Set measurement.	CALCulate:FEED:MODE

Time / Frequency

Description	Command
Center time of zoom window	CALCulate[:SELected]:TIME:AUX:CENTer
Time/div of zoom window	CALCulate[:SELected]:TIME:AUX:PDIVision
Center time of trace graph	CALCulate[:SELected]:TIME:CENTer
Span time of trace graph	CALCulate[:SELected]:TIME:LENGth

Time/div of trace graph	CALCulate[:SELected]:TIME:PDIVision
Start time of trace graph	CALCulate[:SELected]:TIME:STARt
Frequency of meas	[:SENSe]:FREQuency
Number of points	[:SENSe]:RESolution

Average and Bandwidth Video

Description	Command
Number of averages	[:SENSe]:AVERage:COUNt
Averaging Auto, Man, Off	[:SENSe]:AVERage[:MODE]
Step detection mode	[:SENSe]:AVERage:SDETect
Set and query the IF bandwidth	[:SENSe]:BWID
Video bandwidth	[:SENSe]:BWIDth:VIDeo

Scale

Meter = Meter-style only; **TG** = Trace Graph only; **Both** = Meter and Trace Graph

Description	Command
Meter - Relative ON/OFF	CALCulate:RELative[:MAGNitude]:AUTO
Meter - Min Scale	DISPlay:WINDow:ANALog:LOWer
Meter - Max Scale	DISPlay:WINDow:ANALog:UPPer
Meter - Resolution	DISPlay:WINDow[:NUMeric]:RESolution
TG - Autoscale	None
TG - Scale	None
TG - Ref Lv	None
TG - Ref Pos	None
Both - Scale Offset ON/OFF	[:SENSe]:CORRection:GAIN2:STATe
Both - Scale Offset value	[:SENSe]:CORRection:GAIN2[:INPut][:MAGNitude]

Display

Description	Command
Grid ON/OFF	DISPlay:GRID
Marker Table ON/OFF	DISPlay:TABLe:MARKer
Auto Analysis ON/OFF	DISPlay:TABLe:RESults

Read Auto Analysis data	DISPlay:TABLe:RESults:DATA
Zoom window ON/OFF	DISPlay:WINDow:ZOOM

Trigger

Description	Command
Internal, External, Freerun	TRIGger:SOUrce
Trigger delay value	TRIGger:DELay
Trigger level value	TRIGger:LEVel
Auto or Manual level	TRIGger:LEVel:AUTO
Pos or Neg edge	TRIGger:SLOPe

Markers

Description	Command
Select a marker	CALCulate[:SELected]:MARKer:ACTivate
Marker ON/OFF	CALCulate[:SELected]:MARKer[:STATe]
Move a marker	CALCulate[:SELected]:MARKer:X
Read marker amplitude	CALCulate[:SELected]:MARKer:Y?
Set markers to Falltime	CALCulate[:SELected]:MARKer:FUNCtion:FALLtime
Set markers to Risetime	CALCulate[:SELected]:MARKer:FUNCtion:RISetime
Set marker to Max	CALCulate[:SELected]:MARKer:FUNCtion:MAXimum
Set marker to Min	CALCulate[:SELected]:MARKer:FUNCtion:MINimum
Peak Excursion value	CALCulate[:SELected]:MARKer:FUNCtion:PEXCursion
Peak Threshold value	CALCulate[:SELected]:MARKer:FUNCtion:PTHReshold
Find Next Peak	CALCulate[:SELected]:MARKer:FUNCtion:PNEXt
Find Target value	CALCulate[:SELected]:MARKer:FUNCtion:TARGet
Marker search - Wrap/No Wrap	CALCulate[:SELected]:MARKer:FUNCtion:TDIRection
Set marker tracking	CALCulate[:SELected]:MARKer:FUNCtion:TRACking
Search zoom window or primary trace.	CALCulate[:SELected]:MARKer:FUNCtion:ZONE
Delta Amp. markers ON/OFF	CALCulate[:SELected]:AMPLitude:MARKer:DELTa:STATe
Amp. markers ON/OFF	CALCulate[:SELected]:AMPLitude:MARKer:STATe
Amp. marker 1	CALCulate[:SELected]:AMPLitude:MARKer:Y1|Y

Amp. marker 2	CALCulate[:SELected]:AMPLitude:MARKer:Y2
Pulse top	[SENSe]:TRACe:MEASurement:REFerence

Read / Save Data

Description	Command
Read trace graph data.	CALCulate[:SELected]:TRACe:DATA
Read Meter-style data	[:SENSe]:TRACe[:DATA]?
Save to *.csv file	MMEMory:STORe:FDATa

Limits (Meter-style ONLY)

Description	Command
Lower limit value	[:SENSe]:TRACe:LIMit:LOWer
Lower limit state	[:SENSe]:TRACe:LIMit:LOWer:STATe
Upper limit value	[:SENSe]:TRACe:LIMit:UPPer
Upper limit state	[:SENSe]:TRACe:LIMit:UPPer:STATe

ERTA Mode Commands

ONLY ERTA specific commands are shown here.

Use SA Mode Commands for all other relevant settings not listed here. For example, Frequency range and Tracking Offset commands.

Description	Command
Set and query the partner network identity.	[:SENSe]:MEASurement:ERTA:PNID
Verify the identified partner is ERTA capable.	[:SENSe]:MEASurement:ERTA:PVERify?
Set ERTA stimulus-response role.	[:SENSe]:MEASurement:ERTA:ROLE?
Set and read Partnership status.	[:SENSe]:MEASurement:ERTA:PSTatus
Trace Receiver Input, valid during ERTA partnership	TRACe:ERTA:RINPut

See Also

- Commands that are Common to All Modes
- Status Registers

Channel Scanner Mode (Option 312) Commands - Requires SA

In this topic:

See Also

- Commands that are Common to All Modes
- Correction Methods Explained
- New Programming Commands
- Status Registers

Data

Returns a set of values	:CHSCanner:DATA?
Sets the folder path to Default or System	:CHSCanner:USER:FOLDer

Display

Set freq and pow	:CHSCanner:DISPlay:SORT
Set up and down sort order	:CHSCanner:DISPLAy:SORT:ORDer
Set display window trace Y Pow division	:CHSCanner:DISPLAy:WINDow:TRACe:Y[:SCALe]:PDIVsion
Set display window trace Y Ref level	:CHSCanner:DISPLAy:WINDow:TRACe:Y[:SCALe]:RLEVel

Edit List

Returns a set of values	:CHSCanner:EDIT:LIST?
Add comma separated list item	:CHSCanner:EDIT:LIST:ADD
Clears all items from list	:CHSCanner:EDIT:LIST:CLEar

Range

Reads or writes items in Range mode	:CHSCanner:EDIT:RANGe:COUNt
Set integration bandwidth	:CHSCanner:EDIT:RNAGE:IBW

Field Strength (Corrections)

All corrections ON	[:SENSe]:AMPLitude:CORRections[:STATe]

Receiver (or ONLY one) Antenna/Cables

Load Antenna file	MMEMory:LOAD:ANTenna
Store Antenna file	MMEMory:STORe:ANTenna
Load Cable file	MMEMory:LOAD:CABLe
Store Cable file	MMEMory:STORe:CABLe
Antenna corrections ON	[:SENSe]:AMPLitude:CORRections:ANTenna[:STATe]
Cable corrections ON	[:SENSe]:AMPLitude:CORRections:CABLe[:STATe]
Clear Antenna correction values	[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault
Clear Cable correction values	[:SENSe]:AMPLitude:CORRections:CABLe:DEFault
Display corrections window	[:SENSe]:AMPLitude:CORRections:VIEW

Log and Recording

Begin recording results	:CHSCanner:LOG:ACTion:RECord
Stop recording	:CHSCanner:LOG:ACTion:STOP
Read and writes the distance interval	:CHSCanner:LOG:CONFigure:INTerval:DISTance
Enable or disable the measurement interval	:CHSCanner:LOG:CONFigure:INTerval:STATe
Read and write the time interval	:CHSCanner:LOG:CONFigure:INTerval:TIMe
Set type of interval	:CHSCanner:LOG:CONFigure:INTerval:TYPe
Enable or disable the log file auto-save	:CHSCanner:LOG:CONFigure:SAVe:AUTo
Query the state	:CHSCanner:LOG[:STATe]?

File Commands

Sets the user folder path to default or system	:CHSCanner:USER:FOLDer

Search Channels

Set the number of channels to scan	:CHSCanner:SEARch:COUNt
Set top or bottom number of	:CHSCanner:SEARch:TYPe

channels	

Alignments (InstAlign)

Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]
Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]

Channel Power

Set the active channel	:CHSCanner[:SENSe]:CHANnel:SELect
Set the RF attenuator value manually	:CHSCanner[:SENSe]:POWer[:RF]:ATTenuation
Set the RF attenuator to Auto	:CHSCanner[:SENSe]:POWer[:RF]:ATTenuation:AUTO
Set the external Gain	:CHSCanner[:SENSe]:POWer[:RF]:EXTGain
Enable or disable the Gain state	:CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe

Units

Set Units	[:SENSe]:AMPLitude:UNIT

Sweep

Set the averaging count	:CHSCanner:SWEep:AVERage:COUNt
Enable or Disable the averaging state	:CHSCanner:SWEep:AVERage[:STATe]
Set the displayed sweep type	:CHSCanner:SWEep:DISPlay:TYPE
Set the sweep mode	:CHSCanner:SWEep:MODE

SA Listen

Set SA Listen D type	:CHSCanner[:SENSe]:SAListen:DTYPE
Set SA Listen L Time value	:CHSCanner[:SENSe]:SAListen:LTIMe
Pause data recording	:CHSCanner[:SENSe]:SAListen:PAUSe
Resume date recording	:CHSCanner[:SENSe]:SAListen:RESume

MMEMory comands - related to Channel Scanner

Save a CSV formatted file to Channel Scanner folder	:MMEMory:STORe:LOG:CSV
Save a KML formatted file to Channel Scanner folder	:MMEMory:STORe:LOG:KML
Load a *.csv or *.kml log file	:MMEMory:LOAD:LOG
Load a *.csv custom list file	:MMEMory:LOAD:LIST

Save a *csv custom list file	:MMEMory:STATe:STORe:LIST

LTE FDD Mode (Option 370) Commands - Requires SA and GPS

In this topic:

See Also

- Commands that are Common to All Modes
- Correction Methods Explained
- New Programming Commands
- Status Registers

Data

Returns a set of values with GPS information.	LTEFdd:DATA:GPS?
Returns a set of values without GPS information.	LTEFdd:DATA?

Display

Sets the trace data type (RSRP | RSRQ |RSSI | PSS | SSS | SINR)	DISPlay:LTEFdd:TRACe:DATA
Set the selected window to be displayed.	DISPlay:LTEFdd:WINDow[:SELect]
Set and query the component carrier (cc).	DISPlay:LTEFdd:WINDow[1]|2|3|4:CCARrier
Set the window trace type (Table, Bar Chart, Spectrum, Strip Chart).	DISPlay:LTEFdd:WINDow[1]|2|3|4:DATA
Sets the order of the data sorting (AUTO | UP | DOWN)	DISPlay:LTEFdd:WINDow[1]|2|3|4:SORT:DATA

Sets the type of data being sorted (RSRP | RSRQ |RSSI | PSS | SSS | SINR)	DISPlay:LTEFdd:WINDow[1]|2|3|4:SORT:ORDer
Set the selected window state.	DISPlay:LTEFdd:WINDow[1]|2|3|4:STATe

Favorites List

Set the current channel and band to a favorites setup	[:SENSe]:LTEFdd:CCARrier:LIST[1]|2|3|4|5:ADD
Query the band in the current selected favorites setup	[:SENSe]:LTEFdd:CCARrier:LIST[1]|2|3|4|5:BAND?
Query the channel in the current selected favorites setup	[:SENSe]:LTEFdd:CCARrier:LIST[1]|2|3|4|5:CHANnel?
Remove the current channel and band favorites setup	[:SENSe]:LTEFdd:CCARrier:LIST[1]|2|3|4|5:REMove
Apply a favorites setup--band and channel--to a measurement	[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:LIST[1]|2|3|4|5:APPLy

Frequency / Carrier

Set and query the frequency error threshold	[:SENSe]:LTEFdd:FERRor:THReshold
Set and query the extended frequency lock	[:SENSe]:LTEFdd:FLRange:EXTended
Set and query the component carrier band	[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:BAND
Set and query the component carrier channel	[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:CHANnel
Set and query the selected carrier	[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:ENABle
Set and query the center frequency of each component carrier (CC)	[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:FREQuency:CENTer
Set and query the component carrier mode (CHANnel | FREQuency)	[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:MODE

Scale / Units

Auto Scale the bar chart scan data	DISPlay:LTEFdd:BCHart:Y[:SCALe]:AUTO
Set and query the per division value of the Bar Graph data	DISPlay:LTEFdd:BCHart:Y[:SCALe]:PDIVision
Set and query the Bar Chart reference value	DISPlay:LTEFdd:BCHart:Y[:SCALe]:RLEVel
Auto Scale the Strip chart scan data	DISPlay:LTEFdd:SCHart:Y[:SCALe]:AUTO
Set and query the per division	DISPlay:LTEFdd:SCHart:Y[:SCALe]:PDIVision

value of the Strip Chart data	
Set and query the Strip Chart reference valuef	DISPlay:LTEFdd:SCHart:Y[:SCALe]:RLEVel
Auto Scale the Spectrum chart scan data	DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:AUTO
Set and query the per division value of the Spectrum data	DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:PDIVision
Set and query the Spectrum reference value	DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:RLEVel
Set and query the reference position of the Spectrum trace	DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:RPOSition
Alignments (InstAlign)	
Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]
Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]
Power	
Set the RF attenuator value manually	[:SENSe]:POWer[:RF]:ATTenuation
Set the RF attenuator to Auto	[:SENSe]:POWer[:RF]:ATTenuation:AUTO
Set the external Gain	[:SENSe]:POWer[:RF]:EXTGain
Enable or disable the Gain state	[:SENSe]:POWer[:RF]:GAIN[:STATe]
Set the absolute power level	[:SENSe]:POWer[:RF]:RLEVel
Set the red bar chart limit	[:SENSe]:POWer[:RF]:RPLevel
Set the blue bar chart limit	[:SENSe]:POWer[:RF]:BPLevel
Trigger Settings	
Auto trigger time	TRIGger[:SEQuence]:ATRigger
Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe
Trigger Slope (Pos/Neg)	TRIGger[:SEQuence]:EXTernal:SLOPe
Trigger Delay	TRIGger[:SEQuence]:EXTernal:DELay
Trigger Delay ON/OFF	TRIGger[:SEQuence]:EXTernal:DELay:STATe
Trigger Type (Ext/Freerun)	TRIGger[:SEQuence]:SOURce
Record/Playback Actions	
Pause	RECPlayback:ACTion:PAUSe

Play	RECPlayback:ACTion:PLAY
Sets the position number of component carrier manually, when paused.	RECPlayback:ACTion:POSition
Sets the position number of component carrier automatically, when paused.	RECPlayback:ACTion:POSition:AUTO
Record	RECPlayback:ACTion:RECord
Save (.kml or .csv)	RECPlayback:ACTion:SAVE
Stop	RECPlayback:ACTion:STOP

Record/Playback Configuration

Sets the device type storage location (INTernal | USB | SD)	RECPlayback:CONFig:FILE:DEVice
Enables/Disables overwrite data filename	RECPlayback:CONFig:FILE:OWRite
Sets the data storage type (KML | CSV)	RECPlayback:CONFig:FILE:TYPE
Set the recording distance interval	RECPlayback:CONFig:INTerval:DISTance
Enables/Disables the measurement interval requirement for saving records	RECPlayback:CONFig:INTerval:STATe
Set and query time interval in seconds	RECPlayback:CONFig:INTerval:TIME
Sets the measurement interval for saving records (TIME | DISTance)	RECPlayback:CONFig:INTerval:TYPE

Sweep

Enables/disables continuous sweep	:INITiate:CONTinuous
Restarts the trace averaging	:INITiate:RESTart

MMEMory comands - related to LTE FDD

Save a file to the default folder	:MMEMory:STORe:FDATa
Load a *.csv or *.kml from an OTA recorder folder	:MMEMory:LOAD:OTA:LOG

5GTF Mode (Option 377) Commands - Requires SA and GPS

In this topic:

- Data
- Display
- Frequency / Carrier
- Scale / Units
- Alignments (InstAlign)
- Power
- Trigger Settings
- Record Playback Actions
- Record Playback Configurations
- Sweep
- Related MMEMory commands

See Also

- Commands that are Common to All Modes
- Correction Methods Explained
- New Programming Commands
- Status Registers

Data

Returns a set of values with GPS information.	V5G:DATA:GPS?
Returns a set of values without GPS information.	V5G:DATA?
Sets the trace data type (PSS | SSS | POW)	DISPlay:V5G:TRACe:DATA
Set and query the component carrier (cc).	DISPlay:V5G:WINDow[1]|2|3|4:CCARrier
Set the window trace type (Table, Bar Chart, Spectrum, Strip Chart).	DISPlay:V5G:WINDow[1]|2|3|4:DATA
Sets the order of the data sorting (AUTO | UP | DOWN)	DISPlay:V5G:WINDow[1]|2|3|4:SORT:DATA
Sets the type of data being sorted (PSS | SSS | POW)	DISPlay:V5G:WINDow[1]|2|3|4:SORT:ORDer

Display

Set the selected window to be displayed.	DISPlay:V5G:WINDow[:SELect]
Set the selected window state.	DISPlay:V5G:WINDow[1]|2|3|4:STATe

Frequency / Carrier

Set and query the sync correlation threshold percentage	[:SENSe]:V5G:SCORr:THReshold
Set and query the selected carrier	[:SENSe]:V5G:CCARrier[1]|2|3|4|5|6|7|8:ENABle

Set and query the center frequency of each component carrier (CC)	[:SENSe]:V5G:CCARrier[1]|2|3|4|5|6|7|8:FREQuency:CENTer

Scale / Units

Auto Scale the bar chart scan data	DISPlay:V5G:BCHart:Y[:SCALe]:AUTO
Set and query the per division value of the Bar Graph data	DISPlay:V5G:BCHart:Y[:SCALe]:PDIVision
Set and query the Bar Chart reference value	DISPlay:V5G:BCHart:Y[:SCALe]:RLEVel
Auto Scale the Strip chart scan data	DISPlay:V5G:SCHart:Y[:SCALe]:AUTO
Set and query the per division value of the Strip Chart data	DISPlay:V5G:SCHart:Y[:SCALe]:PDIVision
Set and query the Strip Chart reference value	DISPlay:V5G:SCHart:Y[:SCALe]:RLEVel
Auto Scale the Spectrum chart scan data	DISPlay:V5G:SPECtrum:Y[:SCALe]:AUTO
Set and query the per division value of the Spectrum data	DISPlay:V5G:SPECtrum:Y[:SCALe]:PDIVision
Set and query the per division reference value of the Spectrum trace	DISPlay:V5G:SPECtrum:Y[:SCALe]:RLEVel
Set and query the reference position of the Spectrum trace	DISPlay:V5G:SPECtrum:Y[:SCALe]:RPOSition

Alignments (InstAlign)

Align all now (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL:NOW
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGnment:ALL[:STATe]
Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]

Power

Set the RF attenuator value manually	[:SENSe]:POWer[:RF]:ATTenuation
Set the RF attenuator to Auto	[:SENSe]:POWer[:RF]:ATTenuation:AUTO
Set the external Gain	[:SENSe]:POWer[:RF]:EXTGain
Enable or disable the Gain state	[:SENSe]:POWer[:RF]:GAIN[:STATe]
Set the absolute power level	[:SENSe]:POWer[:RF]:RLEVel

Set the red bar chart limit	[:SENSe]:POWer[:RF]:RPLevel
Set the blue bar chart limit	[:SENSe]:POWer[:RF]:BPLevel

Trigger Settings

Auto trigger time	TRIGger[:SEQuence]:ATRigger
Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe
Trigger Type (Ext/Freerun)	TRIGger[:SEQuence]:SOURce
Trigger Slope (Pos/Neg)	TRIGger[:SEQuence]:EXTernal:SLOPe
Trigger Delay	TRIGger[:SEQuence]:EXTernal:DELay
Trigger Delay ON/OFF	TRIGger[:SEQuence]:EXTernal:DELay:STATe

Record/Playback Actions

Pause	RECPlayback:ACTion:PAUSe
Play	RECPlayback:ACTion:PLAY
Sets the position number of component carrier manually, when paused.	RECPlayback:ACTion:POSition
Sets the position number of component carrier automatically, when paused.	RECPlayback:ACTion:POSition:AUTO
Record	RECPlayback:ACTion:RECord
Save (.kml or .csv)	RECPlayback:ACTion:SAVE
Stop	RECPlayback:ACTion:STOP

Record/Playback Configuration

Sets the device type storage location (INTernal | USB | SD)	RECPlayback:CONFig:FILE:DEVice
Enables/Disables overwrite data filename	RECPlayback:CONFig:FILE:OWRite
Sets the data storage type (KML | CSV)	RECPlayback:CONFig:FILE:TYPE
Set the recording distance interval	RECPlayback:CONFig:INTerval:DISTance
Enables/Disables the measurement interval requirement for saving records	RECPlayback:CONFig:INTerval:STATe
Set and query time interval in seconds	RECPlayback:CONFig:INTerval:TIME
Sets the measurement interval for saving records (TIME | DISTance	RECPlayback:CONFig:INTerval:TYPE

Sweep

Enables/disables continuous sweep	:INITiate:CONTinuous
Enable or Disable the averaging state	:INITiate:RESTart

MMEMory comands - related to 5GTF

Save a file to the default folder	:MMEMory:STORe:FDATa
Load a *.csv or *.kml from an OTA recorder folder	:MMEMory:LOAD:OTA:LOG

Noise Figure (NF) Mode (Option 356) Commands (A.10.3x and Greater Firmware Only)

In NF (Noise Figure) mode there are four types of measurements: Noise Figure, Noise Factor, Gain, Noise Temperature, and Y-Factor.

Here is the an example procedure for setting up a noise figure measurement using SCPI commands:

1. Set up the noise source and ENR table, using: CORR:ENR:MOD and set to TABLe or SPOT
2. And then
   - For SPOT commands in the Noise Source / ENR table below (*.enr)
4. Set the noise bandwidth, using the NBANDwidth command
5. Set the number of points, using SWE:POIN
6. Enter a DUT setup type, using the DUT commands table
7. Set the frequency range, using Frequency commands table
8. Setup Integration, using the Integration commands table
9. Set the uncertainty contributions, using Uncertainty commands table
10. If you haven't run a receiver calibration, then perform a Receiver Cal, using the Calibration commands table
11. Run a user calibration, using Calibration commands table
12. Set the type of noise figure measurement (Noise Figure (NFIG), Noise Factor (NFAC), Gain (GAIN), Noise Temperature (NTEM), or Y-Factor (YFAC)), using the CALCulate:PARameter:DEFine

For more information on the calibration and DUT measurement setup user interface, refer to the User's Guide (N9927-90001).

In this topic:

- Frequency

- DUT
- Sweep
- Scale / Units
- Traces
- Integration
- Noise / ENR Data
- DUT Data
- Preamplifier Data
- Uncertainty Data
- Resolution Bandwidth
- Alignments (InstAlign)
- Limit Lines
- Markers
- Calibration
- Read / Save Data

See Also

- Commands that are Common to All Modes
- Status Registers

Frequency

Description	Command
Center freq	[:SENSe]:FREQuency:CENTer
Frequency context	[:SENSe]:FREQuency:CONText
Read X-axis values	[:SENSe]:FREQuency:DATA?
IF (DUT Out) start frequency	[:SENSe]:FREQuency:IF:STARt?
LO	[:SENSe]:FREQuency:LO
RF (DUT In) Start Frequency	[:SENSe]:FREQuency:RF:STARt?
Freq span	[:SENSe]:FREQuency:SPAN
Start	[:SENSe]:FREQuency:STARt
Stop	[:SENSe]:FREQuency:STOP

DUT

After DUT loss (double)	[:SENSe]:CORRection:LOSS:AFTer[:VALue]
Before DUT loss (double)	[:SENSe]:CORRection:LOSS:BEFore[:VALue]
After loss enabled (bool)	[:SENSe]:CORRection:LOSS:AFTer:ENABled
Before loss enabled (bool)	[:SENSe]:CORRection:LOSS:BEFore:ENABLed
Before DUT temp (double)	[:SENSe]:CORRection:BEFore:TEMPerature

After DUT temp (double)	[:SENSe]:CORRection:AFTer:TEMPerature
Set DUT type	[:SENSe]:DUT[:TYPe]
Set Sideband	[:SENSe]:DUT:SIDEband
Sweep	
Sweep points	[:SENSe]:SWEep:POINts
Scale / Units	
Scaling - auto	DISPlay:WINDow:TRACe<n>:Y[:SCALe]:AUTO
Scaling - Set bottom of scale	DISPlay:WINDow:TRACe<n>:Y[:SCALe]:BOTTom
Scaling - Set per division	DISPlay:WINDow:TRACe<n>:Y[:SCALe]:PDIVision
Scaling - Set reference level	DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RLEVel
Scaling - Set reference position	DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RPOSition
Scaling - Set top of scale	DISPlay:WINDow:TRACe<n>:Y[:SCALe]:TOP
Traces	
Create measurement	CALCulate:PARameter:DEFine
Set and read number of traces	CALCulate:PARameter:COUNt
Select Measurement	CALCulate:PARameter:SELect
Multi-trace Configurations	DISPlay:WINDow:SPLit
View Memory trace	DISPlay:WINDow:TRACe<n>:MEMory:STATe
View Data trace	DISPlay:WINDow:TRACe<n>:STATe
Stores current trace points	DISPlay:WINDow:TRACe<n>:STORe
Integration	
Jitter goal	[:SENSe]:INTegration:JITTer
Maximum time per point	[:SENSe]:INTegration:MAXTime
Mode	[:SENSe]:INTegration:MODe
Time per point	[:SENSe]:INTegration:TIMe
Jitter warning	[:SENSe]:INTegration:WARNing
Jitter goal exceeded warning (query)	TRACe<n>:JITTer:WARNing:DATA?
Jitter goal exceeded memory warning (query)	TRACe<n>:MEMory:JITTer:WARNing:DATA?
Noise / ENR Data	
ENR Extrapolation state (query only)	[:SENSe]:CORRection:ENR:EXTRapolated?
Spot ENR uncertainty coverage	[:SENSe]:CORRection:ENR:SPOT:COVerage

Spot ENR gamma distribution	[:SENSe]:CORRection:ENR:SPOT:DISTribution
ENR mode	[:SENSe]:CORRection:ENR:MODe
Spot ENR off gamma	[:SENSe]:CORRection:ENR:SPOT:OFFGamma
Spot ENR on gamma	[:SENSe]:CORRection:ENR:SPOT:ONGamma
Spot ENR gamma specify style	[:SENSe]:CORRection:ENR:SPOT:SPEC
Spot ENR value	[:SENSe]:CORRection:ENR:SPOT:ENR
Spot ENR uncertainty	[:SENSe]:CORRection:ENR:SPOT:UNCertainty
T Cold	[:SENSe]:CORRection:TCOLd
Recall ENR data	MMEMory:LOAD:ENR
Save ENR data	MMEMory:STORe:ENR

DUT Data

Spot DUT distribution	[:SENSe]:CORRection:DUT:SPOT:DISTribution
Spot DUT in gamma	[:SENSe]:CORRection:DUT:SPOT:INGamma
DUT mode	[:SENSe]:CORRection:DUT:MODe
Spot DUT out gamma	[:SENSe]:CORRection:DUT:SPOT:OUTGamma
Spot DUT specify style	[:SENSe]:CORRection:DUT:SPOT:SPEC
Import DUT match data	MMemory:IMPort:DUT
Recall DUT data	MMemory:LOAD:DUT
Save DUT data	MMemory:STORe:DUT

Preamplifier Data

Spot preamp distribution	[:SENSe]:CORRection:PAMPLifier:SPOT:DISTribution
Spot preamp in gamma	[:SENSe]:CORRection:PAMPLifier:SPOT:INGamma
Preamp mode	[:SENSe]:CORRection:PAMPLifier:MODe
Spot preamp out gamma	[:SENSe]:CORRection:PAMPLifier:SPOT:OUTGamma
Spot preamp specify style	[:SENSe]:CORRection:PAMPLifier:SPOT:SPEC
Import preamplifier match data	MMEMory:IMPort:PAMPlifier
Recall preamplifier data	MMEMory:LOAD:PAMPlifier
Save preamplifier data	MMEMory:STORe:PAMPlifier

Uncertainty

Error bars (Enable/Disable)	[:SENSe]:CORRection:UNCertainty:BARS
Apply calibration uncertainty	[:SENSe]:CORRection:UNCertainty:CALibration

Uncertainty coverage	[:SENSe]:CORRection:UNCertainty:COVerage
Apply noise source uncertainty	[:SENSe]:CORRection:UNCertainty:ENR
Apply jitter uncertainty	[:SENSe]:CORRection:UNCertainty:JITTer
Apply mismatch uncertainty	[:SENSe]:CORRection:UNCertainty:MISMatch
Uncertainty questionable state (query only)	[:SENSe]:CORRection:UNCertainty:QUEStionable?
Resolution Bandwidth	
Manual resolution bandwidth value	[:SENSe]:NBANdwidth
Alignments	
Align now	[:SENSe]:ALIGnment:AMPLitude:NOW
InstAlign state	[:SENSe]:ALIGnment:AMPLitude[:STATe]
Limit / Display Lines	
Limit line beep	CALCulate[:SELected]:LIMit:SOUNnd
Create limit lines	CALCulate[:SELected]:LIMit:LLData
Limit line testing state	CALCulate:LIMit[:STATe]
Limit line testing annotation	CALCulate:LIMit:WARN
Display Line level setting	DISPlay:WINDow:TRACe:Y:DLINe
Display Line state	DISPlay:WINDow:TRACe:Y:DLINe:STATe
Read Pass / Fail	STATus:QUEStionable:LIMit:CONDition?
Build Limit from Trace	None
Markers	
Select a marker	CALCulate[:SELected]:MARKer:ACTivate
Markers - all off	CALCulate[:SELected]:MARKer:AOFF
Marker search - Max	CALCulate[:SELected]:MARKer:FUNCtion:MAXimum
Marker search - Min	CALCulate[:SELected]:MARKer:FUNCtion:MINimum
Marker search - Peak excursion	CALCulate[:SELected]:MARKer:FUNCtion:PEXCursion

Marker search - Peak left	CALCulate[:SELected]:MARKer:FUNCtion:PLEFt
Marker search - Peak Next	CALCulate[:SELected]:MARKer:FUNCtion:PNEXt
Marker search - Peak right	CALCulate[:SELected]:MARKer:FUNCtion:PRIGht
Marker search - Peak threshold	CALCulate[:SELected]:MARKer:FUNCtion:PTHReshold
Marker -> Setting	CALCulate[:SELected]:MARKer:SET
Move marker to center freq	CALCulate[:SELected]:MARKer:SET:CENTer
Move marker to ref level	CALCulate[:SELected]:MARKer:SET:REFLevel
Marker On/Off	CALCulate[:SELected]:MARKer[:STATe]
Move marker to other trace	CALCulate[:SELected]:MARKer:TRACe
Move/read marker X-axis position	CALCulate[:SELected]:MARKer:X
Read marker Y-axis position	CALCulate[:SELEcted]:MARKer:Y?
Read marker Y-axis uncertainty position	CALCulate[:SELected]:MARKer:Y:UNCertainty?
Markers - coupled	CALCulate[:SELected]:MARKer:COUPled
Marker search - Target	CALCulate[:SELected]:MARKer:FUNCtion:TARGet

Tracking On/Off	CALCulate[:SELected]:MARKer:FUNCtion:TRACking

Calibration

Receiver calibration (Cancel)	[:SENSe]:CORRection:RCALibration:CANCel
Receiver calibration (Run)	[:SENSe]:CORRection:RCALibration:RUN
Receiver calibration state (query only)	[:SENSe]:CORRection:RCALibration[:STATe]?
User calibration (Cancel)	[:SENSe]:CORRection:UCALibration:CANCel
Users calibration interpolated state (query only)	[:SENSe]:CORRection:UCALibration:INTerpolated?
User calibration (Run)	[:SENSe]:CORRection:UCALibration:RUN
User calibration state (Enable/Disable)	[:SENSe]:CORRection:UCALibration[:STATe]

Read / Save Data

Set read format	FORMat[:DATA]
Saves trace to CSV file.	MMEMory:STORe:FDATa
Read Trace Data	TRACe<n>:DATA?
Trace Data (Query the trace memory data)	TRACe<n>:MEMory:DATA?
Read the uncertainty memory trace data	TRACe<n>:MEMory:UNCertainty:DATA?
Read the uncertainty lower memory trace data	TRACe<n>:MEMory:UNCertainty:LOWer:DATA?
Read the uncertainty upper memory trace data	TRACe<n>:MEMory:UNCertainty:UPPer:DATA?
Trace Data (Query trace data)	TRACe<n>:UNCertainty:DATA?
Trace Data (Query trace data lower values)	TRACe<n>:UNCertainty:LOWer:DATA?
Trace Data (Query trace data upper values)	TRACe<n>:UNCertainty:UPPer:DATA?

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

AM/FM Metrics (Option 355) Commands - Requires SA

In this topic:

- Metrics

See Also

- Commands that are Common to All Modes
- Correction Methods Explained
- New Programming Commands
- Status Registers

Metrics

Set the AM/FM Metrics measurement type (Select 1 of *n* measurement choices)	[:SENSe]:MEASurement:ADEMod
Set the AM demodulation window's Y axis--top amplitude	[:SENSe]:ADEMod:METRics:AMTY
Select type of metrics AM FW wideband or narrow band	[:SENSe]:ADEMod:METRics:DTYPe
Set the FM demodulation window's Y axis--top amplitude	[:SENSe]:ADEMod:METRics:FMTY
Enables/disables the Audio ON or OFF while metrics enabled	[:SENSe]:ADEMod:METRics:LON
Sets the Listen time for the measurement	[:SENSe]:ADEMod:METRics:LTIMe
Enable display of Peak+ and Peak – in the demodulation window	[:SENSe]:ADEMod:METRics:MMENable
Sets the time span of the demodulation window	[:SENSe]:ADEMod:METRics:STIMe
Sets the Tune (Center) frequency	[:SENSe]:ADEMod:METRics:TFReq
Returns 8 doubles of the AM measurement (query only)	:DISPlay:ADEMod:METRics:AM:RESults:DATA?
Returns 8 doubles of the FM measurement (query only)	:DISPlay:ADEMod:METRics:FM:RESults:DATA?

Commands that are Common to All Modes

In this topic:

- Lockout Front-Panel Operation
- Preset / User Preset
- Display Control
- Triggering
- Data Transfer Format and Order
- Catalog and Select Mode

- Mass Memory - Files
- External Reference Source
- Status Registers
- System
- Battery information
- GPS
- Variable Voltage Source
- Power OFF / ON
- IEEE - Common Commands

Notes:

- There is NO command to set the Security Level.
- There is NO command to set Startup Mode.
- There is NO commands to set Date/Time using Internet.

See Also

- CAT Mode Commands
- NA Mode Commands
- PM Mode Commands
- SA Mode Commands
- VVM Mode Commands
- ERTA Mode Commands
- Pulse Measurements Mode Commands
- Status Registers

Lockout Front-Panel Operation

Lockout keypresses	INSTrument:GTR
Return local control	INSTrument:GTL

Preset / User Preset

Preset all modes to Factory settings.	SYSTem:PRESet
Preset the current mode only to Factory settings.	SYSTem:PRESet:MODE
Preset all modes to User settings.	SYSTem:UPReset
Preset the current mode only to User settings.	SYSTem:UPReset:MODE
Save User Preset settings	SYSTem:UPReset:SAVE

Display Control

Description	Command
Display OFF	DISPlay:ENABle

Set brightness	DISPlay:BRIGhtness
Set date format	DISPlay:DATE:FMT
Change keywords	DISPlay:KEYWord[:DATA]
Reset default keywords	DISPlay:KEYWord:DEFault
Display marker table	DISPlay:TABLe:MARKer
Set time format	DISPlay:TIME:FMT
Set title string	DISPlay:TITLe:DATA
Display title	DISPlay:TITLe:STATe

Triggering

Continuous triggering	INITiate:CONTinuous
Single trigger	INITiate[:IMMediate]

Data Transfer Format and Order

Format	FORMat[:DATA]
Byte Order	FORMat:BORDer

Catalog and Select Mode

Read available modes	INSTrument:CATalog?
Set mode	INSTrument[:SELect]

Mass Memory - Files

Read files	MMEMory:CATalog?
Change folder	MMEMory:CDIRectory
Copy files	MMEMory:COPY
Read any file	MMEMory:DATA
Delete file	MMEMory:DELete
Recall an instrument state file	MMEMory:LOAD:STATe
Make a new folder	MMEMory:MDIRectory
Rename a file	MMEMory:MOVE
Remove a folder	MMEMory:RDIRectory
Save a picture file	MMEMory:STORe:IMAGe
Save an instrument state file	MMEMory:STORe:STATe

See Also (Mode-specific MMEM commands)

Save data trace to csv file	MMEMory:STORe:FDATa

Save SNP data	MMEMory:STORe:SNP[:DATA]
Recall antenna data	MMEMory:LOAD:ANTenna
Recall cable data	MMEMory:LOAD:CABLe
Save antenna data	MMEMory:STORe:ANTenna
Save cable data	MMEMory:STORe:CABLe

External Reference Source

Set external reference source	[:SENSe]:ROSCillator:SOURce
Read external source status	[:SENSe]:ROSCillator:STATus?

Status Registers

Read RecordPlayback status	STATus:OPERation:SAMode:CONDition?
Read external source status	STATus:QUEStionable:FREQuency:CONDition?
Read ADC Overrange errors.	STATus:QUEStionable:INTegrity:CONDition?
Read limit line failure	STATus:QUEStionable:LIMit:CONDition?

Battery Information

Read presence of battery	SYSTem:BATTery
Read absolute charge	SYSTem:BATTery:ABSCharge?
Read average current flow	SYSTem:BATTery:ACURrent?
Read remaining run time	SYSTem:BATTery:ARTTe?
Read chemistry type	SYSTem:BATTery:CHEMistry?
Read current flow	SYSTem:BATTery:CURRent?
Read number of charge cycles the battery has experienced	SYSTem:BATTery:CYCLes?
Read manufacture date of the battery.	SYSTem:BATTery:DATE?
Read capacity	SYSTem:BATTery:FCAPacity?
Read accuracy of the battery gauge	SYSTem:BATTery:MAXError?
Read manufacturer name	SYSTem:BATTery:MFGname?
Read remaining battery capacity	SYSTem:BATTery:RCAPacity?
Read current charge compared to full capacity	SYSTem:BATTery:RELCharge?
Read remaining run time	SYSTem:BATTery:RTTE?

Set and read battery saver state. OFF leaves the source ON between sweeps.	SYSTem:BATTery:SAVer
Read serial number of the battery.	SYSTem:BATTery:SN?
Read use status	SYSTem:BATTery:STATus
Read battery temperature	SYSTem:BATTery:TEMPerature?
Read vendor / distributor of the battery.	SYSTem:BATTery:VENDor?
Read battery voltage.	SYSTem:BATTery:VOLTage?

System

Set and read the system date	SYSTem:DATE
Set and read the system time	SYSTem:TIME
Immediately erase all user data	SYSTem:ERASe
Immediately erase the error log	SYSTem:ERRor:LOG:ERASe
Read the FieldFox error queue	SYSTem:ERRor[:NEXT]?
Reset default preferences	SYSTem:PREFerences:DFLT
Save system preferences	SYSTem:PREFerences:SAVE
Set time zone.	SYSTem:TZONe
Catalog time zones.	SYSTem:TZONe:CATalog?
Set and read system volume	SYSTem:AUDio:VOLume
Set and read system volume mute state	SYSTem:AUDio:MUTe
Read the SCPI version	SYSTem:VERSion?

GPS

Set and read GPS ON|OFF state.	SYSTem:GPS[:STATe]
Query returns a string containing Carrier to Noise (C/No dBHz) data.	SYSTem:GPS:CNOise?
Read the locked state.	SYSTem:GPS:LSTate?
Set and read the display state.	SYSTem:GPS:DISPlay:STATe
Set and read the clock sync state.	SYSTem:GPS:SYNChronize
Set and read the lat/long format.	SYSTem:GPS:DISPlay:COORdinate:FORMat

Set and read the distance units.	SYSTem:GPS:DISPlay:DISTance:UNIT
Read the last locked reading.	SYSTem:GPS:DATA:LAST?
Read the current GPS data	SYSTem:GPS:DATA?

Variable Voltage Source

Current draw	SYSTem:VVS:CURRent?
Enable Voltage Source	SYSTem:VVS:ENABle
Set the high impedance load state	SYSTem:VVS:HIMD
Max current draw	SYSTem:VVS:MAXCurrent?
Read measured voltage	SYSTem:VVS:MVOLtage?
Read state (On/ Off/ Tripped)	SYSTem:VVS:[STATe]?
Read the present requested voltage	SYSTem:VVS:RVOLtage?
Set voltage	SYSTem:VVS:VOLTage

Power OFF / ON

Automatically turns the FieldFox ON when power is applied.	SYSTem:PWR:AUTO
Turns the FieldFox OFF	SYSTem:PWR:SHUTdown
Sets delay before turning the FieldFox OFF.	SYSTem:PWR:SHUTdown:DLY
Set time to wait before rebooting the FieldFox	SYSTem:PWR:SHUTdown:DURation
Reads whether the DC supply is connected	SYSTem:DCSupply?

IEEE - Common Commands

Clear status	*CLS
Event Status Enable	*ESE
Event Status Enable Query	*ESR?
Identify	*IDN?
Operation complete command	*OPC
Operation complete query	*OPC?
Identify Options Query	*OPT?
Reset	*RST
Wait	*WAI

Last Modified:

17-Jul-2012	Added many commands (5.75)
1-Feb-2011	Added GPS (5.33)

Calibration Commands

See Also

- Correction Methods Explained
- Calibration Examples
- Status Registers

Set and read error term data	[:SENSe]:CORRection:COEFficient[:DATA]
Read number of cal steps	[:SENSe]:CORRection:COLLect:GUIDed:SCOunt
Measure step number	[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire
Prompt for step number	[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt
Measure Quick Cal	[:SENSe]:CORRection:COLLect[:ACQuire]:INT
Measure load	[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD
Measure open	[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN
Measure short	[:SENSe]:CORRection:COLLect[:ACQuire]:SHORt
Measure thru	[:SENSe]:CORRection:COLLect[:ACQuire]:THRU
Set Cal Kit	[:SENSe]:CORRection:COLLect:CKIT:LABel
Catalog all cal kits	[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog?
Set connectors	[:SENSe]:CORRection:COLLect:CONNector
Select method - Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:ERES
Select method - QuickCal	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate
Select method - QuickCal Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse
Select method - Simple Open response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN
Select method - Simple Short response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORt
Select method - Thru response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:THRU

Select method - Short response	[:SENSe]:CORRection:COLLect:METHod:SRESponse
Select method - Open response	[:SENSe]:CORRection:COLLect:METHod:ORESponse
Select method - 1-port SOLT	[:SENSe]:CORRection:COLLect:METHod:SOLT1
Select method - TRL	[:SENSe]:CORRection:COLLect:METHod:TRL
Read method	[:SENSe]:CORRection:COLLect:METHod:TYPE?
Set AutoOrient for ECal	[:SENSe]:CORRection:COLLect:ECAL:AORient
Set simple ECal	[:SENSe]:CORRection:COLLect:ECAL:SIMPle
Omit Isolation	[:SENSe]:CORRection:COLLect:OISolation
Select Medium	[:SENSe]:CORRection:MEDium
Set Waveguide cutoff	[:SENSe]:CORRection:WGCutoff
Select Waveguide standard (CAT only)	[:SENSe]:CORRection:WAVeguide:STANdard
Finish Cal	[:SENSe]:CORRection:COLLect:SAVE
Turn ALL Correction ON and OFF	[:SENSe]:CORRection[:STATe]
Turn User Correction ON and OFF	[:SENSe]:CORRection:USER[:STATe]
Set system impedance	[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]
Set CalReady type	[:SENSe]:CORRection:CALReady:TYPE

Last Modified:

11sep2017 Added this topic

Status Registers

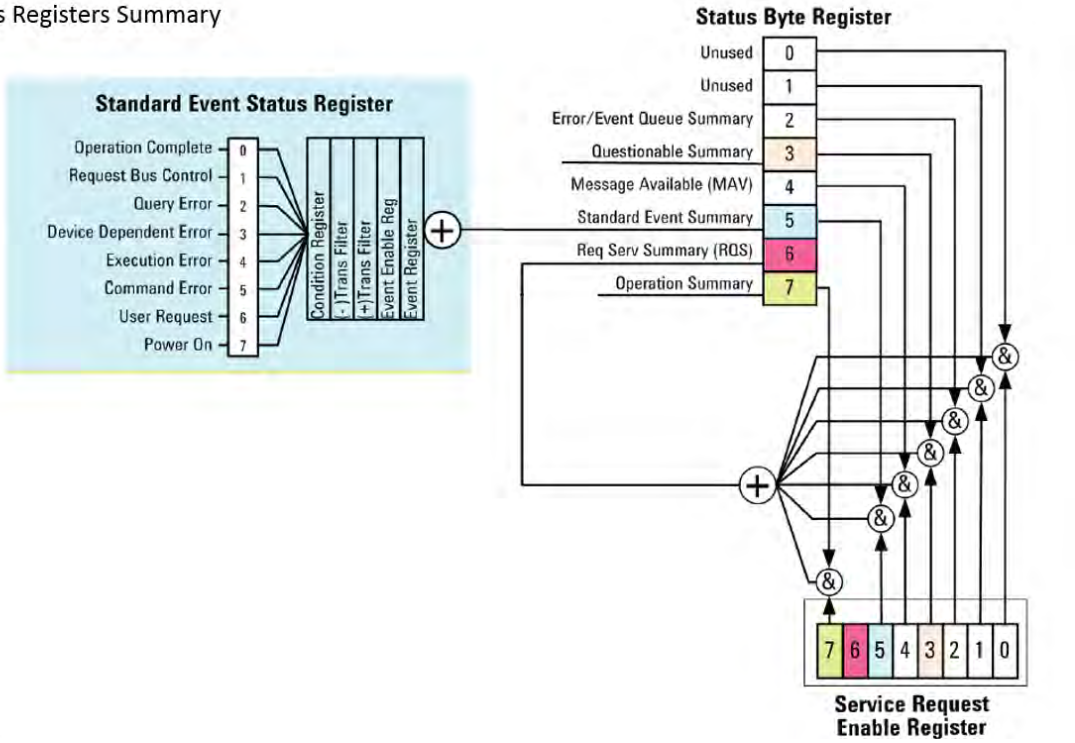
This topic contains images of the FieldFox status registers.

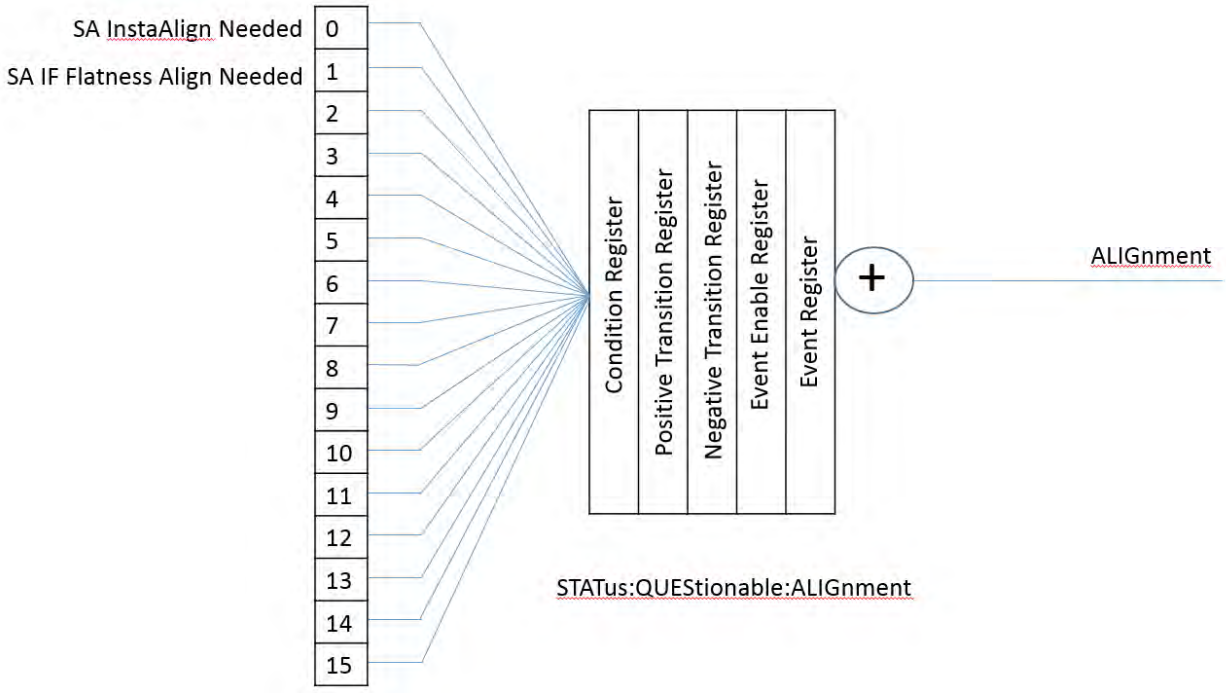
This topic contains the following registers:

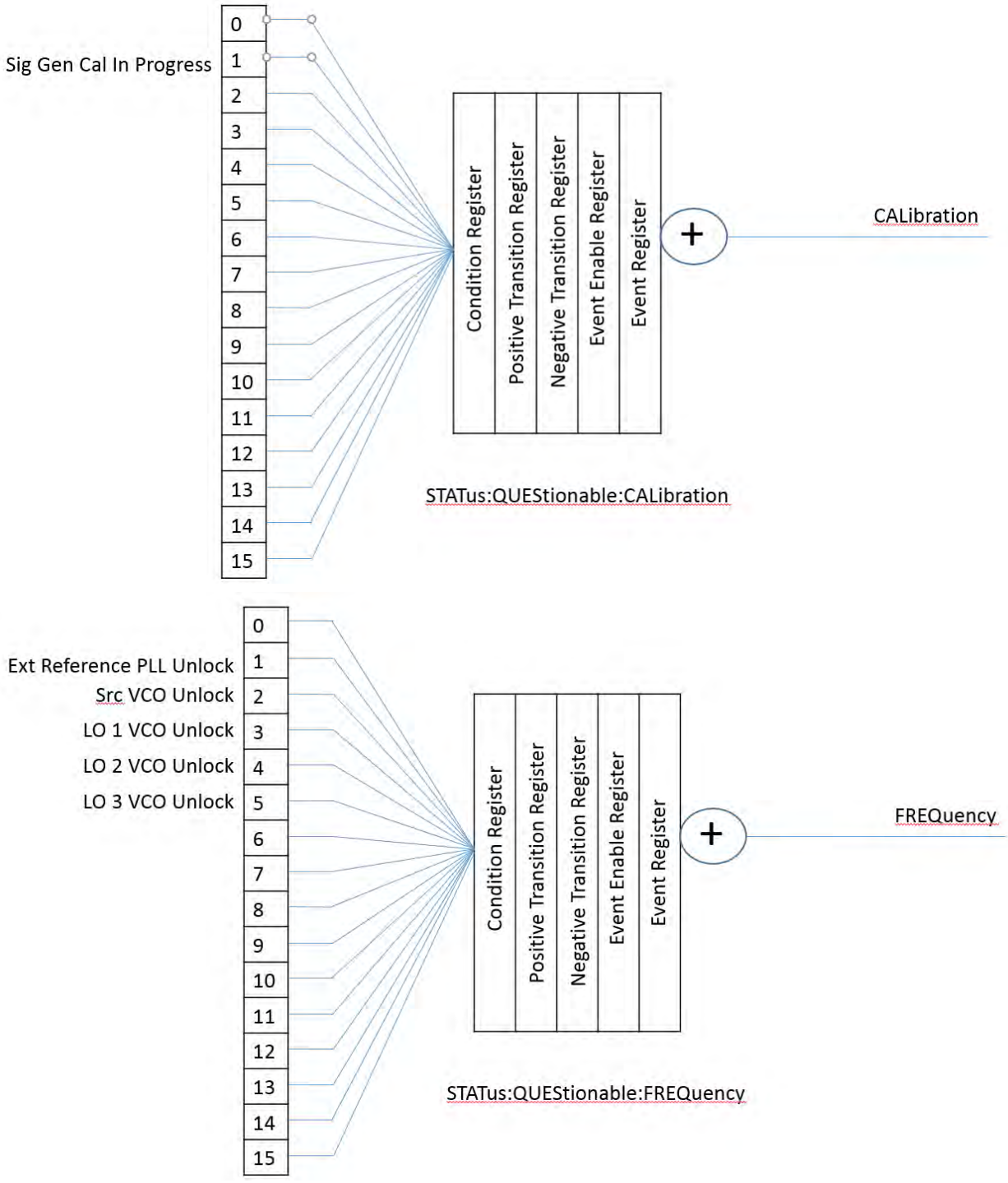
- Summary Status
- Status Questionable Alignment
- Status Questionable Calibration
- Status Questionable Frequency
- Status Questionable Integrity
- Status Questionable Limit

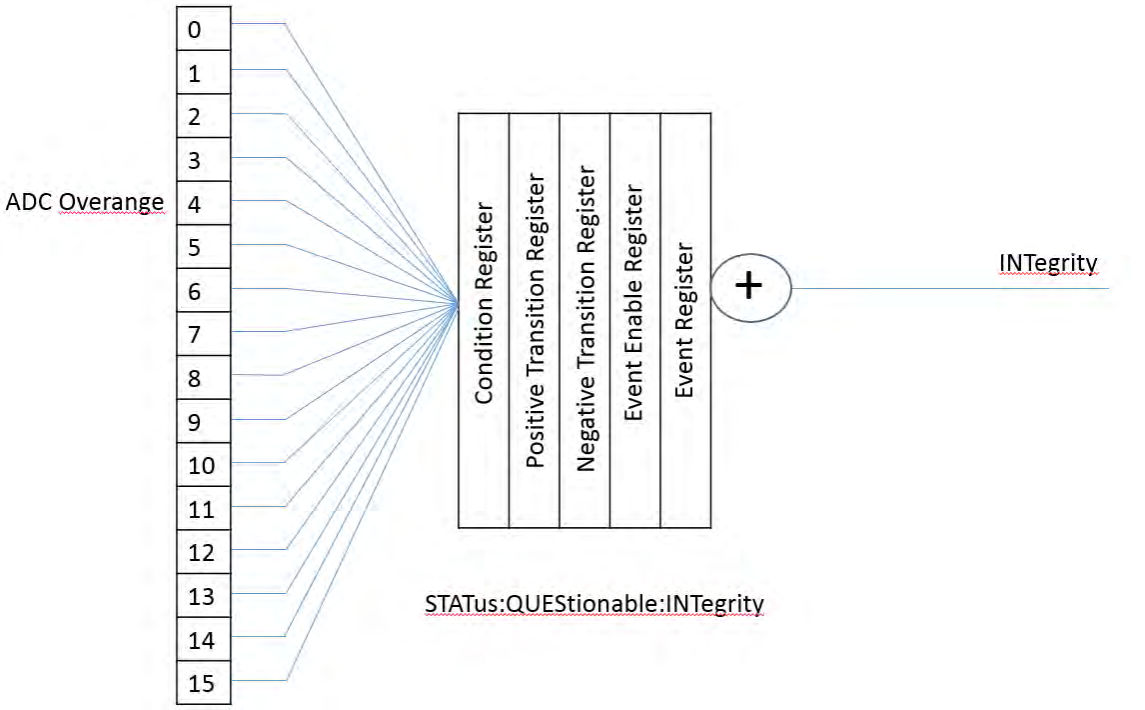
- Status Questionable
- Status Operation SA Mode
- Status Operation

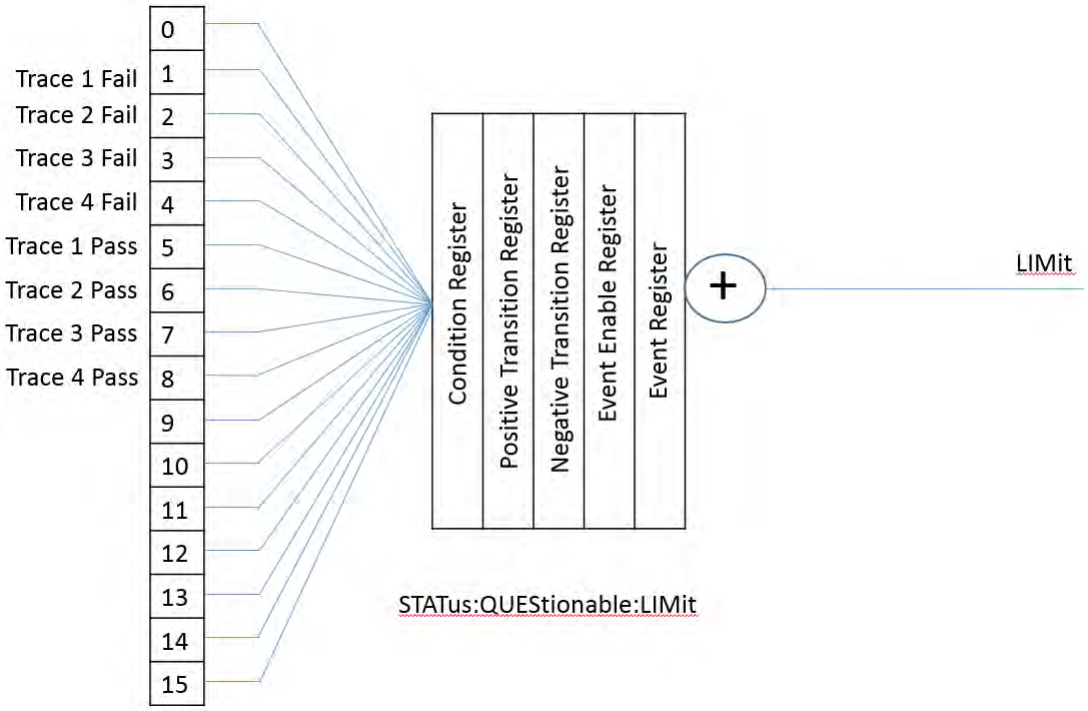
Field Fox Status Registers Summary

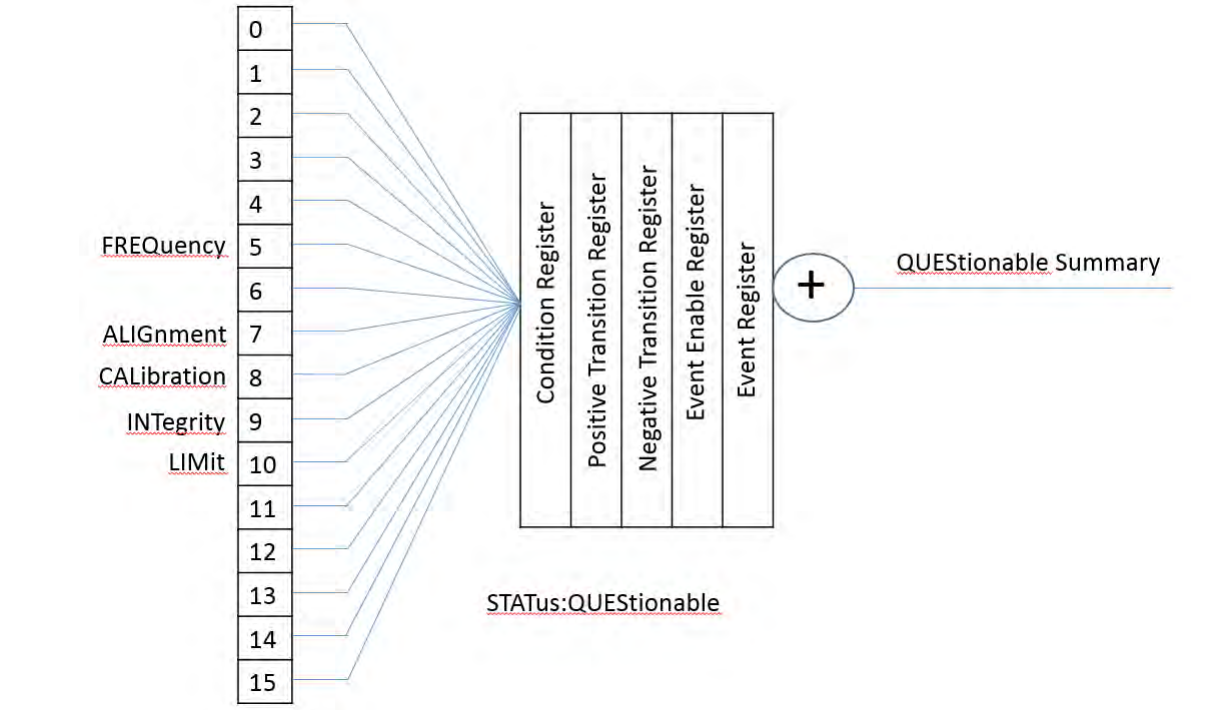


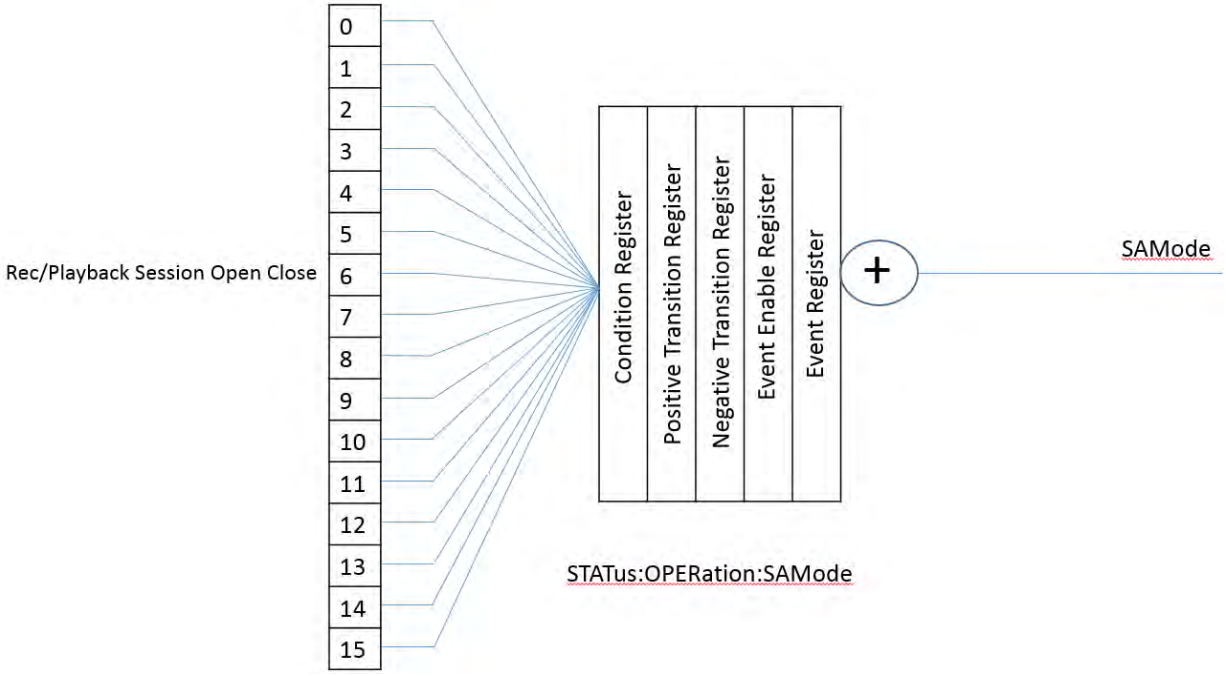


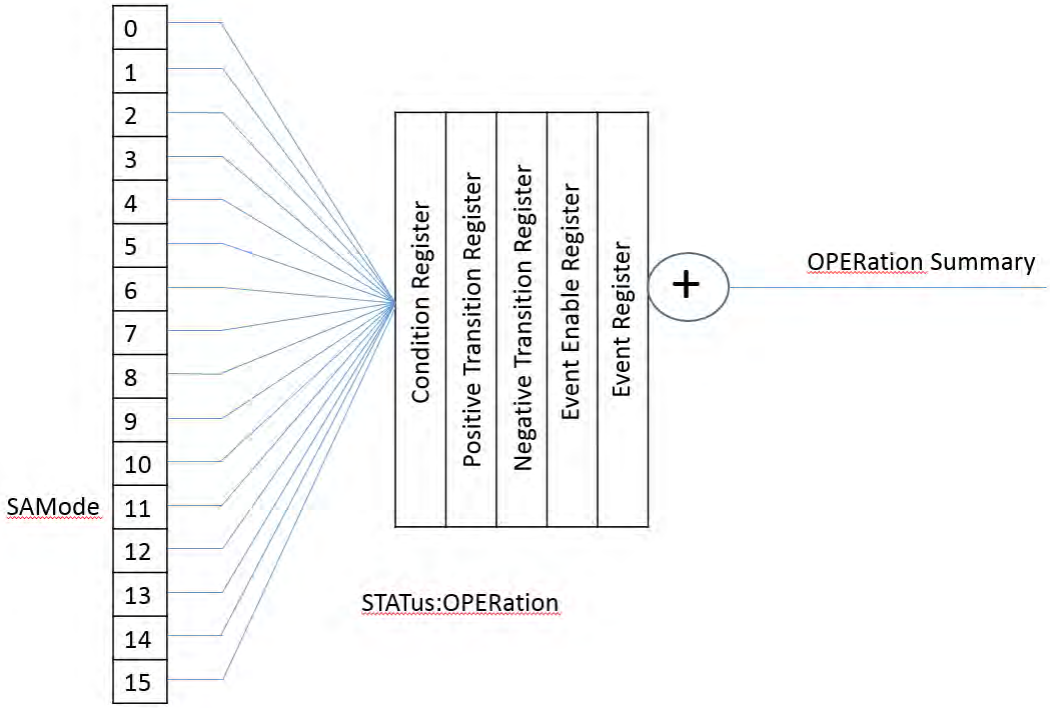

Sig Gen Cal In Progress
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Condition Register
Positive Transition Register
Negative Transition Register
Event Enable Register
Event Register
+
CALibration
STATus:QUEStionable:CALibration
Ext Reference PLL Unlock
Src VCO Unlock
LO 1 VCO Unlock
LO 2 VCO Unlock
LO 3 VCO Unlock
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Condition Register
Positive Transition Register
Negative Transition Register
Event Enable Register
Event Register
+
FREQuency
STATus:QUEStionable:FREQuency


ADC Overange
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Condition Register
Positive Transition Register
Negative Transition Register
Event Enable Register
Event Register
+
INTegrity
STATus:QUEStionable:INTegrity


Trace 1 Fail
Trace 2 Fail
Trace 3 Fail
Trace 4 Fail
Trace 1 Pass
Trace 2 Pass
Trace 3 Pass
Trace 4 Pass
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Condition Register
Positive Transition Register
Negative Transition Register
Event Enable Register
Event Register
+
LIMit
STATus:QUEStionable:LIMit


0
1
2
3
4
FREQuency 5
6
ALIGnment 7
CALibration 8
INTegrity 9
LIMit 10
11
12
13
14
15
Condition Register
Positive Transition Register
Negative Transition Register
Event Enable Register
Event Register
+
QUEStionable Summary
STATus:QUEStionable


Rec/Playback Session Open Close
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Condition Register
Positive Transition Register
Negative Transition Register
Event Enable Register
Event Register
+
SAMode
STATus:OPERation:SAMode



Last Modified:

22oct2017 Added this topic

Command Reference

New Programming Commands

The following is a list of new commands for each major release:

A.10.3x

See NF Mode Commands **NEW!**

See also programming Python programming example and MATLAB examples (VISA and LAN)

In the Common Commands topic:

SYSTem:VVS:HIMD

SYSTem:VVS:RVOLtage?

A.10.1x

See IQA Mode Commands

See also Status Registers

See also Memory Command Examples

A.09.53

CALCulate:MARKer:STRack

A.09.50

[:SENSe]:ACQuisition:TIME

[:SENSe]:ACQuisition:TIME:AUTO

[:SENSe]:DENSity:BPLevel

[:SENSe]:DENSity:RPLevel

[:SENSe]:DETector:TRACe{1:4}:FUNCtion

[:SENSe]:FREQuency:SPAN:BANDwidth[:RESoulution]:RATio?

[:SENSe]:IFFLatness:ALIGnment[:STATe]

[:SENSe]:MEASure

[:SENSe]:SPECtrogram:TPDivision

:DISPlay:VIEW:DENSity:PERSistence

:DISPlay:VIEW:DENSity:PERSistence:INFinite

:DISPlay:VIEW:DENSity:STATe

:TRACe:PRESet:ALL

:TRIGger[:SEQuence]:FRAMe:OFFSet

:TRIGger[:SEQuence]:FRAMe:OFFSet:DISPlay:RESet

:TRIGger[:SEQuence]:FRAMe:PERiod

:TRIGger[:SEQuence]:HOLDoff

:TRIGger[:SEQuence]:LEVel

See also, RTSA Mode Commands

A.09.25

:CHSCanner:USER:FOLDer
:DISPlay:SCREen:GEOMetry
:INPut:LAN:IDENtify:SNUMber
:INPut:LAN:IDENtify:TYPe
:MMEMory:STOReIMAGe:NOKeys

A.08.15 and A.09.15

AM/FM Metrics

[:SENSe]:MEASurement:ADEMod
[:SENSe]:ADEMod:METRics:AMTY
[:SENSe]:ADEMod:METRics:DTYPe
[:SENSe]:ADEMod:METRics:FMTY
[:SENSe]:ADEMod:METRics:LON
[:SENSe]:ADEMod:METRics:LTIMe
[:SENSe]:ADEMod:METRics:MMENable
[:SENSe]:ADEMod:METRics:STIMe
[:SENSe]:ADEMod:METRics:TFReq
:DISPlay:ADEMod:METRics:AM:RESults:DATA?
:DISPlay:ADEMod:METRics:FM:RESults:DATA?

Channel Scanner

:CHSCanner:DATA?
:CHSCanner:DISPlay:SORT
:CHSCanner:DISPlay:SORT:ORDer
:CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision
:CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel
:CHSCanner:EDIT:LIST?
:CHSCanner:EDIT:LIST:ADD
:CHSCanner:EDIT:LIST:CLEar
:CHSCanner:EDIT:RANGe:COUNt
:CHSCanner:EDIT:RNAGE:IBW
:CHSCanner:EDIT:RANGe:SPAN
:CHSCanner:EDIT:RANGe:STARt
:CHSCanner:EDIT:RANGe:STEP
:CHSCanner:LOG:ACTion:RECord
:CHSCanner:LOG:ACTion:STOP
:CHSCanner:LOG:CONFigure:INTerval:DISTance
:CHSCanner:LOG:CONFigure:INTerval:STATe
:CHSCanner:LOG:CONFigure:INTerval:TIMe
:CHSCanner:LOG:CONFigure:INTerval:TYPe
:CHSCanner:LOG:CONFigure:SAVe:AUTo[:STATe]
:CHSCanner:LOG[:STATe]

:CHSCanner:SEARch:COUNt
:CHSCanner:SEARch:TYPe
:CHSCanner[:SENSe]:CHANnel:SELect
:CHSCanner[:SENSe]:POWer[:RF]:ATTenuation
:CHSCanner[:SENSe]:POWer[:RF]:ATTenuation:AUTO
:CHSCanner[:SENSe]:POWer[:RF]:EXTGain
:CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe]
:CHSCanner:SWEep:AVERage:COUNt
:CHSCanner:SWEep:AVERage[:STATe]
:CHSCanner:SWEep:DISPlay:TYPE
:CHSCanner:SWEep:MODE
:CHSCanner:USER:FOLDer
:CHSCanner[:SENSe]:SAListen:DTYPE
:CHSCanner[:SENSe]:SAListen:LTIMe
:CHSCanner[:SENSe]:SAListen:PAUSe
:CHSCanner[:SENSe]:SAListen:RESume
:MMEMory:STORe:LOG:CSV
:MMEMory:STORe:LOG:KML
:MMEMory:LOAD:LOG
:MMEMory:LOAD:LIST
:MMEMory:STATe:STORe:LIST

A.08.04

ERTA Mode

[:SENSe]:MEASurement:ERTA:PNID
[:SENSe]:MEASurement:ERTA:PVERify?

GPS Mode

SYSTem:GPS:CNOise?

A.08.00

All Modes

SYSTem:PREFerences:SNP

CAT Mode

CALCulate[:SELected]:SMOothing:APERture
CALCulate[:SELected]:SMOothing[:STATe]

CAT - TDR

CALculate:PARameter:DEFine
CALCulate:[SELected]:MARKer:TDR:FORMat
[:SENSe]:SWEep:TDR:AUTO:FREQuency:STOP:MAXimum
[:SENSe]:SWEep:TDR:RES

NA Mode

CALCulate[:SELected]:OFFSet:SLOPe

CALCulate[:SELected]:OFFSet[:MAGNitude]

ERTA Mode

[:SENSe]:MEASurement:ERTA:PIP

[:SENSe]:MEASurement:ERTA:VPIP?

[:SENSe]:MEASurement:ERTA:ROLE?

[:SENSe]:MEASurement:ERTA:PSTatus

TRACe:ERTA:RINPut

SA Mode

Source Tracking Offset

SOURce:TOFFset:ENABle

SOURce:TOFFset:FREQuency

SOURce:TOFFset:REVerse

Reverse sweep (Opt. 209 only)

[:SENSe]:SWEep:FREVerse

Select freq axis annotation

[:SENSe]:FREQuency:ANNotation[:SELect]

Read ADC over-range status

CALCulate:MEASurement:WAOR?

Source-side corrections

MMEMory:LOAD:SANTenna

MMEMory:LOAD:SCABle

MMEMory:STORe:SANTenna

MMEMory:STORe:SCABle

[:SENSe]:AMPLitude:CORRections:SANTenna:DEFault

[:SENSe]:AMPLitude:CORRections:SANTenna[:STATe]

[:SENSe]:AMPLitude:CORRections:SCABle:DEFault

[:SENSe]:AMPLitude:CORRections:SCABle[:STATe]

A.07.75

All Modes

INSTrument:GTL

INSTrument:GTR

NA Mode

Big Marker Display States (A and B)

VVM Mode

[:SENSe]:CORRection:ZERO:REFerence

A.07.50

Frequency Offfset Power Sensor (FOPS) commands

Built-in Power Meter (CPM) Mode Commands

MMEMory:RDIRectory - Added optional argument

SA Mode

[:SENSe]:SWEep:MTIMe?

Renamed commands:

- SOURce:ENABle
- SOURce:FREQuency[:CW]
- SOURce:MODE
- SOURce:NORMalize
- SOURce:POWer
- SOURce:POWer:MAXimum

NA Mode

CALCulate:PARameter:DEFine (New arguments)

CALCulate[:SELected]:CONVersion:FUNCtion

CAT Mode

[:SENSe]:CORRection:WAVeguide:STANdard

CAT and NA Mode

[:SENSe]:CORRection:COLLect:METHod:SRESponse

[:SENSe]:CORRection:COLLect:METHod:ORESponse

A.07.25

Pulse Measurement Mode Commands

CAT and NA modes

[:SENSe]:CORRection:COLLect:CKIT:LABel <ECal module>

[:SENSe]:CORRection:COLLect:ECAL:AORient

[:SENSe]:CORRection:COLLect:ECAL:SIMPle

[:SENSe]:CORRection:COLLect:METHod:TRL

[:SENSe]:CORRection:COLLect:OISolation

[:SENSe]:CORRection:MEDium

[:SENSe]:CORRection:WGCutoff

SA Mode

CALCulate:MARKer:TZERo:FIXed

USB Power Meter Mode

SOURce:ENABle

SOURce:POWer

Common to ALL Modes

FORMat:BORDer

User Preset

SYSTem:UPReset

SYSTem:UPReset:FPANel[:STATe]

SYSTem:UPReset:MODE

SYSTem:UPReset:SAVE

A.07.00

NA mode

TRIGger:SOURce

TRIGger:SLOPe

CALCulate[:SELected]:MARKer:FORMat

SA mode

TRIGger[:SEQuence]:SOURce (New argument)

CALCulate:MEASurement:QAMPlitude

[:SENSe]:BURSt:ALIGnment:NOW

[:SENSe]:BURSt:ALIGnment[:STATe]

TRIGger[:SEQuence]:POSition

TRIGger[:SEQuence]:POSition:STATe

TRIGger[:SEQuence]:DELay:STATe

TRIGger[:SEQuence]:FGATe:DELay

TRIGger[:SEQuence]:FGATe:VIEW:TIME

TRIGger[:SEQuence]:FGATe:VIEW[:STATe]

TRIGger[:SEQuence]:FGATe:WIDTh

TRIGger[:SEQuence]:FGATe[:STATe]

Multiple modes

CALCulate[:SELected]:LIMit:SOUNd

A.06.17

Multiple modes

SYSTem:PWR:AUTO

SYSTem:DCSupply?

CAT / NA mode

[:SENSe]:CORRection:CALReady:TYPE

[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire

[:SENSe]:CORRection:COLLect:GUIDed:SCOunt

[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt

A.06.00

Multiple modes

CALCulate:LIMit:LLData

STATus:QUEStionable:LIMit:CONDition?

SYSTem:VVS:CURRent?

SYSTem:VVS:ENABle

SYSTem:VVS:MAXCurrent?

SYSTem:VVS:MVOLtage?
SYSTem:VVS[:STATe]?
SYSTem:VVS:VOLTage
SYSTem:DCSupply?

NA mode

[:SENSe]:AVERage:MODE

Time Domain Transform

CALCulate[:SELected]:FILTer[:GATE]:TIME:CENTer
CALCulate[:SELected]:FILTer[:GATE]:TIME:SHAPe
CALCulate[:SELected]:FILTer[:GATE]:TIME:SPAN
CALCulate[:SELected]:FILTer[:GATE]:TIME:STARt
CALCulate[:SELected]:FILTer[:GATE]:TIME:STATe
CALCulate[:SELected]:FILTer[:GATE]:TIME:STOP
CALCulate[:SELected]:FILTer[:GATE]:TIME[:TYPE]
CALCulate[:SELected]:TRANsform:TIME: [TYPE]
CALCulate[:SELected]:TRANsform:TIME:CENTer
CALCulate[:SELected]:TRANsform:TIME:IMPulse:WIDTh
CALCulate[:SELected]:TRANsform:TIME:KBESsel
CALCulate[:SELected]:TRANsform:TIME:LPFRequency
CALCulate[:SELected]:TRANsform:TIME:SPAN
CALCulate[:SELected]:TRANsform:TIME:STARt
CALCulate[:SELected]:TRANsform:TIME:STATe
CALCulate[:SELected]:TRANsform:TIME:STEP:RTIMe
CALCulate[:SELected]:TRANsform:TIME:STIMulus
CALCulate[:SELected]:TRANsform:TIME:STOP

CAT mode

CALCulate:PARameter:SELect
DISPlay:WINDow:SPLit
CALCulate:MARKer:COUPle

SA mode

[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault
[:SENSe]:AMPLitude:CORRections:CABLe:DEFault
[:SENSe]:AMPLitude:ALIGnment[:STATe]
[:SENSe]:AMPLitude:ALIGnment:NOW
[:SENSe]:BANDwidth:IF:OUT

Power Meter Mode

[SENSe]:AVERage:SDETect

A.05.50

DISPlay:WINDow:TRACe:Y:DLINe <level>

DISPlay:WINDow:TRACe:Y:DLINe:STATe <ON/OFF>
CALCulate:MARKer:BWIDth:DATA
CALCulate:MARKer:BWIDth[:STATe]
CALCulate:MARKer:FUNCtion:BWIDth:THReshold
CALCulate:MARKer:FUNCtion:TRACking
CALCulate:MARKer:FUNCtion:TARGet
SYSTem:AUDio:MUTe
SYSTem:AUDio:VOLume
[:SENSe]:RADio:STANdard[:SELect]
[:SENSe]:AVERage:CLEar

A.05.30

CALCulate:MARKer:FUNCtion
CALCulate:MARKer:FUNCtion:BAND:SPAN
CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO
CALCulate:MARKer:SET
CALCulate[:SELected]:SMOothing:APERture
CALCulate[:SELected]:SMOothing[:STATe]
DISPlay[:WINDow][:NUMeric]:RESolution
[:SENSe]:BWID
[:SENSe]:CORRection:EXTension:PORT1
[:SENSe]:CORRection:EXTension:PORT2
[:SENSe]:CORRection:EXTension[:STATe]
[:SENSe]:ISOurce:ENABle
[:SENSe]:ISOurce:FREQuency[:CW]
[:SENSe]:ISOurce:MODE
[:SENSe]:ISOurce:POWer
SYSTem:TZONe
SYSTem:TZONe:CATalog?

Replacement Commands

The following is a list of commands that have been replaced.

Superseded Commands

Superseded commands will continue to work in existing programs. However, the replacement command usually has more functionality and is recommended.

Superseded command	Replacement command
CALCulate:MARKer:NOISe[:STATe]	CALCulate:MARKer:FUNCtion

RECPlayback:CONFig:FMTRigger:DATA	RECPlayback:CONFig:FMTRigger:LLData
CALCulate[:SELected]:LIMit:DATA	CALCulate:LIMit:LLData
CALCulate[:SELected]:LIMit:BEEP	CALCulate[:SELected]:LIMit:SOUNd
[:SENSe]:AMPLitude:ALIGnment:NOW	[:SENSe]:ALIGnment:AMPLitude:NOW
[:SENSe]:AMPLitude:ALIGnment[:STATe]	[:SENSe]:ALIGnment:AMPLitude[:STATe]
[:SENSe]:BURSt:AMPLitude:ALIGnment:NOW	[:SENSe]:ALIGnment:BURSt:NOW
[:SENSe]:BURSt:AMPLitude:ALIGnment[:STATe]	[:SENSe]:ALIGnment:BURSt[:STARt]
[:SENSe]:IFFLatness:AMPLitude:ALIGnment:NOW	[:SENSe]:ALIGnment:CHEQ:NOW
[:SENSe]:IFFLatness:AMPLitude:ALIGnment["STATe]	[:SENSe]:ALIGnment:CHEQ[:STATe]

OBSOLETE commands

These commands will NOT continue to work in existing programs.

Obsolete command	Replacement command
[:SENSe]:TAListen:AVOLume (A.05.50)	SYSTem:AUDio:VOLume
[:SENSe]:RADio:STANdard (A.05.50)	[:SENSe]:RADio:STANdard[:SELect]

Last Modified:

22nov2017 New alignment commands (A.10.15)

5-Aug-2011 New topic (A.05.50)

Common Commands

The following IEEE 488.2 Common Commands can be used with the FieldFox:

***CLS**

Clears the instrument status byte by emptying the error queue and clearing all event registers. Also cancels any preceding *OPC command or query.

***ESE - Event Status Enable**

Sets bits in the standard event status enable register.

***ESE? - Event Status Enable Query**

Returns the results of the standard event enable register. The register is cleared after reading it.

***ESR? - Event Status Enable Register**

Reads and clears event status enable register.

***IDN? - Identify**

Returns a string that uniquely identifies the FieldFox. The string is of the form "Keysight Technologies",<model number>,<serial number>,<software revision> and so forth.

***OPC - Operation complete command**

Generates the OPC message in the standard event status register when all pending overlapped operations have been completed (for example, a sweep, or a Default).

***OPC? - Operation complete query**

Returns an ASCII "+1" when all pending overlapped operations have been completed.

***OPT? - Identify Options Query**

Returns a string identifying the analyzer option configuration.

***RST - Reset**

Executes a device reset and cancels any pending *OPC command or query. All trigger features in HOLD. The contents of the FieldFox non-volatile memory are not affected by this command.

***SRE - Service Request Enable**

Before reading a status register, bits must be enabled. This command enables bits in the service request register. The current setting is saved in non-volatile memory.

***SRE? - Service Request Enable Query**

Reads the current state of the service request enable register. The register is cleared after reading it.

***WAI - Wait**

Prohibits the instrument from executing any new commands until all pending overlapped commands have been completed.

CALCulate:FEED:MODE <char>

(Read-Write) Set and query the current measurement.

Relevant Modes

Parameters Pulse Measurements

<char> Measurement parameter. Choose from:

- **PEAK** - Peak (Meter-style)
- **AVER** - Average (Meter-style)
- **PTAV** - Peak to Average (Meter-style)
- **TMOD** - Trace Graph mode

Examples CALC:FEED:MODE AVER

Query Syntax CALCulate:FEED:MODE?

Return Type Character

Default PEAK

Last Modified:

30-Oct-2013	New command

CALCulate:IREJection:LEVel <char>

(Read-Write) Set and query the Interference rejection level.

Relevant Modes	CAT
Parameters	
<char>	Interference rejection level. Choose from: OFF – no interference rejection. LEV1 – level 1 LEV2 – level 2 LEV3 – level 3
Examples	`CALC:IREJ:LEV LEV1`
Query Syntax	CALCulate:IREJection:LEVel?
Return Type	Character
Default	OFF

Last Modified:

1-Aug-2011	New command

CALCulate:MARKer:AUDio:BEEP <bool>

(Read-Write) Set or return the state of an Audio Beep on the active SA mode marker. Audio Beep ON creates a marker if not already ON. Set beep volume using SYSTem:AUDio:VOLume <num>.

Relevant Modes	SA
Parameters	
<bool>	Choose from: **ON (or 1)** - Audio beep ON **OFF (or 0)** - Audio beep OFF
Examples	`CALC:MARK:AUD:BEEP ON`
Query Syntax	CALCulate:MARKer:AUDio:BEEP?
Return Type	Boolean
Default	Off

Last Modified:

1-Aug-2011	New command (A.05.50)

CALCulate:MARKer<n>:DREF:FIXed <bool>

(Read-Write) Set and query the state of fixed delta / reference markers. Created delta markers using CALCulate:MARKer[:STATe]

Relevant Modes SA, RTSA

Parameters

<n> Existing marker to fix or let float. Choose from 1 to 6.

<bool> Choose from:

OFF or **0** - Reference marker floats with each sweep at the Y-axis position of the data trace

ON or **1** - Reference marker is fixed at the Y-axis position of the data trace when the marker was created.

Examples

```
CALC:MARK2:DREF:FIX OFF
```

Query Syntax CALCulate:MARKer<n>:DREF:FIXed?

Return Type Boolean

Default ON

Last Modified:

10-june-2016 Added RTSA mode (9.50)

CALCulate:MARKer<n>:FCOunt[:STATe] <bool>

(Read-Write) Set and query the Frequency counter marker ON/OFF state.

Use CALCulate:MARKer[:STATe] to first create a marker.

Use CALCulate:MARKer:X to move the marker to the frequency of interest.

Use CALCulate:MARKer:FCOunt:X? to read the frequency counter marker.

Relevant Modes SA

Parameters

<n> Marker number to become a frequency counter marker. A marker is created if not already ON. Choose from 1 to 6. If unspecified, value is set to 1.

<bool> Frequency counter marker state. Choose from:

ON (or 1) - Frequency counter marker ON.

OFF (or 0) - Frequency counter marker OFF.

Examples

```
CALC:MARK2:FCO 1
```

Query Syntax CALCulate:MARKer<n>:FCOunt?

Return Type Boolean

Default OFF

Last Modified:

20-Oct-2010 New command (5.30)

CALCulate:MARKer:FCOunt:X?

(Read-only) Read the frequency of the frequency counter marker in Hz. Use CALCulate:MARKer:FCOunt[:STATe] to make a marker a frequency counter marker.

Caution: For firmware A.09.59 and greater the returned x-axis value will now return up to 15 decimal places to the right of the decimal for distance x-axis or time x-axis units, instead of truncating all digits to the right of the decimal.
Example 1: Old DTF x-axis format for 82.5 meters would return 83. New x-axis format returns: 8.250000000E+1.
Example 2: Old RL measured marker x-axis value for 2.1862505 GHz would return 2186250500. New marker x-axis value returns: 2.186250500E+10.
Be aware that as a result some software content may need to be modified to accept this new behavior.

Relevant Modes SA

Parameters None

Examples CALC:MARK:FCO:X?

Return Type Numeric

Default N/A

Last Modified:

20-Oct-2010 New command (5.30)

CALCulate:MARKer<n>:FUNCtion <char>

(Read-Write) Causes the specified marker to become one of the SA Marker functions. Also causes the specified marker to be turned ON if it is not already.

Relevant Modes SA

Parameters

<n> Existing marker to become a marker function. Choose from 1 to 6.

<char> Marker function. Choose from:

OFF - Marker is returned to it's previous state (normal or delta).

NOISe - Marker becomes a noise marker.

BPOWer - Marker becomes a Band/Interval Power marker.

For non-zero span measurements, a Band Power marker integrates total power over the Band Power Span, which is set using:

- CALCulate:MARKer:FUNCtion:BAND:SPAN and
- CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO.

For Zero-span measurements, an Interval Power marker calculates the average power over the Interval Power Span, which is set using:

- CALCulate:MARKer:FUNCtion:BAND:SPAN and
- CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO.

Examples

```
CALC:MARK1:FUNC NOIS
```

Query Syntax CALCulate:MARKer<n>:FUNCtion?

Default OFF

Last Modified:

19-Oct-2010 New command (5.30)

CALCulate:MARKer:FUNCtion:BAND:SPAN <num>

(Read-Write) Set and read the frequency span for ALL SA mode Band Power Markers.

Set CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO to OFF.

Relevant Modes SA

Parameters

<num> Band power markers frequency span in Hz. Choose a value equal to or less than the FieldFox frequency span.

Examples

```
CALC:MARK:FUNC:BAND:SPAN 1e6  'Set span to 1 MHz
```

Query Syntax CALCulate:MARKer:FUNCtion:BAND:SPAN?

Default 5% of existing frequency span.

Last Modified:

19-Oct-2010 New command (5.30)

CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO <bool>

(Read-Write) Set and read the method by which the frequency span for ALL SA mode Band Power Markers is set.

Relevant Modes SA

Parameters

<bool> Band power frequency span method.

ON (or 1) - Band Power frequency span is always 5% of existing frequency span.

OFF (or 0) - Set Band Power frequency span using CALCulate:MARKer:FUNCtion:BAND:SPAN

Examples

```
CALC:MARK:FUNC:BAND:SPAN:AUTO 1
```

Query Syntax CALCulate:MARKer<n>:FUNCtion:BAND:SPAN:AUTO?

Default ON

Last Modified:

19-Oct-2010	New command (5.30)

CALCulate:MARKer:FUNCtion:INTerval:SPAN <num>

(Read-Write) Set and read the time interval for ALL SA mode Interval Markers.
Set CALCulate:MARKer:FUNCtion:INTerval:SPAN:AUTO to OFF.

Relevant Modes	SA
Parameters	
<num>	Interval span in seconds. Choose a value between 1e-9 and 100 seconds.
Examples	`CALC:MARK:FUNC:INT:SPAN 1e-3  'Set span to 1 mSec`
Query Syntax	CALCulate:MARKer:FUNCtion:INTerval:SPAN?
Default	5% of existing X-axis span.

Last Modified:

19-Oct-2010	New command (5.30)

CALCulate:MARKer:FUNCtion:INTerval:SPAN:AUTO <bool>

(Read-Write) Set and read the method by which the time span for ALL SA mode Interval Markers is set.

Relevant Modes	SA
Parameters	
<bool>	Interval span method. **ON** (or 1) - Interval time span is always 5% of X-axis. **OFF** (or 0) - Set Interval time span using CALCulate:MARKer:FUNCtion:INTerval:SPAN
Examples	`CALC:MARK:FUNC:INT:SPAN:AUTO 1`
Query Syntax	CALCulate:MARKer<n>FUNCtion:INTerval:SPAN:AUTO?
Default	ON

Last Modified:

19-Oct-2010	New command (5.30)

CALCulate[:SELected]:MARKer<n>:FUNCtion:PLEFt

(Write-Only) Causes the specified marker to find the next data point to the left that meets the 'Peak' criteria. When no data points to the left meet the Peak criteria, the marker does not move.

Relevant Modes NF, SA, RTSA

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Parameters

<n> New or existing marker to move. Choose from 1 to 6.

Examples `CALC:MARK1:FUNC:PLEF`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer<n>:FUNCtion:PRIGht

(Write-Only) Causes the specified marker to search to the right of the current location for the next data point that meets the 'Peak' criteria.

Relevant Modes NF, SA, RTSA

Parameters

<n> New or existing marker to move. Choose from 1 to 6.

Examples `CALC:MARK1:FUNC:PRIG`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate:MARKer<n>:NOISe[:STATe] <bool> - Superseded

Note: This command is replaced with CALCulate:MARKer:FUNCtion.

(Read-Write) Set and query the ON|OFF state of the SA noise marker. A marker must first be created. This command then converts it to a Noise marker.

Relevant Modes SA

Parameters

<n> Existing marker to make a noise marker. Choose from 1 to 6.

<bool> Choose from:

OFF - Noise marker OFF

ON - Noise marker ON

Examples

```
CALC:MARK:NOIS ON
```

Query Syntax CALCulate:MARKer:NOISe:[STATe]?

Return Type Boolean

Default OFF

CALCulate[:SELected]:MARKer<n>:SET:CENTer

(Write-Only) The center frequency of the measurement becomes the value of the specified marker. The frequency span is adjusted accordingly.

CALCulate[:SELected]:MARKer:SET performs the same operation.

Relevant Modes NF, SA, RTSA

Parameters

<n> Existing marker from which the center frequency will be set. Choose from 1 to 6.

Examples

```
CALC:MARK1:SET:CENT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer<n>:SET:REFLevel

(Write-Only) The reference level of the current window becomes the value of the specified marker.

CALCulate[:SELected]:MARKer:SET performs the same operation.

Relevant Modes NF, SA, RTSA

Parameters

<n> Existing marker for which reference level will be set. Choose from 1 to 6.

Examples

```
CALC:MARK1:SET:REFL
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate:MARKer:STRack

(Write-Read) Enables signal tracking utilizing the specified marker {1-6, default is 1}. If the specified marker is not already on, it is activated as a Normal marker. This marker then tracks the peak signal, via automatic changes to the Center Frequency. Any other markers that are active maintain their frequency position unless limited by Start or Stop Frequency.

Note: Signal tracking is incompatible (inactive) with Zero Span..

Relevant Modes SA

Parameters

<bool> **ON** (1) - Enables signal tracking utilizing the specified marker, activating it if necessary.

OFF (2) - Disables signal tracking.

Examples

```
CALC:MARK2:STR 1     'Marker 2 is set as the active signal tracking marker.
```

Query Syntax CALC:MARK:STR?

Default 0

Last Modified:

26-sep-2016	Added new SA command (A.09.53)

CALCulate:MARKer:TZERo:FIXed <bool>

(Read-Write) Set and query the ON|OFF state of the Time Zero Fixed setting.

This feature was created to allow recall of vintage instrument states (older than Rev. 7.0) that included Zero span sweep with a trigger delay and at least one marker. Before Rev. 7.0, these instrument states were saved and recalled with the equivalent of the ON state of this setting.

Relevant Modes SA

Parameters

<bool> Choose from:

OFF - Time zero fixed setting OFF

ON - Time zero fixed setting ON

Examples

```
CALC:MARK:TZER:FIX ON
```

Query Syntax CALCulate:MARKer:TZERo:FIXed?

Return Type Boolean

Default OFF

Last Modified:

2-Apr-2014 New command

CALCulate:MEASure:DATA?

(Read-Only) Reads data from the current channel measurement (Channel Power, Occupied Bandwidth, or Adjacent Channel Power).

- The number of values that are returned depends on the type of channel measurement.
- The units for the values depend on the currently displayed units.
- Offsets that are not defined return invalid data.

Data is returned in the following format:

Main channel - main channel power in dBm.
Main channel - main channel Power Spectral Density (PSD) in dBm/Hz.
Main channel - relative power to main channel power (this value is always zero).

Lower Offset Frequency (1) - channel power for lower offset 1 in dBm.
Lower Offset Frequency (1) - PSD for lower offset 1 in dBm/Hz.
Lower Offset Frequency (1) - relative power of lower ACPR for offset 1 in dBc or dB.

Upper Offset Frequency (1) - channel power for upper offset 1 in dBm.
Upper Offset Frequency (1) - PSD for upper offset 1 in dBm/Hz.
Upper Offset Frequency (1) - relative power of upper ACPR for offset 1 in dBc or dB.

Lower Offset Frequency (2) - channel power for lower offset 2 in dBm.
Lower Offset Frequency (2) - PSD for lower offset 2 in dBm/Hz.
Lower Offset Frequency (2) - relative power of lower ACPR for offset 2 in dBc or dB.

Upper Offset Frequency (2) - channel power for upper offset 2 in dBm.
Upper Offset Frequency (2) - PSD for upper offset 2 in dBm/Hz.
Upper Offset Frequency (2) - relative power of upper ACPR for offset 2 in dBc or dB.

Lower Offset Frequency (3) - channel power for lower offset 3 in dBm.
Lower Offset Frequency (3) - PSD for lower offset 3 in dBm/Hz.
Lower Offset Frequency (3) - relative power of lower ACPR for offset 3 in dBc or dB.

Upper Offset Frequency (3) - channel power for upper offset 3 in dBm.
Upper Offset Frequency (3) - PSD for upper offset 3 in dBm/Hz.
Upper Offset Frequency (3) - relative power of upper ACPR for offset 3 in dBc or dB.

Relevant Modes SA

Examples

The following data is returned for an ACPR channel measurement.
Offsets that are not defined return invalid data.

```
CALC:MEAS:DATA?
'With only one defined offset, returns
-6.73047890E+01,-1.303150890E+02,0.0000000E+00,
-6.78255554E+01,-1.308358553E+02,-5.207664E-01,
-6.77824583E+01,-1.307927583E+02,-4.776693E-01,
-9.876543210E+04,-9.393939111E+06,-9.876543210E+04,
-9.876543210E+04,-9.393939111E+06,-9.876543210E+04,
-9.876543210E+04,-9.393939111E+06,-9.876543210E+04,
-9.876543210E+04,-9.393939111E+06,-9.876543210E+04
```

Return Type Block data

Default Not Applicable

Last Modified:

18-May-2011	Modified description text

CALCulate:MEASurement:QAMPlitude?

(Read-Only) Returns the current Amplitude Alignment (InstAlign) status.

Relevant Modes SA

Examples

```
CALC:MEAS:QAMP?
```

Return Type Boolean

0 - Alignment is current

1 - Alignment is questionable because Amplitude Alignment is in Hold or OFF.

See [:SENSe]:AMPLitude:ALIGnment[:STATe]

Default Not Applicable

Last Modified:

28-Mar-2013	New command

:CALCulate:PARameter:COUNt <n>

(Read-Write) Sets and returns the number of traces on the screen. All traces are displayed in separate windows. Use DISPlay:WINDow:SPLit to set overlay (traces in same window) configurations.

Change the measurement parameter using CALCulate:PARameter:DEFine.

Relevant Modes NA, NF

Parameters

<n> Number of traces.

For NA mode, choose from 1 to 4.
For NF mode, choose from 1 to 2.

Examples CALC:PAR:COUN 2

Query Syntax CALCulate:PARameter:COUNt?

Default 1

Last Modified:

01june2018	Added NF mode.
15-Aug-2012	New command

CALCulate:PARameter<tr>:DEFine <char>

(Read-Write) Set and query the current measurement.

Relevant Modes CAT, NA, NF, VVM

Parameters

<tr> Trace number (NA mode ONLY). Choose from 1 to 4. Choices 2, 3, 4 require that the appropriate multi-trace configuration first be created using :DISPlay:WINDow:SPLit.

Trace number (NF mode Only). Choose from 1 and 2.Choice 2 requires that the appropriate multi-trace configuration first be created using :DISPlay:WINDow:SPLit.

All other modes, do NOT specify.

<char> Measurement parameter. Choose from:

For CAT Mode:

- **RLOSs** - Return Loss
- **DTF1** - Distance To Fault
- **DTF2** - DTF + Return Loss
- **DTF3** - DTF (VSWR)
- **DTF4** - DTF Linear
- **CLOSs** - Cable loss 1 port
- **ILOSs** - 2-port Insertion loss
- **VSWR** - SWR

Available ONLY with Opt. 215

- **TDR** - Linear Rho
- **STEP** - TDR Ohm

For NA Mode:

Reverse measurements are available ONLY with full S-parameter option.

- **S11** - Forward reflection measurement

- **S21** - Forward transmission measurement
- **S12 -** Reverse transmission
- **S22 -** Reverse reflection
- **A -** A receiver measurement
- **B** - B receiver measurement
- **R1 -** Port 1 reference receiver measurement
- **R2 -** Port 2 reference receiver measurement

For NF Mode:

- **NFIG -** Noise Figure
- **NFAC** - Noise Factor
- **GAIN -** Gain
- **NTEM -** Noise temperature
- **YFAC** - Y-Factor

Available ONLY with Opt. 212

- **SCC11** - Common reflect/common incident for logical port 1
- **SDD11** - Differential reflect/differential incident for logical port 1
- **SDC11** - Differential reflect/common incident for logical port 1.
- **SCD11** - Common reflect/differential incident for logical port 1.

For VVM Mode:

- **S11** - 1-port cable trimming
- **S21** - 2-port transmission
- **AB** A/B ratio (NOT available on N9912A)
- **BA** B/A ratio (NOT available on N9912A)

Examples

```
CALC:PAR:DEF DTF2
'NA mode
CALC:PAR2:DEF S21
```

Query Syntax CALCulate:PARameter<tr>:DEFine?

Return Type Character

Default Cat Mode: S11
NA Mode: S11 (trace 1)
VVM Mode:S11

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
22-Jan-2015	Added Opt 215
24-Mar-2014	Added Opt 212
16-Jul-2013	Edited VVM mode choices
18-Oct-2012	Edited for new models

:CALCulate:PARameter<n>:SELect

(Write-only) Select (make active) the current trace. You can only select a displayed trace.
For CAT and NA, change the measurement parameter using CALCulate:PARameter:DEFine.

Relevant Modes CAT, NA, NF, and Pulse

Parameters

<n> Trace number.
For NA mode, choose from 1 to 4.
For CAT, NF, and Pulse modes, choose from 1 or 2.

Examples

```
CALC:PAR2:SEL
```

Query Syntax Not Applicable

Default 1

Last Modified:

01june2018	Added NF mode (10.3).
26-Apr-2012	Modified for CAT (5.75)

CALCulate:RELative[:MAGNitude]:AUTO <bool>

(Read-Write) Set and query state of relative Power Meter measurements.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<bool> Choose from:
O or **OFF** - Relative measurements OFF
1 or **ON -** Relative measurements ON

Examples

```
CALC:REL:AUTO 1
```

Query Syntax CALCulate:RELative[:MAGNitude]:AUTO?

Return Type Boolean

Default 0

Last Modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

:CALCulate:SPECtrum:MARKer:AOFF

(Write-Only) Turns OFF all IQA spectrum markers.

Relevant Modes IQA (Spectrum only)

Examples
```
CALC:SPEC:MARK:AOFF
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer:CPSearch[:STATe] <bool>

(Read-Write) Sets and queries the Continuous Peak Search. Enables or disables the Continuous Peak Search. When Continuous Peak Search is on, a peak search is automatically performed for the selected marker after each sweep. The rules for finding the peak are exactly the same as for Peak Search, including the use of peak criteria rules.

Relevant Modes IQA (Spectrum only)

Parameters

<boolean> ON (1) - Enables continuos peak search.
OFF (0) - Disables continuos peak search.

Couplings N/A

Examples
```
CALC:SPEC:MARK:CPS ON
CALC:SPEC:MARK:CPS 0
```

Query Syntax CALC:SPEC:MARK:CPS?

Default OFF (0)

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer:DREF:FIXed <bool>

(Read-Write) Set and query the state of fixed delta / reference markers.

Relevant Modes IQA (Spectrum only)

Parameters

<boolean>ON (1) - Enables fixed delta reference markers.
OFF (0) - Disables fixed delta reference markers.

CouplingsN/A

Examples

```
CALC:SPEC:MARK:DREF:FIX ON
CALC:SPEC:MARK:DREF:FIX 0
```

Query Syntax CALC:SPEC:MARK:DREF:FIX?

Default ON (1)

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer:FUNCtion:PEXCursion <num>

(Read-Only) Set and queries the minimum amplitude variation (rise and fall) required for a signal to be identified as a peak.

Relevant Modes IQA (Spectrum only)

Parameters

<numeric>Minimum: 0
Maximum: 200

CouplingsFor a signal to be identified as a peak it must meet certain criteria:
- Signals in the negative frequency range and signals very close to 0 Hz are ignored.
- Signal must satisfy peak excursion and peak threshold (:CALC:SPEC:MARK:FUNC:PTHR) criteria before being identified as a peak.

Examples

```
CALC:SPEC:MARK:FUNC:PEXC 5
```

Query Syntax CALC:SPEC:MARK:FUNC:PEXC?

Default 6.00E+00

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer:FUNCtion:PTHReshold <num>

(Read-Write) Sets and queries the peak threshold value that defines the minimum signal level (or min

threshold) that the peak identification algorithm uses to recognize a peak.

Relevant Modes IQA (Spectrum only)

Parameters

<numeric> Minimum: -200

Maximum: 200

Couplings For a signal to be identified as a peak it must meet certain criteria:

- Signals in the negative frequency range and signals very close to 0 Hz are ignored.

- Signal must satisfy peak excursion (:CALC:SPEC:MARK:FUNC:PEXC) and peak threshold criteria before being identified as a peak.

Examples

```
CALC:SPEC:MARK:FUNC:PTHR -70
```

Query Syntax CALC:SPEC:MARK:FUNC:PTHR?

Default -9.000E+01

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer[n]:FUNCtion <char>

(Read-Write) Causes the specified marker to become one of the IQA Marker functions. Also, enables or disables the specified marker.

Relevant Modes IQA (Spectrum only)

Parameters

<n> Existing marker to become a marker function. Choose from 1 to 6.

<character> Marker function. Choose from:

OFF - Marker is returned to it's previous state (normal or delta).

NOISe - Marker becomes a noise marker.

BPOWer - Marker becomes a BandPower marker.

A Band Power marker integrates total power over the Band Power Span, which is set using:

- CALC:SPEC:MARK:FUNC:BAND:SPAN and
- CALC:SPEC:MARK:FUNC:BAND:SPAN:AUTO

Examples

```
CALC:SPEC:MARK1:FUNC NOIS
```

Query Syntax CALC:SPEC:MARK<n>:FUNC?

Default OFF

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer:FUNCtion:BAND:SPAN <freq>

(Read-Write) Set and read the frequency span for the selected I/Q marker.

Set CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO to OFF.

Relevant Modes IQA (Spectrum only)

Parameters

<frequency>Frequency span value.

Couplings If CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO is on, the value is 5% of the existing frequency span.

Examples

```
CALC:SPEC:MARK:FUNC:BAND:SPAN 1e6
```

Query Syntax CALC:SPEC:MARK:FUNC:BAND:SPAN?

Default 500000

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer:FUNCtion:BAND:SPAN:AUTO

(Read-Write) Set and read the method by which the frequency span for the selected I/Q marker.

Relevant Modes IQA (Spectrum only)

Parameters

<boolean> Band power frequency span method.

ON (or 1) - Band Power frequency span is 5% of existing frequency span.

OFF (or 0) - Set Band Power frequency span using CALCulate:SPECtrum:MARKer:FUNCtion:BAND:SPAN

Examples

```
CALC:SPEC:MARK:FUNC:BAND:SPAN:AUTO 1
```

Query Syntax CALCulate:SPECtrum:MARKer:FUNCtion:BAND:SPAN:AUTO?

Default ON

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:FUNCtion:MAXimum

(Write-Only) Causes the specified marker to find the maximum amplitude of the trace.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> New or existing marker to move. Choose from 1 to 6.

Examples
```
CALC:SPEC:MARK3:FUNC:MAX
```

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:FUNCtion:MINimum

(Read-Only) Moves the selected marker to the minimum Y-axis value on the current trace. Minimum (negative) peak searches do *not* have to meet the peak search criteria. If the selected marker is OFF, it is turned ON before the minimum search is performed.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> Existing marker to minimum (negative) peak. Choose from 1 to 6.

Couplings N/A

Examples
```
CALC:SPEC:MARK3:FUNC:MIN
```

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:FUNCtion:PLEFt

(Read-Only) Moves the selected marker to the nearest peak left of the current marker which meets all enabled peak criteria.

If the selected marker was off, then it is turned on as a normal marker and a peak search is performed.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> Existing marker to assign to next highest peak. Choose from 1 to 6.

Couplings N/A

Examples

```
CALC:SPEC:MARK3:FUNC:PLEF
```

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:FUNCtion:PRIGht

(Write-Only) Moves the selected marker to the nearest peak right of the current marker which meets all enabled peak criteria.

If the selected marker was off, then it is turned on as a normal marker and a peak search is performed.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> Existing marker to assign to next highest peak. Choose from 1 to 6.

Couplings N/A

Examples

```
CALC:SPEC:MARK3:FUNC:PRIG
```

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:PHASe?

(Read-Only) Read the frequency phase for the selected IQA marker. The unit is in radians and will be a

value between ±π or ±3.14. If the marker is inactive or outside the range of the trace, a value of -9.9E+37 is returned.

If the specified marker is a delta marker, this query will return the phase delta from the reference marker.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> Existing marker to assign a frequency span. Choose from 1 to 6.

Couplings Marker needs to be active, on the spectrum trace and within the current range of the spectrum trace.

Returns 9.91E+37 if marker is inactive.

Resolution 0.01 radians

Examples

```
CALC:SPEC:MARK3:PHAS?
```

Query Syntax CALC:SPEC:MARK<n>:PHAS?

Default Returns 9.91E+37 if marker inactive or on the IQ trace.

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:SET:CENTer

(Write-Only) Sets the center frequency to the selected marker. The center frequency moves to the current selected marker's position at the center of the display.

Relevant Modes IQA (Spectrum only)

Parameters

<n> Existing marker that is used to set the center frequency. Choose from 1 to 6.

Couplings N/A

Examples

```
CALC:SPEC:MARK3:SET:CENT
```

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:SET:RLEVel

(Read-Only) Sets the reference level to the amplitude value of the selected marker, moving the marked point to the reference level (top line of the graticule).

If the currently selected marker OFF when this control is pressed, it will be turned ON at the center of the screen as a normal type marker, and its amplitude applied to the reference level.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> Existing marker that is used to set the reference level. Choose from 1 to 6.

CouplingsN/A

Examples

```
CALC:SPEC:MARK3:SET:RLEV
```

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer[n]:TRACe <int>

(Write-Read) Moves an existing marker to the specified trace number.

Note: This feature is called Marker Trace in the User's Guide.

Relevant Modes IQA (Spectrum only)

Parameters

<n> Existing marker to assign to trace. Choose from 1 to 6.

<trace numberr> Trace number. Choose from:

IQA:

- 1, 2 ,3, 4

Examples

```
CALC:SPEC:MARK1:TRAC 1
```

Query Syntax CALC:SPEC:MARK<n>:TRAC?

Return Type Integer

Default 1

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>:X <num>

(Read-Write) Set and query the X-axis location for the specified marker. See To Create and Move a Delta Marker.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> Existing marker for which to set X-axis location. Choose from 1 to 6.

<number> X-axis location. Choose any frequency value currently displayed on the X-axis.
Minimum: -9.9E+37 Hz
Maximum: 9.9E+37 Hz

Dependencies Range is dependent on the X axis range of the selected trace.

Examples
```
CALC:SPEC:MARK1:X 4e9
```

Query Syntax CALC:SPEC:MARK<n>:X?

Return Type Numeric

Default OFF.

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer[n]:Y?

(Read-Only) Reads the Y-axis value for the specified marker.

Relevant Modes IQA (Spectrum only) - One value is returned: Magnitude

Parameters

<*n*> Existing marker for which to read Y-axis value. Choose from 1 to 6.

Dependencies Range is dependent on the X axis range of the selected trace.

Examples
```
CALC:SPEC:MARK3:Y?
```

Return Type Numeric

Default OFF

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:SPECtrum:MARKer<n>[:STATe] <char>

(Read-Write) Create, change, or remove a marker.

Relevant Modes IQA (Spectrum only)

Parameters

<*n*> New or existing marker to create, change, or remove. Choose from 1 to 6.

<character> Choose from:

NORM - Marker is a Normal marker

DELT - Marker is a Delta marker pair.

OFF - Marker is disabled.

To create and move a delta marker:

1. Create a normal marker using this command.
2. Move the marker to the reference position using CALC:SPEC:MARK[*n*]:X <num>
3. Change the marker to a delta marker using this command.
4. Move the delta marker to the delta position using CALC:SPEC:MARKer[*n*]:X <num>

Examples
```
CALC:SPEC:MARK1 NORM
```

Query Syntax CALC:SPEC:MARKer<n>?

Return Type Character

Default OFF

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:AOFF

(Write-Only) Turns OFF all IQA waveform markers.

Relevant Modes IQA (Waveform only)

Examples
```
CALC:WAV:MARK:AOFF
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:COUPle:X <num>

(Read-Write) Set the X-axis coupled marker. Sets the X-axis value to the value of the other coupled markers.

See also CALC:WAV:MARK:COUP[:STAT].

Relevant Modes	IQA (Waveform Only)
Parameters	
<numeric>	Minimum: -9.9e+37 Maximum: 9.9e+37
Examples	**CALC:WAV:MARK:COUP 20e-6**
Query Syntax	n/a
Return Type	Numeric
Default	n/a

Last Modified:

21nov2017	Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:COUPle[:STATe] <bool>

(Read-Write) Sets or reads the state of the coupled markers. If a selected marker's marker type is Normal/Delta, all active markers' X value will be coupled to selected marker's value.

If selected marker's marker type is OFF, all actCALCulate:WAVeform:MARKer<n>:Yive markers X value still keep their own value.

See also CALC:WAV:MARK:COUP:X.

Relevant Modes	IQA (Waveform Only)
Parameters	
<boolean>	ON (1) - Enables coupled markers. OFF (0) - Disables coupled markers.
Examples	N/A
Query Syntax	**CALC:WAV:MARK:COUP ON** **CALC:WAV:MARK:COUP 0**
Return Type	CALC:WAV:MARK:COUP?
Default	OFF (0)

Last Modified:

22oct2017	Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:CPSearch[:STATe] <bool>

(Read-Write) Sets and read the Continuous Peak Search. Enables or disables the Continuous Peak Search. When Continuous Peak Search is on, a peak search is automatically performed for the selected marker after each sweep. The rules for finding the peak are exactly the same as for Peak Search, including the use of peak criteria rules.

Relevant Modes IQA (Waveform Only)

Parameters

<boolean> ON (1) - Enables continuos peak search.
OFF (0) - Disables continuos peak search.

Couplings N/A

Examples

```
CALC:WAV:MARK:CPS ON
CALC:WAV:MARK:CPS 0
```

Query Syntax CALC:WAV:MARK:CPS?

Default OFF (0)

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:DREF:FIXed <bool>

(Read-Write) Set and read the state of fixed delta / reference markers.

Relevant Modes IQA (Waveform Only)

Parameters

<boolean> ON (1) - Enables fixed delta reference markers.
OFF (0) - Disables fixed delta reference markers.

Couplings N/A

Examples

```
CALC:WAV:MARK:DREF:FIX ON
CALC:WAV:MARK:DREF:FIX 0
```

Query Syntax CALC:WAV:MARK:DREF:FIX?

Default ON (1)

Last Modified:

22sep2017 New IQA mode (10.00)

:CALCulate:WAVeform:MARKer:FUNCtion:PEXCursion <num>

(Read-Write) Set and queries the minimum value variation (rise and fall) required for a signal to be identified as a peak.

Relevant Modes IQA (Waveform Only)

Parameters

<numeric> Minimum: 0

Maximum: 200

Couplings For a signal to be identified as a peak it must meet certain criteria:

- Signals in the negative frequency range and signals very close to 0 Hz are ignored.

- Signal must satisfy peak excursion and peak threshold (:CALC:WAV:MARK:FUNC:PTHR) criteria before being identified as a peak.

Examples

```
CALC:WAV:MARK:FUNC:PEXC 2
```

Query Syntax CALC:WAV:MARK:FUNC:PEXC?

Default 0.00E+00

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:FUNCtion:PTHReshold <num>

(Read-Write) Set and queries the peak threshold value that defines the minimum signal level (or min threshold) that the peak identification algorithm uses to recognize a peak.

Relevant Modes IQA (Waveform Only)

Parameters

<numeric> Minimum: -200

Maximum: 200

Couplings For a signal to be identified as a peak it must meet certain criteria:

- Signals in the negative value range and signals very close to 0 Hz are ignored.

- Signal must satisfy peak excursion (:CALC:WAV:MARK:FUNC:PEXC) and peak threshold criteria before being identified as a peak.

Examples

```
CALC:SPEC:WAV:FUNC:PTHR -20
```

Query Syntax CALC:SPEC:WAV:FUNC:PTHR?

Default -9.000E+01

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer<n>:DATA <char>

(Read-Write) Set and read the results of the waveform trace that a marker has been assigned.
This command operates on the selected trace. First select a trace using TRAC:WAV<*n*>:TYPE.

Relevant Modes IQA (Waveform

Parameters

<n> Existing marker

<char> Marker function.
WAV - Marker is
POL - Marker is
PHAS - Marker i
UPH - Marker is
REAL - Marker i
IMAG - Marker i

Examples
```
CALC:WAV:MAR
CALC:WAV:MAR
```

Query Syntax CALC:WAV:MA

Return Type character

Default WAV

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer<n>:FUNCtion <char>

(Read-Write) Causes the specified marker to become one of the IQA Marker functions. Also, enables or disables the specified marker.

Relevant Modes IQA (Waveform only)

Parameters

<*n*> Existing marker to become a marker function. Choose from 1 to 6.

<character> Marker function. Choose from:

OFF - Marker is returned to it's previous state (normal or delta).

NOISe - Marker becomes a noise marker.

BPOWer - Marker becomes a Band/Interval Power marker.

An Interval Power marker calculates the average power over the Interval Power Span, which is set using:

- CALC:WAV:MARK:FUNC:INT:SPAN and
- CALC:WAV:MARK:FUNC:INT:SPAN:AUTO.

Examples

```
CALC:WAV:MARK1:FUNC NOIS
```

Query Syntax CALC:WAV:MARK<n>:FUNC?

Default OFF

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:FUNCtion:INTerval:SPAN <num>

(Read-Write) Set and read the waveform maker span for the selected IQA marker.

Set CALC:WAV:MARK:FUNC:INT:SPAN:AUTO to OFF.

Relevant Modes IQA

Parameters

<*numeric*> Assign a waveform span.

Couplings If CALC:WAV:MARK:FUNC:INT:SPAN:AUTO is on, the value is 5% of the existing frequency span.

Examples

```
CALC:WAV:MARK:FUNC:INT:SPAN 1e-9
```

Query Syntax CALC:WAV:MARK:FUNC:BAND:SPAN?

Default 5.000E-06

Last Modified:

22oct2017 New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer:FUNCtion:INTerval:SPAN:AUTO

(Read-Write) Set and read the automatic interval span setting for the selected I/Q marker.

See also CALCulate:WAVeform:MARKer:FUNCtion:INTerval:SPAN.

Relevant Modes	IQA (Waveform only)
Parameters	
<bool>	Band power frequency span method. **ON** (or 1) - Interval Power frequency span is 5% (default) of existing frequency span (Stop Time - Start Time). **OFF** (or 0) - Set Interval Power frequency span manually using CALCulate:WAVeform:MARKer:FUNCtion:INTerval:SPAN
Examples	`CALC:WAV:MARK:FUNC:INT:SPAN:AUTO 1`
Query Syntax	CALCulate:WAVeform:MARKer:FUNCtion:INT:SPAN:AUTO?
Default	ON

Last Modified:

22oct2017	New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer<n>:FUNCtion:MAXimum

(Write-Only) Causes the specified marker to find the maximum amplitude of the trace. If the marker is off it activated and is set to NORMal.

Relevant Modes	IQA (Waveform only)
Parameters	
<*n*>	New or existing marker to move. Choose from 1 to 6.
Examples	`CALC:WAV:MARK1:FUNC:MAX`
Query Syntax	N/A
Default	N/A

Last Modified:

22oct2017	Added IQA mode (10.1x)

:CALCulate[:SELected]:MARKer:FUNCtion:Mn:MIN

(Write-only) Sets the frequency of the frequency counter marker in Hz. See also CALC:MARK:FUNC:M*n*:MAX.

Note:

This SCPI command sets either marker 5 to a minimum value between marker 1 and 2 or it sets marker 6 to a minimum value between marker 3 and 4 (i.e., CALC:MARK:FUNC:M*n*:MIN, where n=5 or n=6). No other marker choices are possible.

For marker 5 search: If marker 1, 2, 5 are OFF or Delta when MIN is initiated:

- Markers are all changed to Normal
- Marker 1 is set to 1/4 of full span
- Marker 2 is set to 1/4 of full span

For marker 6 search: If marker 3, 4, 6 are OFF or Delta when MIN is initiated:

- Markers are all changed to Normal
- Marker 3 is set to 1/4 of full span
- Marker 4 is set to 1/4 of full span

Marker 1, 2, 3, and 4 positions are not modified, if they have been previously positioned prior to initiating this command.

Relevant Modes CAT/TDR

Parameters None

Examples Inserts Marker 5 at the next minimum between Markers 1 and 2:

```
CALC:MARK:FUNC:M5:MIN
```

Inserts Marker 6 at the next minimum between Markers 3 and 4:

```
CALC:MARK:FUNC:M6:MIN
```

Return Type n/a

Default n/a

Last Modified:

07-sep-2017	New command

:CALCulate:WAVeform:MARKer<n>:FUNCtion:PNEXt

(Write-Only) Reads the selected waveform marker. Sets the selected marker to the peak that has the next highest (but, lesser value) amplitude from the marker's current value. Only peaks which meet all enabled peak criteria are considered.

If the selected marker was off, then it is turned on as a normal marker and a peak search is performed.

Relevant Modes IQA (Waveform Only)

Parameters

<*n*> Existing marker to assign to next highest peak. Choose from 1 to 6.

CouplingsN/A

Examples	`CALC:WAV:MARK3:FUNC:PNEX`
Query Syntax	N/A
Default	N/A

Last Modified:

22oct2017	New IQA mode (10.1x)

:CALCulate:WAVeform:MARKer<n>:TRACe <int>

(Write-Read) Moves an existing marker to the specified trace number.

Note: This feature is called Marker Trace in the User's Guide.

Relevant Modes	IQA (Waveform only)
Parameters	
<*n*>	Existing marker to assign to trace. Choose from 1 to 6.
<trace numberr>	Trace number. Choose from: IQA: • 1, 2 ,3, 4
Examples	`CALC:WAV:MARK1:TRAC 3` `CALC:WAV:MARK2:TRAC 2`
Query Syntax	CALC:WAV:MARK<n>:TRAC?
Default	1

Last Modified:

22oct2017	Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer<n>:X

(Read-Write) Set and query the X-axis location for the specified waveform marker. No effect if the marker is Off. See To Create and Move a Delta Marker.

Relevant Modes	IQA (Waveform only)
Parameters	
<*n*>	Marker to set on the X-axis location. Choose from 1 to 6.
<numeric>	X-axis location. Choose any value currently displayed on the X-axis. Minimum: -9.9E+37 Hz

Maximum: 9.9E+37 Hz

Dependencies Range is dependent on the X axis range of the selected trace.

Examples `CALC:WAV:MARK3:X 80e-6`

Query Syntax CALC:WAV:MARK<*n*>:X?

Return Type Numeric

Default OFF

Last Modified:

22oct2017 Added IQA mode (10.1x)

:CALCulate:WAVeform:MARKer<n>:Y?

(Read-Only) Reads the Y-axis value for the specified marker. One value is returned: Magnitude

Relevant Modes IQA (Waveform only)

Parameters

<*n*> Existing marker for which to read Y-axis value. Choose from 1 to 6.

Dependencies n/a

Examples CALC:WAV:MARK1:Y?

Return Type numeric

Default OFF

Last Modified:

22oct2017 Added IQA mode (10.1x)

CALCulate:WAVeform:MARKer<n>[:STATe]

(Read-Write) Set or query the marker control mode. Sets the selected marker to Normal, Delta or Off.

If all markers are Off, setting a Marker sets the selected marker to Normal and places it at the center of the screen on the trace determined by the Marker Trace rules. Marker X Axis Value is displayed.

Relevant Modes IQA (Waveform only)

Parameters

<*n*> New or existing marker to create, change, or remove. Choose from 1 to 6.

<character> Choose from:

NORM - Marker is a Normal marker

DELT - Marker is a Delta marker pair.

OFF - Marker is disabled.

To create and move a delta marker:

1. Create a normal marker using this command.
2. Move the marker to the reference position using CALC:WAV:MARK[*n*]:X <time>
3. Change the marker to a delta marker using this command.
4. Move the delta marker to the delta position using CALC:WAV:MARK[*n*]:X <time>

Examples

```
CALC:WAV:MARK2 NORM
CALC:WAV:MARK2 DELT
```

Query Syntax CALC:WAV:MARK<*n*>?

Return Type Character

Default Off

Last Modified:

22oct2017 Added IQA mode (10.1x)

:DISPlay:TABLe:MARKer:SPECtrum <bool>

(Read-Write) Set and query the display of the marker table.

Relevant Modes IQA (Spectrum only)

Parameters

<boolean> Marker table display state. Choose from:

O or **OFF -** Table OFF

1 or **ON -** Table ON

Couplings If marker table is enabled, the marker table is only displayed when the active window number is 1.

Examples

```
DISP:TABL:MARK:SPEC ON
```

Query Syntax DISPlay:TABLe:MARKer:SPECtrum?

Return Type Boolean

Default OFF

Last modified:

22oct2017 Added IQA mode (10.1x)

:DISPlay:TABLe:MARKer:WAVeform <bool>

(Read-Write) Set or read the marker table. Enables the marker table to display below the graph on the FieldFox.

Relevant Modes IQA (Waveform Only)

Parameters

<boolean> Band power frequency span method.

ON (or 1) - Enables the marker table below the graph that displays the status of all six of the waveform markers.

OFF (or 0) - Disables the displayed marker table.

Couplings If marker table is enabled, the marker table is only displayed when the active window number is 1.

Examples

```
DISP:TABL:MARK:WAV 1
```

Query Syntax DISP:TABL:MARK:WAV?

Return Type Boolean

Default OFF

Last Modified:

22oct2017 New IQA mode (10.1x)

CALCulate[:SELected]:AMPLitude:MARKer:DELTa:STATe <bool>

(Read-Write) Set or query the state of the Delta Amplitude Markers. To be used as Delta markers, Amplitude Markers must first be enabled using CALCulate[:SELected]:AMPLitude:MARKer:STATe.

Relevant Modes Pulse Measurements, FOPS

Parameters

<bool> Choose from:

OFF or 0 - Delta Amplitude markers OFF

ON or 1 - Delta Amplitude markers OFF

Examples

```
CALC:AMPL:MARK:DELT:STAT 1
```

Query Syntax CALCulate[:SELected]:AMPLitude:MARKer:DELTa STATe?

Return Type Boolean

Default Off

Last Modified:

21-Mar-2014	Added FOPS
29-Oct-2013	New command

CALCulate[:SELected]:AMPLitude:MARKer:STATe <bool>

(Read-Write) Set or query the state of the two Amplitude Markers.

Relevant Modes Pulse Measurements, FOPS

Parameters

<bool> Choose from:
OFF or 0 - Amplitude markers OFF
ON or 1 - Amplitude markers OFF

Examples
```
CALC:AMPL:MARK:STAT 1
```

Query Syntax CALCulate[:SELected]:AMPLitude:MARKer:STATe?

Return Type Boolean

Default Off

Last Modified:

21-Mar-2014	Added FOPS
29-Oct-2013	New command

CALCulate[:SELected]:AMPLitude:MARKer:Y1 <num>

(Read-Write) Set or query the Y-axis location of the Amplitude Marker 1.

Relevant Modes Pulse Measurements, FOPS

Parameters

<num> Y-axis location in dBm.

Examples
```
CALC:AMPL:MARK:Y1 -1.5
```

Query Syntax CALCulate[:SELected]:AMPLitude:MARKer:Y1?

Return Type Numeric

Default 0

Last Modified:

21-Mar-2014	Added FOPS
29-Oct-2013	New command

CALCulate[:SELected]:AMPLitude:MARKer:Y2 <num>

(Read-Write) Set or query the Y-axis location of the Amplitude Marker 2.

Relevant Modes Pulse Measurements, FOPS

Parameters

<num> Y-axis location in dBm.

Examples

```
CALC:AMPL:MARK:Y2 -1.5
```

Query Syntax CALCulate[:SELected]:AMPLitude:MARKer:Y2?

Return Type Numeric

Default 0

Last Modified:

21-Mar-2014	Added FOPS
29-Oct-2013	New command

CALCulate[:SELected]:CONVersion:FUNCtion <char>

(Read-Write) Set and query measurement conversion function for the selected measurement.
First select a measurement using CALCulate:PARameter:SELect.

Relevant Modes NA

Parameters

<char> Conversion function. Choose from:

OFF - No conversion

ZAUTo - The displayed S-parameter is converted to the appropriate Z parameter: Refl for S11 and S22; Trans for S21 and S12.

YAUTo - The displayed S-parameter is converted to the appropriate Y parameter: Refl for S11 and S22; Trans for S21 and S12.

ZREFlection - The displayed S-parameter is converted to Z reflection, regardless of whether the S-parameter is reflection (S11 or S22) or transmission (S21 or S12).

YREFlection - The displayed S-parameter is converted to Y reflection, regardless of whether the S-parameter is reflection (S11 or S22) or transmission (S21 or S12)

ZTRansmissio - The displayed S-parameter is converted to Z transmission, regardless of whether the S-parameter is reflection (S11 or S22) or transmission (S21 or S12).

YTRansmissio - The displayed S-parameter is converted to Y transmission, regardless of whether the S-parameter is reflection (S11 or S22) or transmission (S21 or S12).

INVersion - The displayed S-parameter is converted to 1/S-parameter.

Examples

```
CALC:CONV:FUNC ZAUT
```

Query Syntax CALCulate[:SELected]:CONVersion:FUNCtion?

Return Type Character

Default OFF

Last Modified:

25-Mar-2014 New command (A.07.50)

CALCulate[:SELected]:CORRection:EDELay:TIME <num>

(Read-Write) Set and query the electrical delay for the selected trace. Use CALCulate:PARameter:SELect to select a trace.

Relevant Modes NA

Parameters

<num> Electrical Delay in seconds. Choose a value between 0 and 10 seconds.

Examples

```
CALC:CORR:EDEL:TIME 5e-10
```

Query Syntax CALCulate[:SELected]:CORRection:EDELay:TIME?

Return Type Numeric

Default 0

Last Modified:

19-Oct-2010 New command (5.30)

CALCulate[:SELected]:CORRection:OFFSet:PHASe <num>

(Read-Write) Set and query the phase offset for the selected trace. Use CALCulate:PARameter:SELect to select a trace.

Relevant Modes NA

Parameters

<num> Phase offset in degrees. Choose a value between 0 and 360 degrees.

Examples

```
CALC:CORR:OFFS:PHAS 20
```

Query Syntax CALCulate[:SELected]:CORRection:OFFSet:PHASe?

Return Type Numeric

Default 0

Last Modified:

19-Oct-2010	New command (5.30)

CALCulate[:SELected]:DATA:FDATa <data>

(Write-Read) Send and read the selected trace data in the current display format - one value per data point. Undefined behavior for Smith or Polar formats. (i.e., this is a screen capture from the currently displayed trace.)

Select a trace with CALCulate:PARameter:SELect

Set format with CALCulate:FORMat

Relevant Modes NA

CAT - Read-only

Parameters

<data> Comma-separated data to send.

Examples

```
'send three data points
CALC:DATA:FDAT 1,1,1
```

Query Syntax CALCulate[:SELected]:DATA:FDATa?

If correction is ON, then the returned data is corrected.

Return Type Comma-separated numeric

Default Not Applicable

CALCulate[:SELected]:DATA:FMEM <data>

(Write-Read) Send and read the selected memory trace data in the current display format - one value per data point.

Select a trace with :CALCulate:PARameter:SELect

Set format with CALCulate:FORMat

Relevant Modes NA

Parameters

<data> Comma-separated data to send.

Examples

```
'send three data points
CALC:DATA:FMEM 1,1,1
```

Query Syntax CALCulate[:SELected]:DATA:FMEM?

A memory trace must first be stored using CALCulate:MATH:MEMorize

If correction is ON, then the returned data is corrected.

Return Type Comma-separated numeric

Default Not Applicable

CALCulate[:SELected]:DATA:SDATA <data>

(Write-Read) Send and read the selected trace data - unformatted - two values per data point (Real, Imaginary). (i.e., includes any error correction that has been applied to the trace data.)

Select a trace with :CALCulate:PARameter:SELect

Relevant Modes NA

Parameters

<data> Comma-separated data to send.

Examples

```
'send three data points
CALC:DATA:SDAT 1,1,1
```

Query Syntax CALCulate[:SELected]:DATA:SDATA?

If correction is ON, then the returned data is corrected.

If imaginary data is not available, 0 is returned.

Return Type Comma-separated numeric

Default Not Applicable

CALCulate[:SELected]:DATA:SMEM <data>

(Write-Read) Send and read the selected memory trace data - unformatted - two value per data point (Real, Imaginary).

Select a trace with :CALCulate:PARameter:SELect

Relevant Modes NA

CAT - Read-only

Parameters

<data> Comma-separated data to send.

Examples

```
'send three data points
CALC:DATA:SMEM 1,1,1
```

Query Syntax CALCulate[:SELected]:DATA:SMEM?

A memory trace must first be stored using CALCulate:MATH:MEMorize

If correction is ON, then the returned data is corrected.

If imaginary data is not available, 0 is returned.

Return Type Comma-separated numeric

Default Not Applicable

CALCulate[:SELected]:FILTer[:GATE]:TIME:CENTer <num>

(Read-Write) Set and query the gate filter center time.

Relevant Modes NA

Parameters

<num> Center time in seconds. Choose any number between: **±** (number of points-1) / frequency span.

Examples CALC:FILT:TIME:CENT 1e-9

Query Syntax CALCulate[:SELected]:FILTer[:GATE]:TIME:CENTer?

Return Type Numeric

Default 0

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:FILTer[:GATE]:TIME:SHAPe <char>

(Read-Write) Set and query the gating filter shape.

Relevant Modes NA

Parameters

<char> Choose from
MAXimum - the widest gate filter available
WIDE -
NORMal -
MINimum - the narrowest gate filter available

Examples CALC:FILT:TIME:SHAP NORM

Query Syntax CALCulate[:SELected]:FILTer[:GATE]:TIME:SHAPe?

Return Type Character

Default NORMal

Last Modified:

25-Jan-2012 New command

CALCulate[:SELected]:FILTer[:GATE]:TIME:SPAN <num>

(Read-Write) Set and query the gate filter span time.

Relevant Modes NA

Parameters

<num> Span time in seconds. Choose any number between:
0 and 2* [(number of points-1) / frequency span]

Examples	CALC:FILT:TIME:SPAN 5ns
Query Syntax	CALCulate[:SELected]:FILTer[:GATE]:TIME:SPAN?
Return Type	Numeric
Default	20 ns

Last Modified:

24-Jan-2012	New command

CALCulate[:SELected]:FILTer[:GATE]:TIME:STARt <num>

(Read-Write) Set and query the gate filter start time.

Relevant Modes	NA
Parameters	
<num>	Start time in seconds. Choose any number between: ± (number of points-1) / frequency span
Examples	CALC:FILT:TIME:STARt 5ns
Query Syntax	CALCulate[:SELected]:FILTer[:GATE]:TIME:STARt?
Return Type	Numeric
Default	10 ns

Last Modified:

24-Jan-2012	New command

CALCulate[:SELected]:FILTer[:GATE]:TIME:STATe <bool>

(Read-Write) Set and query the ON | OFF gating state for the active trace. Select a trace using CALCulate:PARameter:SELect.

Relevant Modes	NA
Parameters	
<bool>	Gating state. Choose from: **0** or **OFF** - Gating is OFF **1** or **ON -** Gating is ON
Examples	CALC:FILT:TIME:STAT 1
Query Syntax	CALCulate[:SELected]:FILTer[:GATE]:TIME:STATe?

Return Type Boolean

Default OFF

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:FILTer[:GATE]:TIME:STOP <num>

(Read-Write) Set and query the gate filter Stop time.

Relevant Modes NA

Parameters

<num> Stop time in seconds. Choose any number between:
± (number of points-1) / frequency span

Examples CALC:FILT:TIME:STOP 5ns

Query Syntax CALCulate[:SELected]:FILTer[:GATE]:TIME:STOP?

Return Type Numeric

Default 10 ns

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:FILTer[:GATE]:TIME[:TYPE] <char>

(Read-Write) Set and query the gate filter type.

Relevant Modes NA

Parameters

<char> Choose from:
BPASs - Includes (passes) the range between the start and stop times.
NOTCh - Excludes (attenuates) the range between the start and stop times.

Examples CALC:FILT:TIME BPAS

Query Syntax CALCulate[:SELected]:FILTer[:GATE]:TIME[:TYPE]?

Return Type Character

Default BPAS

Last Modified:

25-Jan-2012 New command

CALCulate:[SELected]:FMEM:DATA?

(Read-only) Read the data from a memory trace. A memory trace must first be stored using CALCulate[:SELected]:MATH:MEMorize.

Relevant Modes FOPS

Parameters None

Examples
```
CALC:FMEM:DATA?
```

Return Type Numeric

Default Not Applicable

Last Modified:

21-Mar-2014 New command

CALCulate[:SELected]:FORMat <char>

(Read-Write) Set and query displayed data format of the NA mode measurement.

Relevant Modes NA

Parameters

<char> Data format. Choose from:

MLOGarithmic – Log magnitude

MLINear – Linear magnitude

SWR – Standing Wave Ratio

PHASe - Phase in degrees. The trace wraps every 360 degrees, from +180 to –180

UPHase - Unwrapped phase in degrees.

SMITh – Smith chart; series resistance and reactance.

POLar - Magnitude and phase of the reflection coefficient.

GDELay – Group delay (N9912A - S11 ONLY)

ZMAG - Impedance, magnitude only.

REAL - Resistive portion of the measured complex data.

IMAGinary - Reactive portion of the measured data.

Examples
```
CALC:FORMat SWR
```

Query Syntax CALCulate[:SELected]:FORMat?

Return Type Character

Default Depends on model and measurement.

Last Modified:

22-Sep-2014 Added Real, imag, Zmag

1-Aug-2011 Added unwrapped phase (A.05.50)

CALCulate[:SELected]:GAIN:DATA??

(Read-Only) Return an array of floating point values, representing Gain. (Data – Memory).

Relevant Modes FOPS

Parameters

Examples

```
CALC:GAIN:DATA?
```

Return Type Numeric

Default Not Applicable

Last Modified:

19-Dec-2018 New FOPS command

CALCulate[:SELected]:LIMit:BEEP <bool> - Superseded

This command is replaced with CALCulate[:SELected]:LIMit:SOUNd. Learn about superseded commands.

(Read-Write) Set and query whether the FieldFox beeps when a limit line failure occurs.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes CAT, NA, SA

Parameters

<bool> Beep state. Choose from:
OFF - No beeping
ON - Beep on Fail

Examples

```
CALC:LIM:BEEP ON
```

Query Syntax CALCulate[:SELected]:LIMit:BEEP?

Return Type Boolean

Default OFF

Last Modified:

16-Apr-2013 Replaced (6.25)

CALCulate[:SELected]:LIMit:DATA <data> - Superseded

This command is replaced with CALCulate:LIMit:LLData which can also set Relative Limits.

(Read-Write) Set and query the data to complete the limit line table.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

For **ACP** measurements, use CALCulate:ACPower:OFFSet:LIST:LIMit:NEGative[:UPPer]:DATA and CALCulate:ACPower:OFFSet:LIST:LIMit:POSitive[:UPPer]:DATA.

Relevant Modes SA, CAT, NA

Parameters

<data> Data for all limit segments in the following format:

- **n** = number of segments, followed by segment data.
- each segment: **State, Type, BegStim, EndStim, BegResp, EndResp**
- Where:

State	0 for limit line disabled 1 for limit line enabled.
Type	Type of limit segment. Choose from 0 - Upper limit 1 - Lower limit
BegStim	Start of X-axis value (freq, power, time)
EndStim	End of X-axis value
BegResp	Y-axis value that corresponds with Start of X-axis value
EndResp	Y-axis value that corresponds with End of X-axis value

Subsequent segments are appended to the data in the same manner.

Examples

```
' The following writes three upper limit segments for a 40 MHz bandpass filter.
' individual segments are highlighted for readability.
CALC:LIM:DATA 3,1,0,2e7,3e7,-30,0,1,0,3e7,5e7,0,0,1,0,5e7,6e7,0,-30
```

Query Syntax CALCulate:LIMit:DATA?

Return Type Block data

Default 0 - Limit line data off

CALCulate[:SELected]:LIMit:LLData <data>

This command replaces CALCulate:LIMit:DATA which can be used ONLY with Fixed limit lines. This command can also be used with Relative Limit Lines.

(Read-Write) Set and query the data to complete the limit line table.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

For **ACP** measurements, use CALCulate:ACPower:OFFSet:LIST:LIMit:NEGative[:UPPer]:DATA and CALCulate:ACPower:OFFSet:LIST:LIMit:POSitive[:UPPer]:DATA.

Relevant Modes SA, CAT, NA, NF

Parameters

<data> Data for all limit segments in the following format:

- **n** = number of segments, followed by segment data.
- Where:

<nL>	number of limit line segments to follow
State	0 - limit line disabled 1 - limit line enabled.
Fixed/Rel	0 - Relative 1 - Fixed
Upper/Lower	0 - Upper limit 1 - Lower limit
<nP>	Number of points to follow
Freq value	X-axis value
Amp value	Y-axis value

Subsequent points are appended to the data in the same manner.

Examples

```
'The following writes one relative, upper limit segment with 4 points for a 40 MHz bandpass filter.
' Blue-shaded numbers are values for one segment.
'following are X/Y points
CALC:LIM:LLD 1,1,0,0,4,-30e6,-20,-20e6,-10,-10e6,0,10e6,0,20e6,-10,30e6,-20
```

Query Syntax CALCulate[:SELected]:LIMit:LLData?

Return Type Block data

Default 0 - Limit line data off

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
17-Jul-2012	New command

CALCulate[:SELected]:LIMit:SOUNd <char>

Note: This command replaces CALCulate[:SELected]:LIMit:BEEP.

(Read-Write) Set and query the conditions with which the FieldFox beep occurs during limit line testing.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes	CAT, NA, NF, SA
Parameters	
<char>	Beep state. Choose from: **OFF** - No beeping **OPASs -** Beep on Pass **OFAil -** Beep on Fail
Examples	`CALC:LIM:SOUN OPA`
Query Syntax	CALCulate:SELected:LIMit:SOUNd?
Return Type	Character
Default	OFF

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
16-Apr-2013	New command (6.25)

CALCulate[:SELected]:LIMit[:STATe]

(Read-Write) Set and query whether limit testing occurs.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes	CAT, NA, NF, SA
Parameters	
<bool>	Testing state. Choose from: **0** or **OFF** - No limit line testing **1** or **ON -** Do limit line testing
Examples	`CALC:LIM ON`
Query Syntax	CALCulate[:SELected]:LIMit[STATe]?
Return Type	Boolean
Default	OFF

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

CALCulate[:SELected]:LIMit:WARN <bool>

(Read-Write) Set and query whether the Pass and Fail warning is displayed on the FieldFox screen.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes CAT, NA, NF, SA

Parameters

<bool> Testing state. Choose from:

0 or **OFF**- Do NOT display onscreen warning.

1 or **ON -** Display onscreen warning.

Examples

```
CALC:LIM:WARN ON
```

Query Syntax CALCulate[:SELected]:LIMit:WARN?

Return Type Boolean

Default OFF

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

CALCulate[:SELected]:MARKer<n>:ACTivate

(Write-Only) Makes the selected marker active.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes CAT, NA, NF, SA, RTSA Pulse Measurements, FOPS

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Parameter

<n> Marker number to activate. Each trace can contain up to six markers.

Examples

```
CALC:MARK2:ACTivate
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS
29-Oct-2013	Added Pulse
16-Aug-2012	New command

CALCulate[:SELected]:MARKer:AOFF

(Write-Only) Turns OFF all markers.

Relevant Modes CAT, NA, NF, SA, RTSA

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Examples `CALC:MARK:AOFF`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer:BWIDth:DATA?

(Read-only) Read the results of the bandwidth marker search. Returns Bandwidth, Center Frequency, Q, and Loss. Use CALCulate:MARKer:BWIDth[:STATe] to create bandwidth markers.

This command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes NA

Parameters

Examples CALC:MARK:BWID:DATA?

Return Type 4 Numeric values separated by commas.

Default Not Applicable

Last Modified:

13-Aug-2012	Added select
2-Aug-2011	New command A.05.50

CALCulate[:SELected]:MARKer:BWIDth[:STATe] <bool>

(Read-Write) Set or return the state of a bandwidth marker search.

This command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Use CALCulate:MARKer:FUNCtion:BWIDth:THReshold to set the bandpass or notch value to be used in the search.

Use CALCulate:MARKer:BWIDth:DATA to read the data.

Relevant Modes NA

Parameters

<bool> Choose from:

ON (or 1) - Uses markers 1 through 4 to perform a bandwidth search.

OFF (or 0) - Turns OFF the BW search. Use CALCulate:MARKer:AOFF to turn the markers OFF.

Examples

```
CALC:MARK:BWID ON
```

Query Syntax CALCulate[:SELected]:MARKer:BWIDth[:STATe]?

Return Type Boolean

Default Off

Last Modified:

13-Aug-2012	Added select
1-Aug-2011	New command (A.05.50)

CALCulate[:SELected]:MARKer:COUPled <bool>

(Read-Write) Set and query the state of marker coupling. Marker coupling is used in multi-trace configurations. This setting affects all NA mode markers.

Relevant Modes NA, NF

Parameters

<bool> Choose from:

OFF or **0** - Markers are uncoupled.

ON or **1** - Markers are coupled.

Examples

```
CALC:MARK:COUP OFF
```

Query Syntax CALCulate[:SELected]:MARKer:COUPled?

Return Type Boolean

Default ON

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
10-Aug-2012	Edited Coupled
30-Mar-2012	Removed marker specific

CALCulate[:SELected]:MARKer:FORMat <char>

(Read-Write) Set and query marker format that appears in the upper-right of the screen and in the marker table. This format can be different from the displayed format.

All of the markers on the selected trace change to the specified format.

Use CALC:MARK:Y? to read the Y-axis values that are on the screen.

Relevant Modes NA

Parameters

<char> Marker format. Choose from:

DEF - (Default) Same as displayed format.

IMPedance - R+jX format

PHASe - Phase in degrees.

ZMAGnitude - Impedance Magnitude

MAGPhase - Magnitude and Phase

REAL -

IMAGinary -

DBA -

Examples

```
CALC:MARK:FORM IMP
```

Query Syntax CALCulate[:SELected]:MARKer:FORMat?

Return Type Character

Default Depends on model and measurement.

Last Modified:

4-Jun-2013	New topic (A.07.00)

CALCulate[:SELected]:MARKer:FUNCtion:BWIDth:THReshold <value>

(Read-Write) Set or return the value used to find the bandwidth of a bandpass or notch filter response.

Use CALCulate:MARKer:BWIDth[:STATe] to turn BW search On/Off.

Use CALCulate:MARKer:BWIDth:DATA to read the data.

Relevant Modes NA

Parameters

<value> BW search value. Specify the level in dB from the peak or valley where

bandwidth is measured.

Negative numbers search for a Peak bandpass, such as a filter S21 response.

Either of the following TWO methods can be used to search for a Valley or Notch filter, such as the S11 response of a bandpass filter.

- Negative values search down from the TOP (MAX) of the response.
- Positive values search up from the BOTTOM (MIN) of the notch.

Examples `CALC:MARK1:FUNC:BWID:THR 3`

Query Syntax CALCulate[:SELected]:MARKer:FUNCtion:BWIDth:THReshold?

Return Type Numeric

Default -3

Last Modified:

13-Aug-2012	Added selected
1-Aug-2011	New command (A.05.50)

CALCulate[:SELected]:MARKer<n>:FUNCtion:FALLtime <num>

(Write-Read) Set and query pulse drop in dBm. Marker 1 is created as a delta marker and placed at the first instance of the peak value and the specified fall on the trace. Read the fall time using CALCulate[:SELected]:MARKer:X?

Relevant Modes Pulse Measurements

Parameters

<num> Pulse Fall in dBm.

Examples `CALC:MARK:FUNC:FALL -5`

Query Syntax CALCulate[:SELected]:MARKer<n>:FUNCtion:FALLtime?

Default -3 dBm

Last Modified:

29-Oct-2013	New command

CALCulate[:SELected]:MARKer<n>:FUNCtion:MAXimum

(Write-Only) Causes the specified marker to find the highest (maximum) amplitude of the trace.

Relevant Modes CAT, NA, NF, SA, RTSA, Pulse Measurements, FOPS

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Parameters

<n>	New or existing marker to move. Choose from 1 to 6.
Examples	`CALC:MARK1:FUNC:MAX`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
21-Mar-2014	Added FOPS
29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer<n>:FUNCtion:MINimum

(Write-Only) Causes the specified marker to find the lowest (minimum) amplitude of the trace.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes	CAT, NA, NF, SA, RTSA, Pulse Measurements, FOPS
	Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.
Parameters	
<n>	New or existing marker to move. Choose from 1 to 6.
Examples	`CALC:MARK1:FUNC:MIN`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
21-Mar-2014	Added FOPS
29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer:FUNCtion:PEXCursion <num>

(Read-Write) Set and query the excursion value. This is the vertical distance (dB) between the peak and the valleys on both sides. To be considered a peak for subsequent marker search commands, data values must "fall off" from the peak on both sides by the excursion value.

For NA and CAT mode, this command operates on the selected trace. First select a trace using

CALC:PAR<tr>:SELect.

Peak Excursion and Threshold settings apply to all markers on each trace.

These settings remain through an instrument preset, but are reset to the default values when the FieldFox power is shutdown.

Relevant Modes	CAT, NA, NF, SA, RTSA, Pulse Measurements
	Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.
Parameters	
<num>	Excursion value in dB.
Examples	`CALC:MARK:FUNC:PEXC 3`
Query Syntax	CALCulate[:SELected]:MARKer:FUNCtion:PEXCursion?
Return Type	Numeric
Default	0.5 dB

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer<n>:FUNCtion:PLEFt

(Write-Only) Causes the specified marker to find the next data point to the left that meets the 'Peak' criteria. When no data points to the left meet the Peak criteria, the marker does not move.

Relevant Modes	NF, SA, RTSA
	Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.
Parameters	
<n>	New or existing marker to move. Choose from 1 to 6.
Examples	`CALC:MARK1:FUNC:PLEF`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer<n>:FUNCtion:PNEXt

(Write-Only) Causes the specified marker to find the next lower amplitude peak from where it currently resides. This command is usually preceded with the MARK:FUNC:MAX command which finds the highest peak.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes	CAT, NA, NF, SA, RTSA Pulse Measurements
	Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.
Parameters	
<n>	New or existing marker to move. Choose from 1 to 6.
Examples	`CALC:MARK1:FUNC:PNEX`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer<n>:FUNCtion:PRIGht

(Write-Only) Causes the specified marker to search to the right of the current location for the next data point that meets the 'Peak' criteria.

Relevant Modes	NF, SA, RTSA
Parameters	
<n>	New or existing marker to move. Choose from 1 to 6.
Examples	`CALC:MARK1:FUNC:PRIG`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer:FUNCtion:PTHReshold <num>

(Read-Write) The minimum amplitude used to find peaks in subsequent marker search commands. To be considered valid, the peak must be **above** the threshold level. The valley on either side can be below the threshold level.

For NA, NF, and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Peak Excursion and Threshold settings apply to all markers on each trace.

These settings remain through an instrument preset, but are reset to the default values when the FieldFox power is shutdown.

Relevant Modes CAT, NA, NF, SA, RTSA Pulse Measurements

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Parameters

<num> Threshold value in dB.

Examples

```
CALC:MARK:FUNC:PTHR -10
```

Query Syntax CALCulate:SELected:MARKer:FUNCtion:PTHReshold?

Default -190 dB

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer:FUNCtion:RISetime <num>

(Write-Read) Set and query pulse rise in dBm. Marker 1 is created as a delta marker and placed at the first instance of the peak value and the specified rise on the trace. Read the rise time using CALCulate[:SELected]:MARKer:X?

Relevant Modes Pulse Measurements

Parameters

<num> Pulse Rise in dBm.

Examples

```
CALC:MARK:FUNC:RIS 5
```

Query Syntax CALCulate[:SELected]:MARKer<n>:FUNCtion:RISetime?

Default dBm

Last Modified:

29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer:FUNCtion:TARGet <value>

(Read-Write) Set and query the marker target search value.
This command operates on the selected trace AND the active marker.
First select a trace using CALC:PAR<tr>:SELect.
Then activate a marker using CALCulate[:SELected]:MARKer:ACTivate

Relevant Modes	NA, NF, Pulse Measurements
Parameters	
<value>	Target search value in dB.
Examples	`CALC:MARK:FUNC:TARG -1`
Query Syntax	CALCulate[:SELected]:MARKer:FUNCtion:TARGet?
Return Type	Numeric
Default	-3 dB

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
17-Dec-2013	Active marker
29-Oct-2013	Added Pulse
23-Jan-2013	Removed CAT
2-Aug-2011	New command

CALCulate[:SELected]:MARKer:FUNCtion:TDIRection <value>

(Read-Write) Set and query whether the target search will 'wrap' when it gets to the end of the range.
This command operates on the selected trace, AND the active marker, AND only a 'Target' search.
Note: There is NO front-panel GUI equivalent for this command.

1. Select a trace using CALC:PAR<tr>:SELect.
2. Then activate a marker using CALCulate[:SELected]:MARKer:ACTivate
3. Then start a search using CALCulate[:SELected]:MARKer:FUNCtion:TARGet.

Relevant Modes	NA, Pulse Measurements
Parameters	
<value>	Choose from: **DEFault** - Search from the current marker position to the right. Wrap around to the beginning and continue search.

LEFT - Search to the left from the current position. When the range start is reached, end the search (no wrap).

RIGHT - Search to the right from the current position. When the range stop is reached, end the search (no wrap)

Examples `CALC:MARK:FUNC:TDIR LEFT`

Query Syntax CALCulate[:SELected]:MARKer:FUNCtion:TDIRection?

Return Type Character

Default Default

Last Modified:

6-Nov-2014	New command

CALCulate[:SELected]:MARKer<n>:FUNCtion:TRACking <bool>

(Read-Write) Set and query the marker tracking ON/OFF state. Marker tracking can be used with all search functions.

For NA mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes NA, NF, Pulse Measurements

Parameters

<n> Marker number for which tracking is to be set. A marker is created if not already ON. Choose from 1 to 6. If unspecified, value is set to 1.

<bool> Marker tracking state. Choose from:

ON (or 1) - Marker Tracking ON.

OFF (or 0) - Marker Tracking OFF.

Examples `CALC:MARK2:FUNC:TRAC 1`

Query Syntax CALCulate:SELected:MARKer<n>:FUNCtion:TRACking?

Return Type Boolean

Default OFF

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
29-Oct-2013	Added Pulse
2-Aug-2011	New command (5.50)

CALCulate[:SELected]:MARKer:FUNCtion:ZONE <bool>

(Write-Read) Set and query whether marker function searches occur on the entire primary trace graph or within the zoom window time span.

Relevant Modes Pulse Measurements

Parameters

<bool> Choose from:

OFF or 0 - Marker function searches occur on the entire primary trace graph

ON or 1 - Marker function searches occur within the zoom window time span.

Examples

```
CALC:MARK:FUNC:ZONE 1
```

Query Syntax CALCulate[:SELected]:MARKer:FUNCtion:ZONE?

Default OFF

Last Modified:

29-Oct-2013 New command

CALCulate[:SELected]:MARKer<n>:SET <char>

(Write-Only) Sets the FieldFox setting <char> to the location of the specified marker.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Note: SA mode does NOT recognize the optional [:SELected] node.

Relevant Modes The following <char> arguments are valid in each mode:

An error is returned if <char> is not valid.

Mode/function	Valid <char> Arguments
CAT (non-DTF)	STARt, STOP, CENTer, RLEVel
CAT (DTF)	STARt, STOP, RLEVel
NA	STARt, STOP, CENTer, DEL
NF	STARt, STOP, CENTer, DEL, RLEVel
SA (Non-Zerospan)	STARt, STOP, CENTer, RLEVel
SA (Zerospan)	RLEVel
SA (Tune and Listen)	TLFRequency

Parameters

<n>	Existing marker location from which <char> will be set. Choose from 1 to 6.
<char>	**STARt** - Sets the sweep Start value to the marker X-axis value. **STOP**- Sets the sweep Stop value to the marker X-axis value. **CENTer** - Sets the center frequency of the sweep to the marker X-axis value. **DELay** - Sets the electrical delay to that of the current marker group delay value. **RLEVel** - Sets the reference level value to the marker Y-axis value. **TLFRequency** - Sets the SA Mode Tune and Listen frequency to the marker X-axis value.
Examples	`CALC:MARK1:SET CENT`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
19-Oct-2010	Updated with DEL (5.30)

CALCulate[:SELected]:MARKer<n>:SET:CENTer

(Write-Only) The center frequency of the measurement becomes the value of the specified marker. The frequency span is adjusted accordingly.

CALCulate[:SELected]:MARKer:SET performs the same operation.

Relevant Modes	NF, SA, RTSA
Parameters	
<n>	Existing marker from which the center frequency will be set. Choose from 1 to 6.
Examples	`CALC:MARK1:SET:CENT`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer<n>:SET:REFLevel

(Write-Only) The reference level of the current window becomes the value of the specified marker.

CALCulate[:SELected]:MARKer:SET performs the same operation.

Relevant Modes NF, SA, RTSA

Parameters

<n> Existing marker for which reference level will be set. Choose from 1 to 6.

Examples

```
CALC:MARK1:SET:REFL
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer<n>[:STATe] <char>

(Read-Write) Create, change, or remove a marker.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes CAT, NA, NF, SA, RTSA, Pulse Measurements, FOPS

Note: SA, RTSA modes do NOT recognize the optional [:SELected] node.

Parameters

<n> New or existing marker to create, change, or remove. Choose from 1 to 6.

<char> Choose from:

NORM - Marker is a Normal marker

DELT - Marker is a Delta marker pair.

OFF - Marker is disabled.

To create and move a delta marker:

1. Create a normal marker using this command.
2. Move the marker to the reference position using CALCulate:MARKer:X
3. Change the marker to a delta marker using this command.
4. Move the delta marker to the delta position using CALCulate:MARKer:X

Examples

```
CALC:MARK1 NORM
```

Query Syntax CALCulate[:SELected]:MARKer<n>[:STATe]?

Return Type Character

Default Off

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS
29-Oct-2013	Added Pulse

CALCulate[:SELected]:MARKer<n>:TRACe <tnum>

(Read-Write) Moves an existing marker to the specified trace number. The marker and the CAT or NA trace must exist already. This feature is called Marker Trace in the User's Guide.

For NA and CAT mode, this command moves the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes CAT, NA, NF, SA, RTSA

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Parameters

<n> Existing marker to assign to trace. Choose from 1 to 6.

<tnum> Trace number. Choose from:

CAT, NA, and NF:

- **0** - Auto. Marker resides on data trace when it is visible. Marker resides on memory trace when only IT is visible.
- **1** - Data Trace
- **2** - Memory Trace

SA:

- 1, 2 ,3, 4

Examples

```
CALC:MARK1:TRAC 1
```

Query Syntax CALCulate[:SELected]:MARKer<n>:TRACe?

Default 1

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)

CALCulate[:SELected]:MARKer<n>:X <num>

(Read-Write) Set and query the X-axis location for the specified marker. See To Create and Move a Delta Marker

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes CAT, NA, NF, SA, RTSA Pulse Measurements, FOPS

Note: SA, RTSA modes do NOT recognize the optional [:SELected] node.

Parameters

<n> Existing marker for which to set X-axis location. Choose from 1 to 6.

<num> X-axis location. Choose any value currently displayed on the X-axis.

Note: In CAT or NA mode, units of **time** (Freq span of zero Hz.) are **NOT** accepted

Examples

```
CALC:MARK1:X 4e9
```

Query Syntax CALCulate[:SELected]:MARKer<n>:X?

Return Type Numeric

Default When created, markers appear at the center of the X-axis.

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS

CALCulate[:SELected]:MARKer<n>:Y?

(Read-Only) Reads the Y-axis value for the specified marker.

For NA and CAT mode, this command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Note: SA & RTSA modes do NOT recognize the optional [:SELected] node.

Relevant Modes FOPS, CAT, NF - Two values are returned: Magnitude and zero.
NA - Format depends on CALCulate[:SELected]:MARKer:FORMat
SA & RTSA - One value is returned: Magnitude

Parameters

<n> Existing marker for which to read Y-axis value. Choose from 1 to 6.

Examples

```
CALC:MARK1:Y?
```

Return Type Numeric

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS

4-Jun-2013	Added NA mode format (A.07.00)

CALCulate[:SELected]:MARKer:Y<n>:UNCertainty?

(Read-Only) Reads the Y-axis uncertainty value for the specified marker.

This command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes NF - One value is returned for symmetric values (Noise Factor and Noise Temperature) and two values are returned for asymmetric values (Noise Figure).

Parameters

<n> Existing marker for which to read Y-axis value. Choose from 1 to 2.

Examples

```
CALC:MARK1:Y:UNC?
```

Return Type Numeric

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

CALCulate[:SELected]:MATH:FUNCtion <char>

(Read-Write) Set and query the math function. A trace must already be stored into memory (CALC:MATH:MEM) for a setting other than NORM.

This command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.

Relevant Modes NA, CAT

Parameters

<char> Choose from:

NORM - Math Off

ADD - (Data + Memory)

SUBTract - (Data - Memory)

DIVide - (Data / Memory)

Examples

```
CALC:MATH:FUNC DIV
```

Query Syntax CALCulate[:SELected]:MATH:FUNCtion?

Return Type Character

Default NORM

CALCulate[:SELected]:SMOothing:APERture <num>

(Read-Write) Set and query the smoothing aperture for the selected trace.
This command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.
Use CALCulate[:SELected]:SMOothing[:STATe] to enable and disable smoothing.

Relevant Modes	NA, CAT
Parameters	
<num>	Trace smoothing in percent. Choose a value between 0 and 25.
Examples	`CALC:SMO:APER 5`
Query Syntax	CALCulate[:SELected]:SMOothing:APERture?
Return Type	Numeric
Default	1.5

Last Modified:

20-Jan-2015	Added CAT
19-Oct-2010	New command (5.30)

CALCulate[:SELected]:SMOothing[:STATe] <bool>

(Read-Write) Set and query whether trace smoothing occurs on the selected trace. Not available with Polar or Smith Chart formats.
This command operates on the selected trace. First select a trace using CALC:PAR<tr>:SELect.
Use CALCulate[:SELected]:SMOothing:APERture to set aperture.

Relevant Modes	NA, CAT
Parameters	
<bool>	Testing state. Choose from: **0** or **OFF** - Smoothing disabled. **1** or **ON -** Smoothing enabled.
Examples	`CALC:SMO 1`
Query Syntax	CALCulate[:SELected]:SMOothing[:STATe]?
Return Type	Boolean
Default	OFF

Last Modified:

20-Jan-2015	Added CAT
19-Oct-2010	New command (5.30)

CALCulate[:SELected]:TIME:AUX:CENTer <num>

(Read-Write) Set and query the center time of the zoom window.

Relevant Modes Pulse Measurements

Parameters

<num> Center time in seconds.

Examples CALC:TIME:AUX:CENT 5e-5

Query Syntax CALCulate[:SELected]:TIME:AUX:CENTer?

Return Type Numeric

Default 5e-5

Last Modified:

29-Oct-2013 New command

CALCulate[:SELected]:TIME:AUX:PDIVision <num>

(Read-Write) Set and query the Time per division of the zoom window.

Relevant Modes Pulse Measurements

Parameters

<num> Per division time in seconds.

Examples CALC:TIME:AUX:PDIV 10e-6

Query Syntax CALCulate[:SELected]:TIME:AUX:CENTer?

Return Type Numeric

Default 5e-5

Last Modified:

29-Oct-2013 New command

CALCulate[:SELected]:TIME:CENTer <num>

(Read-Write) Set and query the center time of the primary trace graph window.

Relevant Modes Pulse Measurements

Parameters

<num> Center time in seconds.

Examples	CALC:TIME:CENT 5e-5
Query Syntax	CALCulate[:SELected]:TIME:CENTer?
Return Type	Numeric
Default	5e-5

Last Modified:

29-Oct-2013 New command

CALCulate[:SELected]:TIME:LENGth <num>

(Read-Write) Set and query the time span of the primary trace graph window.

Relevant Modes	Pulse Measurements
Parameters	
<num>	Time span in seconds.
Examples	CALC:TIME:LENG 5e-5
Query Syntax	CALCulate[:SELected]:TIME:LENGth?
Return Type	Numeric
Default	100e-6

Last Modified:

29-Oct-2013 New command

CALCulate[:SELected]:TIME:PDIVision <num>

(Read-Write) Set and query the Time per division of the primary trace graph window.

Relevant Modes	Pulse Measurements
Parameters	
<num>	Per division time in seconds.
Examples	CALC:TIME:PDIV 1e-6
Query Syntax	CALCulate[:SELected]:TIME:PDIVision?
Return Type	Numeric
Default	10e-6

Last Modified:

29-Oct-2013	New command

CALCulate[:SELected]:TIME:STARt <num>

(Read-Write) Set and query the start time of the primary trace graph window.

Relevant Modes Pulse Measurements

Parameters

<num> Start time in seconds.

Examples CALC:TIME:STAR 1e-9

Query Syntax CALCulate[:SELected]:TIME:STARt?

Return Type Numeric

Default 0

Last Modified:

29-Oct-2013	New command

CALCulate[:SELected]:TRACe<n>:DATA?

(Read-only) Read the data from a Trace Graph measurement.

Relevant Modes Pulse Measurements, FOPS

Parameters

<n> Trace number.
For Pulse, choose from the following:
1 - Primary trace graph
2 - Zoom window
For FOPS, choose 1 or unspecify.

Examples `CALC:TRAC:DATA?`

Query Syntax CALCulate[:SELected]:TRACe:DATA?

Return Type Numeric

Default Not Applicable

Last Modified:

21-Mar-2014	Added FOPS
29-Oct-2013	New command

CALCulate[:SELected]:TRANsform:DISTance:BANDpass <bool>

(Read-Write) Set and query Bandpass mode for Distance to Fault measurements. This command performs the same function as CALCulate:TRANsform:FREQuency[:TYPE].

Relevant Modes CAT

Parameters

<bool> Bandpass mode. Choose from:

O or **OFF** - Lowpass mode

1 or **ON -** Bandpass mode

Examples CALC:TRAN:DIST:BAND 1

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:BANDpass?

Return Type Boolean

Default 1 - **ON**

CALCulate[:SELected]:TRANsform:DISTance:FREQuency:CENTer <num>

(Read-Write) Set and query the bandpass center frequency for Distance to Fault measurements. Set Bandpass mode using CALC:TRAN:DIST:BANDpass ON.

Relevant Modes CAT

Parameters

<num> Bandpass center frequency in Hz.

Examples CALC:TRAN:DIST:FREQ:CENT 1e9

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:FREQuency:CENTer?

Return Type Numeric

Default Dependent on DTF distance.

CALCulate[:SELected]:TRANsform:DISTance:FREQuency:SPAN:MAXimum <num>

(Read-Write) Set and query the bandpass maximum frequency span for Distance to Fault measurements. Set Bandpass mode using CALC:TRAN:DIST:BANDpass ON.

Relevant Modes CAT

Parameters

<num> Bandpass maximum frequency span in Hz.

Examples CALC:TRAN:DIST:FREQ:SPAN:MAX 100e6

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:FREQuency:SPAN:MAXimum?

Return Type Numeric

Default Dependent on DTF distance.

CALCulate[:SELected]:TRANsform:DISTance:FREQuency:STARt:MINimum <num>

(Read-Write) Set and query the start frequency value in Bandpass mode for a Distance to Fault measurement.

Use CALCulate:TRANsform:DISTance:BANDpass to set Bandpass mode.

Relevant Modes CAT

Parameters

<num> Start value in hertz. This command will accept MIN and MAX as arguments.

Examples

```
CALC:TRAN:DIST:FREQ:STAR:MIN 1GHz
```

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:FREQuency:STARt:MINimum?

Return Type Numeric

Default 2 MHz

CALCulate[:SELected]:TRANsform:DISTance:FREQuency:STOP:MAXimum <num>

(Read-Write) Set and query the stop frequency value in Bandpass mode for a Distance to Fault measurement.

Use CALCulate:TRANsform:DISTance:BANDpass to set Bandpass mode.

Relevant Modes CAT

Parameters

<num> Stop value in hertz. This command will accept MIN and MAX as arguments.

Examples

```
CALC:TRAN:DIST:FREQ:STOP:MAX 2GHz
```

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:FREQuency:STOP:MAXimum?

Return Type Numeric

Default FieldFox maximum frequency

CALCulate[:SELected]:TRANsform:DISTance:STARt <num>

(Read-Write) Set and query the X-axis start value in a Distance to Fault measurement.

Relevant Modes CAT

Parameters

<num> Start value in meters. Choose a value between the MIN distance and the Stop distance. (This command will accept MIN and MAX as arguments.)

Examples

```
CALC:TRAN:DIST:STAR 10
```

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:STARt?

This value is always returned in meters - never in feet.

Return Type Numeric

Default 0

CALCulate[:SELected]:TRANsform:DISTance:STOP <num>

(Read-Write) Set and query the X-axis stop value in Distance to Fault measurement.

Relevant Modes CAT

Parameters

<num> Stop value in meters. Choose a value between the Start distance and the MAX distance. (This command will accept MIN and MAX as arguments.)

Examples CALC:TRAN:DIST:STOP .20

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:STOP?

This value will always be returned in meters - never in feet.

Return Type Numeric

Default 100 meters

CALCulate[:SELected]:TRANsform:DISTance:UNIT <char>

(Read-Write) Set and query the X-axis units in Distance to Fault measurement.

Note: DTF Start and Stop settings always return distance in meters.

Relevant Modes CAT

Parameters

<char> X-axis units. Choose from:

- METers
- FEET

Examples CALC:TRAN:DIST:UNIT

Query Syntax CALCulate[:SELected]:TRANsform:DISTance:UNIT?

Return Type Character

Default METers

Last Modified:

14-Feb-2013	Added note

CALCulate[:SELected]:TRANsform:DISTance:WINDow <char>

(Read-Write) Set and query the DTF window setting.

Relevant Modes CAT

Parameters

<char>	DTF window setting. Choose from: **RECT** - Minimum window setting. **HAMM** - Medium window setting. **KBES** - Maximum window setting.
Examples	CALC:TRAN:DIST:WIND KBES
Query Syntax	CALCulate[:SELected]:TRANsform:DISTance:WINDow?
Return Type	Character
Default	KBES

CALCulate[:SELected]:TRANsform:FREQuency[:TYPE] <char>

(Read-Write) Set and query the DTF Frequency mode. This command performs the same function as CALCulate:TRANsform:DISTance:BANDpass.

Relevant Modes	CAT
Parameters	
<char>	DTF frequency mode. Choose from: **BPASs** - Bandpass mode. **LPASs** - Lowpass mode.
Examples	CALC:TRAN:FREQ BPAS
Query Syntax	CALCulate[:SELected]:TRANsform:FREQuency[:TYPE]?
Return Type	Character
Default	BPASs

CALCulate[:SELected]:TRANsform:TIME:CENTer <num>

(Read-Write) Set and query the center time for time domain measurements.

Relevant Modes	NA
Parameters	
<num>	Center time in seconds. Choose any number between: **±** (number of points-1) / frequency span
Examples	CALC:TRAN:TIME:CENT 1e-9
Query Syntax	CALCulate[:SELected]:TRANsform:TIME:CENTer?
Return Type	Numeric
Default	0

Last Modified:

24-Jan-2012	New command

CALCulate[:SELected]:TRANsform:TIME:IMPulse:WIDth <num>

(Read-Write) Set and query the impulse width for the transform window.

Relevant Modes NA

Parameters

<num> Impulse width in seconds; Choose any number between:
.6 / frequency span and **1.39 / frequency span**

Examples CALC:TRAN:TIME:IMP:WIDT 10

Query Syntax CALCulate[:SELected]:TRANsform:TIME:IMPulse:WIDth?

Return Type Numeric

Default .98 / Default Span

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:KBESsel <num>

(Read-Write) Set and query the width for the Kaiser Bessel window.

Relevant Modes NA

Parameters

<num> Window width for Kaiser Bessel in seconds; Choose any number between **0.0** and **13.0**

Examples CALC:TRAN:TIME:KBES 10

Query Syntax CALCulate[:SELected]:TRANsform:TIME:KBESsel?

Return Type Numeric

Default 6

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:LPFRequency

(Write-only) Sets the start frequencies in LowPass Mode.

Relevant Modes NA

Parameters None

Examples	CALC:TRAN:TIME:LPFR
Query Syntax	Not applicable
Default	Not applicable

Last Modified:

24-Jan-2012	New command

CALCulate[:SELected]:TRANsform:TIME:SPAN <num>

(Read-Write) Set and query the span (stop - start) time for time domain measurements. Use CALCulate[:SELected]:TRANsform:TIME:CENTer to set the center time.

Relevant Modes	NA
Parameters	
<num>	Span time in seconds. Choose any number between: **0** and 2* [(number of points-1) / frequency span]**.**
Examples	CALC:TRAN:TIME:SPAN 1e-9
Query Syntax	CALCulate[:SELected]:TRANsform:TIME:SPAN?
Return Type	Numeric
Default	20 ns

Last Modified:

24-Jan-2012	New command

CALCulate[:SELected]:TRANsform:TIME:STARt <num>

(Read-Write) Set and query the start time for time domain measurements. Use CALCulate[:SELected]:TRANsform:TIME:STOP to set the stop time.

Relevant Modes	NA
Parameters	
<num>	Start time in seconds. Choose any number between: **±** (number of points-1) / frequency span
Examples	CALC:TRAN:TIME:STAR 1e-9
Query Syntax	CALCulate[:SELected]:TRANsform:TIME:STARt?
Return Type	Numeric
Default	-10 ns

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:STATe <bool>

(Read-Write) Set and query the ON |OFF Time Domain transform state for the active trace. Select a trace using CALCulate:PARameter:SELect.

Relevant Modes NA

Parameters

<num> Transform state. Choose from:
ON (or 1) - turns time domain ON.
OFF (or 0) - turns time domain OFF.

Examples CALC:TRAN:TIME:STAT 1

Query Syntax CALCulate[:SELected]:TRANsform:TIME:STATe?

Return Type Boolean

Default **OFF** (or 0).

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:STEP:RTIMe <num>

(Read-Write) Set and query the step rise time for the transform window.

Relevant Modes NA

Parameters

<num> Rise time in seconds. Choose any number between:
.45 / frequency span and 1.48 / frequency span

Examples CALC:TRAN:TIME:STEP:STEP:RTIM 1e-8

Query Syntax CALCulate[:SELected]:TRANsform:TIME:STEP:RTIMe?

Return Type Numeric

Default .99 / Default Span

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:STIMulus <char>

(Read-Write) Set and query the type of simulated stimulus that will be incident on the DUT.

Relevant Modes NA

Parameters

<char> Choose from:

- **STEP -** simulates a step DUT stimulus (will automatically set CALC:TRAN:TIME:TYPE to **LPASs)**
- **IMPulse -** simulates a pulse DUT stimulus.

Examples CALC:TRAN:TIME:STIM STEP

Query Syntax CALCulate[:SELected]:TRANsform:TIME:STIMulus?

Return Type Character

Default IMPulse

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:STOP <num>

(Read-Write) Set and query the stop time for time domain measurements. Use CALCulate[:SELected]:TRANsform:TIME:STARt to set the start time.

Relevant Modes NA

Parameters

<num> Stop time in seconds. Choose any number between: **±** (number of points-1) / frequency span

Examples CALC:TRAN:TIME:STOP 1e-9

Query Syntax CALCulate[:SELected]:TRANsform:TIME:STOP?

Return Type Numeric

Default 10 ns

Last Modified:

24-Jan-2012 New command

CALCulate[:SELected]:TRANsform:TIME:TYPE <char>

(Read-Write) Set and query the transform type.

Relevant Modes NA

Parameters

<num> Type of measurement. Choose from:

- **LPASs** - Lowpass; Must also send CALC:TRAN:TIME:LPFRequency before calibrating.
- **BPASs** - Bandpass; can **only** be used when CALC:TRAN:TIME:STIM is set to IMPulse.

Examples CALC:TRAN:TIME:STEP:TYPE LPAS

Query Syntax CALCulate[:SELected]:TRANsform:TIME:TYPE?

Return Type Character

Default BPASs

Last Modified:

24-Jan-2012 New command

CALibration:ZERO:TYPE:EXT

(Write-Only) Performs external power meter zeroing.

Relevant Modes Power meter

Parameters None

Examples CAL:ZERO:TYPE:EXT

Query Syntax Not applicable

Default Not applicable

:CHSCanner:DATA?

(Read) Query only, to return a set of comma-separated numeric values.: id, center freq, integration BW, channel power

Relevant Modes Channel Scanner

Parameters na

Examples `:CHSC:DATA?`

Query Syntax :CHSCanner:DATA?

Return Type Comma-separated numeric

Default Not Applicable

Last Modified:

:CHSCanner:DISPlay:SORT

(Read-Write) Set and query the current sort by frequency and power value.

Relevant Modes	Channel Scanner
Parameters	
	Choose from: **Freq** - Sort by frequency **Pow** - Sort by power
Examples	`:CHSC:DISP:SORT freq`
Query Syntax	:CHSCanner:DISPlay:SORT?
Return Type	
Default	Not Applicable

Last Modified:

CHSCanner:DISPLAy:SORT:ORDer

(Read-Write) Set and query the current sort order up or down.

Relevant Modes	Channel Scanner
Parameters	
	Choose from: **Up** - Sort frequencies or power values by ascending order **Down** - Sort frequencies or power values by descending order
Examples	`:CHSC:DISP:SORT:ORD up`
Query Syntax	:CHSCanner:DISPlay:SORT:ORDer?
Return Type	
Default	Not Applicable

Last Modified:

:CHSCanner:DISPLAy:WINDow:TRACe:Y[:SCALe]:PDIVsion

(Read-Write) Set and query the Y axis scale per division

Relevant Modes Channel Scanner

Parameters

<val>Enter Y axis scale per division

Examples

```
:CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVsion 5
```

Query Syntax :CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVsion?

Return Type

Default Not Applicable

Last Modified:

CHSCanner:DISPLAy:WINDow:TRACe:Y[:SCALe]:RLEVel

(Read-Write) Set and query the Y axis reference level

Relevant Modes Channel Scanner

Parameters

<val>Enter Y axis reference level

Examples

```
:CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel -20
:CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel 3
```

Query Syntax :CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel?

Return Type

Default Not Applicable

Last Modified:

:CHSCanner:EDIT:LIST?

(Read) Query the center frequency, frequency, span, and integration bandwidth

Relevant Modes Channel Scanner

Parameters n/a

Examples

```
n/a
```

Query Syntax :CHSCanner:EDIT:LIST?

Return Type Comma-separated numeric

Default Not Applicable

Last Modified:

:CHSCanner:EDIT:LIST:ADD

(Write) Add a comma separated list that contains the following: center frequency (CF), frequency span (span), and integrated bandwidth (iBW)

Relevant Modes Channel Scanner

Parameters

Choose from:

- **cf -** sets the center frequency.
- **span-** sets the frequency span.
- **iBW-** sets the integrated bandwidth value.

Examples

```
:CHSCanner:EDIT:LIST:ADD 1e9,10e6,3e6 'set center
frequency to 1 GHz, span to 10 MHz, and
                                        the integrated
bandwidth to 3 MHz
```

Query Syntax n/a

Return Type Numeric

Default Not Applicable

Last Modified:

:CHSCanner:EDIT:LIST:CLEar

(Write) Clears all items from the custom list.

Relevant Modes Channel Scanner

Parameters n/a

Examples	**:CHSCanner:EDIT:LIST:CLEar**
Query Syntax	n/a
Return Type	n/a
Default	Not Applicable

Last Modified:

:CHSCanner:EDIT:RANGe:COUNt

(Read-Write) Sets the total channel items in Range mode.

Relevant Modes	Channel Scanner
Parameters	
	<val>integer
Examples	**:CHSCanner:EDIT:RANGe:COUNt 5**
Query Syntax	:CHSCanner:EDIT:RANGe:COUNt?
Return Type	Numeric
Default	Not Applicable

Last Modified:

:CHSCanner:EDIT:RANGE:IBW

(Read-Write) Sets the value of the integration bandwidth.

Relevant Modes	Channel Scanner
Parameters	n/a
Examples	**:CHSCanner:EDIT:RANGE:IBW 2MHZ**
Query Syntax	:CHSCanner:EDIT:RANGE:IBW?
Return Type	numeric
Default	n/a

Last Modified:

:CHSCanner:LOG:ACTion:RECord

(Write) Start the recording process..

Relevant Modes Channel Scanner

Parameters n/a

Examples
```
:CHSCanner:LOG:ACTion:RECord
```

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

:CHSCanner:LOG:ACTion:STOP

(Write) Stops the recording process..

Relevant Modes Channel Scanner

Parameters n/a

Examples
```
:CHSCanner:LOG:ACTion:STOP
```

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

:CHSCanner:LOG:CONFigure:INTerval:DISTance

(Read-Write) Sets the value of the distance interval.

Relevant Modes Channel Scanner

Parameters n/a

Examples
```
:CHSCanner:LOG:CONFigure:INTerval:DISTance 5 'sets the Distance value to 5 m
:CHSCanner:LOG:CONFigure:INTerval:DISTance 4e3 'sets the
```

```
Distance value to 4 km
```

Query Syntax :CHSCanner:LOG:CONFigure:INTerval:DISTance?

Return Type numeric

Default n/a

Last Modified:

:CHSCanner:LOG:CONFigure:INTerval:STATe

(Read-Write) Enable or disables the measurement interval.

Relevant Modes Channel Scanner

Parameters

<bool> Choose from:

Off or 0 - Disable the measurement interval

On or 1 - Enable the measurement interval (1 km to 10 km)

Examples

```
:CHSCanner:LOG:CONFigure:INTerval:STATe Off 'Disables the measurement interval
:CHSCanner:LOG:CONFigure:INTerval:STATe 1 'Enables the measurement interval
```

Query Syntax :CHSCanner:LOG:CONFigure:INTerval:STATe?

Return Type numeric

Default ON

Last Modified:

:CHSCanner:LOG:CONFigure:INTerval:TIMe

(Read-Write) Sets the time interval (1 to 3,000 seconds).

Relevant Modes Channel Scanner

Parameters

<val>

Examples

```
:CHSCannerLOG:CONFigure:INTerval:TIMe 5
```

Query Syntax :CHSCannerLO:CONFigure:INTerval:TIMe?

Return Type numeric

Default

Last Modified:

:CHSCanner:LOG:CONFigure:INTerval:TYPe

(Read-Write) Sets the time interval (1 to 3,000 seconds).

Relevant Modes Channel Scanner

Parameters

Choose from:
time - sets the measurement interval type to time.
dist - sets the measurement interval type to distance.

Examples

```
:CHSCanner:LOG:CONFigure:INTerval:TYPe time
:CHSCanner:LOG:CONFigure:INTerval:TYPe dist
```

Query Syntax :CHSCanner:LOG:CONFigure:INTerval:TYPe?

Return Type character

Default

Last Modified:

:CHSCanner:LOG:CONFigure:SAVe:AUTo[:STATe]

(Read-Write) Enables or disables the log file auto-save.

Relevant Modes Channel Scanner

Parameters

Choose from:
ON - enables the log file auto-save.
OFF - disables the log file auto-save.

Examples

```
:CHSC:LOG:CONF:SAV:AUT ON
```

Query Syntax :CHSC:LOG:CONF:SAV:AUT?

Return Type character

Default

Last Modified:

:CHSCanner:LOG[:STATe]

(Read-Write) Sets the time interval (1 to 3,000 seconds).

Relevant Modes Channel Scanner

Parameters

Choose from:
STOP - stops the data logging.
RUN - runs the data logging.

Examples

```
:CHSCanner:LOG STOP
:CHSCanner:LOG RUN
```

Query Syntax :CHSCanner:LOG[:STATe]?

Return Type character

Default RUN

Last Modified:

:CHSChannel:SEARch:COUNt

(Read-Write) Select 1 of *n* to be the active channel.

Relevant Modes Channel Scanner

Parameters

<val>

Examples

```
:CHSChannel:SEARch:COUNt 3
```

Query Syntax :CHSChannel:SEARch:COUNt?

Return Type numeric

Default

Last Modified:

:CHSCanner:SEARch:TYPe

(Read-Write) Select top or bottom of *n* total channels.

Relevant Modes Channel Scanner

Parameters

Choose from:
top - sets the channels to top down.
bottom - sets the channels to bottom up.

Examples

```
:CHSCanner:SEARch:TYPe top,3
:CHSCanner:SEARch:TYPe bottom,10
```

Query Syntax :CHSCanner:SEARch:TYPe?

Return Type numeric

Default

Last Modified:

:CHSCanner[:SENSe]:CHANnel:SELect

(Read-Write) Select 1 to *n* to be the active channel.

Relevant Modes Channel Scanner

Parameters

<val>

Examples

```
:CHSCanner[:SENSe]:CHANnel:SELect 3
```

Query Syntax :CHSCanner[:SENSe]:CHANnel[:SELect]?

Return Type numeric

Default

Last Modified:

:CHSCanner[:SENSe]:POWer[:RF]:ATTenuation

(Read-Write) Set the RF attenuator manually to a value of attenuation (5 to 30 dB).

Relevant Modes Channel Scanner

Parameters

<val>0 to 30 dB

Examples

```
:CHSCanner[:SENSe]:POWer[:RF]:ATTenuation 15
```

Query Syntax :CHSCanner[:SENSe]:POWer[:RF]:ATTenuation?

Return Type numeric

Default 10

Last Modified:

:CHSCannerr[:SENSe]:POWer[:RF]:ATTenuation:AUTO

(Read-Write) Set the RF attenuator manually to automatic.

Relevant Modes Channel Scanner

Parameters

<numeric>

Examples

```
:CHSCannerr[:SENSe]:POWer[:RF]:ATTenuation:AUTO
```

Query Syntax :CHSCanner[:SENSe]:POWer[:RF]:ATTenuation?

Return Type numeric

Default 10

Last Modified:

07sept2017 Updated parameter description.

:CHSCanner[:SENSe]:POWer[:RF]:EXTGain

(Read-Write) Set the external gain (G).

Relevant Modes Channel Scanner

Parameters

<val>

Examples

```
:CHSC:POW:EXTG 3 'Sets the External Gain value to 3 dB.
```

Query Syntax :CHSCanner[:SENSe]:POWer[:RF]:EXTGain?

Return Type numeric

Default

Last Modified:

:CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe]

(Read-Write) Set the external gain (G).

Relevant Modes Channel Scanner

Parameters

<bool>Choose from:

OFF or 0 - disables the external gain

ON or 1 - enables the external gain

Examples

```
:CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe] OFF
:CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe] 1
```

Query Syntax :CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe]?

Return Type boolean

Default

Last Modified:

:CHSCanner:SWEep:AVERage:COUNt

(Read-Write) Set the averaging count.

Relevant Modes Channel Scanner

Parameters

<val>

Examples

```
:CHSCanner:SWEep:AVERage:COUNt 10
```

Query Syntax :CHSCanner:SWEep:AVERage:COUNt?

Return Type numeric

Default

Last Modified:

:CHSCanner:SWEep:AVERage[:STATe]

(Read-Write) Enables or disables the averaging count.

Relevant Modes Channel Scanner

Parameters

<bool>Choose from:

OFF or 0 - disables the averaging count

ON or 1 - enables the averaging count

Examples

```
:CHSCanner:SWEep:AVERage[:STATe] ON
:CHSCanner:SWEep:AVERage[:STATe] 0
```

Query Syntax :CHSCanner:SWEep:AVERage[:STATe]?

Return Type boolean

Default

Last Modified:

:CHSCanner:SWEep:DISPlay:TYPE

(Read-Write) Sets the display type.

Relevant Modes Channel Scanner

Parameters

<val>Choose from:

BARC - bar chart vertical

BHOR - bar chart horizontal

CPOW - channel

SCH - strip chart

OVER - strip chart overlay

SAL - scan and listen

Examples

```
:CHSCanner:SWEep:DISPlay:TYPE BARC
:CHSCanner:SWEep:DISPlay:TYPE OVER
```

Query Syntax :CHSCanner:SWEep:DISPlay:TYPE?

Return Type character

Default

Last Modified:

:CHSCanner:SWEep:MODE

(Read-Write) Sets the sweep mode.

Relevant Modes Channel Scanner

Parameters

<val>Choose from:

RANG - Range

CLIST - Custom List

Examples

```
:CHSCanner:SWEep:MODE RANG
:CHSCanner:SWEep:MODE CLIST
```

Query Syntax :CHSCr:SWE:MODE?

Return Type character

Default

Last Modified:

:CHSCanner:USER:FOLDer

(Read-Write) Enables more flexibility where the Channel Scanner files are saved.

Relevant Modes Channel Scanner

Parameters

<val>Choose from:

DEF- Default where:

List files saved-recalled to-from "CurrentDevice\ChannelScanner\ChannelLists\"

Rec-Play files saved-recalled to-from "CurrentDevice\ChannelScanner\ChannelScanner\RecordPlayback\"

SYST - System where:

List files saved-recalled to-from "CurrentDevice\UserSelectedFolder\"

Rec-Play files saved-recalled to-from "CurrentDevice\UserSelectedFolder\"

Examples

```
:CHSC:USER:FOLD SYST
```

Query Syntax :CHSC:USER:FOLD?

Return Type character

Default

Last Modified:

[:SENSe]:SAListen:DTYPE

(Read) Sets the D type.

Relevant Modes	Channel Scanner
Parameters	
<val>	Choose from: **AM**- Amplitude modulation. In Tune & Listen, the demodulation bandwidth is narrower. **FMn** -Frequency Modulation narrowband. In Tune & Listen, the demodulation bandwidth is narrower. FMw- Frequency Modulation wideband. In Tune & Listen, the demodulation bandwidth is wider.
Examples	`[:SENSe]:SAListen:DTYPE AM` `[:SENSe]:SAListen:DTYPE FMw`
Query Syntax	
Return Type	character
Default	

Last Modified:

[:SENSe]:SAListen:LTIMe

(Read) Sets the length of time Tune & Listen. i.e., How long to listen before jumping to the next frequency in the sequence.

Relevant Modes	Channel Scanner
Parameters	
<val>	
Examples	`:SAL:LTIM 5`
Query Syntax	
Return Type	character
Default	

Last Modified:

[:SENSe]:SAListen:PAUSe

(Read) Pauses the data recording.

Relevant Modes	Channel Scanner

Parameters

<bool>

Examples `[:SENSe]:SAListen:PAUSe`

Query Syntax

Return Type boolean

Default

Last Modified:

SENSe:SAListen:RESume

(Read) Resumes the data recording.

Relevant Modes Channel Scanner

Parameters

<bool>

Examples `[:SENSe]:SAListen:RESume`

Query Syntax

Return Type boolean

Default

Last Modified:

:CONFigure?

(Query only) Queries the IQA configuration (Spectrum or Waveform).

Relevant Modes IQA

Parameters

n/a

Examples `:CONF?`

Query Syntax :CONF?

Return Type character

Default SPECtrum

Last Modified:

22Oct2017 Added IQA mode (10.1x)

:CONFigure:SPECtrum

(Write Only) Sets the measurement to Spectrum.

Relevant Modes IQA

Parameters

n/a

Examples

```
CONF:SPEC
```

Query Syntax n/a

Return Type Character

Default n/a

Last Modified:

22Oct2017 New IQA mode (10.1x)

:CONFigure:WAVeform

(Write Only) Sets the measurement to waveform with RF Envelope displayed.

Relevant Modes IQA

Parameters

n/a

Examples

```
CONF:WAV
```

Query Syntax n/a

Return Type Character

Default n/a

Last Modified:

22Oct2017 New IQA mode (10.1x)

:DISPlay:ADEMod:METRics:FM:RESults:DATA?

(Query only) Queries the FM demodulation data values. Returns 8 doubles values in the following order: carrierPower, carrierFreq, modulationRate, sinad, thd, fmFreqDeviation, fmFreqDeviationPlus, fmFreqDeviationMinus

Relevant Modes SA

Parameters

<number>

Examples `:DISP:ADEM:METR:FM:RES:DATA?`

Query Syntax :DISP:ADEM:METR:FM:RES:DATA?

Return Type Numbers

Default

Notes If query results are not ready or if the error "test tone not found" is displayed, the returned results are all zeroes ("0.00000000E+00").

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

:DISPlay:ADEMod:METRics:FM:RESults:DATA?

(Query only) Queries the FM demodulation data values. Returns 8 doubles values in the following order: carrierPower, carrierFreq, modulationRate, sinad, thd, fmFreqDeviation, fmFreqDeviationPlus, fmFreqDeviationMinus

Relevant Modes SA

Parameters

<number>

Examples `:DISP:ADEM:METR:FM:RES:DATA?`

Query Syntax :DISP:ADEM:METR:FM:RES:DATA?

Return Type Numbers

Default

Notes If query results are not ready or if the error "test tone not found" is displayed, the returned results are all zeroes ("0.00000000E+00").

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

DISPlay:ANNotation:FREQuency <value>

(Read-Write) Set and query the method used to annotate frequency on the screen.

Relevant Modes FOPS

Parameters

<value> Choose from the following:
CSPan - Center and Span
SSTop - Start and Stop

Examples
```
DISP:ANN:FREQ CSP
```

Query Syntax DISPlay:ANNotation:FREQuency?

Return Type Character

Default CSPan

Last modified:

19-Mar-2014 New command (A.07.50)

DISPlay:BRIGhtness <num>

(Read-Write) Set and query the brightness of the FieldFox display.

Relevant Modes ALL

Parameters

<num> Display brightness. Choose a number from 0 to 100. A zero setting is dim, but still viewable.

Examples
```
DISP:BRIG 50
```

Query Syntax DISPlay:BRIGhtness?

Return Type Numeric

Default 0

DISPlay:DATE:FMT <char>

(Read-Write) Set and query the format of the system date. Set the date using SYST:DATE.

Relevant Modes ALL

Parameters

<char> System date format. Choose from:
Argument -- Example
HIDE - Date is not shown on screen.
SHORT - 10/17/2008
LONG - Fri, 17 Oct 2008
FULL - Friday, October 17, 2008
SORTABLE - 2008-10-17
MONTHDAY - October 17

Examples

```
DISP:DATE:FMT Long
```

Query Syntax DISPlay:DATE:FMT?

Return Type Character

Default Long

DISPlay:ENABle <bool>

(Read-Write) Turns the FieldFox display ON and OFF. The OFF (0) setting causes faster SCPI operation.

Relevant Modes ALL

Parameters

<bool> Choose from:
O or **OFF** - Display OFF. Send Preset or *RST to re-enable the display.
1 or **ON** - Display ON

Examples

```
DISP:ENAB 1
```

Query Syntax DISPlay:ENABle?

Return Type Boolean

Default ON (1)

Last Modified:

20-Oct-2010 New command (5.30)

DISPlay:GRID <bool>

(Read-Write) Set and query the visibility of the 10 x 10 grid on trace graph measurements.

Relevant Modes USB PM: Pulse Measurements, FOPS

Parameters

<bool> Choose from:

OFF or 0 - Grid OFF
ON or 1 - Grid ON

Examples `DISP:GRID 1`

Query Syntax DISPlay:GRID?

Default OFF

Last modified:

19-Mar-2014	Added FOPS
31-Oct-2013	New command

DISPlay:KEYWord:DEFault

(Read-Only) Reset the FieldFox keywords to their default settings (listed below).

Relevant Modes All

Parameters None

Examples DISPlay:KEYWord:DEFault

Query Syntax Not Applicable

Default "FILE","SITE","TOWER","TRACE","DATE","ANTENNA1","ANTENNA2","COMPANY1","COMPANY2","COM

DISPlay:KEYWord[:DATA] <string1,2,3,4,5,6,7,8>

(Read-Write) Set and query the FieldFox keywords that can be used to create filenames.

Relevant Modes All

Parameters

<string1,2,3,4,5,6,7,8> All 8 keywords, separated with commas, enclosed in individual quotes.

Examples Disp:KEYW "Tower A","Tower B","Tower C","Tower D","Tower E","Tower F","Tower G","Tower H","Tower I","Tower J"

Query Syntax DISPlay:KEYWord[:DATA]?

Return Type String data, separated with commas, enclosed in individual quotes.

Default See DISPlay:KEYWord:DEFault

:DISPlay:LTEFdd:BCHart:Y[:SCALe]:AUTO

(Write Only) Autoscale the scale per division and reference values based on the current bar chart

measurement results.

Relevant Modes LTE FDD

Parameters

Examples
```
DISP:LTEF:BCH:Y:AUTO
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

06dec2018 new command

DISPlay:LTEFdd:BCHart:Y[:SCALe]:PDIVision <num>

(Read-Write) Set and query the scale-per-division value of the Bar Graph.

Relevant Modes LTE FDD

Parameters

<numeric>Minimum: 0.01 dB
Maximum: 100 dB

Examples
```
DISP:LTEF:BCH:Y:PDIV 10
```

Query Syntax DISP:LTEF:BCH:Y:PDIV?

Default 10 db

Last Modified:

06dec2018 new command

DISPlay:LTEFdd:BCHart:Y[:SCALe]:RLEVel

(Read-Write) Set and query the trace reference level of the Bar Chart.

Relevant Modes LTE FDD

Parameters

<numeric>Minimum: -210 dBm
Maximum: 100 dBm

Examples
```
DISP:LTEF:BCH:Y:RLEV 20
```

Query Syntax DISP:LTEF:BCH:Y:RLEV?

Default -10 dbm

Last Modified:

06dec2018 new command

DISPlay:LTEFdd:SCHart:Y[:SCALe]:AUTO

(Write Only) Autoscale the scale per division and reference values based on the current strip chart measurement results.

Relevant Modes LTE FDD

Parameters

Examples

```
DISP:LTEF:SCH:Y:AUTO
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

06dec2018 new command

DISPlay:LTEFdd:SCHart:Y[:SCALe]:PDIVision

(Read-Write) Set and query the scale-per-division value of the Strip Graph.

Relevant Modes LTE FDD

Parameters

<numeric>Minimum: 0.01 dB
Maximum: 100 dB

Examples

```
DISP:LTEF:SCH:Y:PDIV 10
```

Query Syntax DISP:LTEF:SCH:Y:PDIV?

Default 10 db

Last Modified:

06dec2018 new command

DISPlay:LTEFdd:SCHart:Y[:SCALe]:RLEVel

(Read-Write) Set and query the trace reference level of the Strip Chart.

Relevant Modes LTE FDD

Parameters

<numeric> Minimum: -210 dBm
Maximum: 100 dBm

Examples

```
DISP:LTEF:SCH:Y:RLEV 15
```

Query Syntax DISP:LTEF:BSH:Y:RLEV?

Default -10 dbm

Last Modified:

06dec2018	new command

DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:AUTO

(Write Only) Autoscale the scale per division and reference values based on the current spectrum chart measurement results.

Relevant Modes LTE FDD

Parameters

Examples

```
DISP:LTEF:SPEC:Y:AUTO
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

06dec2018	new command

DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:PDIVision

(Read-Write) Set and query the scale-per-division value of the Spectrum trace.

Relevant Modes LTE FDD

Parameters

<numeric>Minimum: 0.01 dB
Maximum: 100 dB

Examples `DISP:LTEF:SPEC:Y:PDIV 100`

Query Syntax DISP:LTEF:SPEC:Y:PDIV?

Default 10 db

Last Modified:

06dec2018 new command

DISPlay:LTEFdd:SPECtrum:Y[:SCALe]:RLEVel

(Read-Write) Set and query the trace reference level of the Spectrum.

Relevant Modes LTE FDD

Parameters

<numeric>Minimum: -210 dBm
Maximum: 100 dBm

Examples `DISP:LTEF:SPEC:Y:RLEV 12`

Query Syntax DISP:LTEF:SPEC:Y:RLEV?

Default -10 dbm

Last Modified:

06dec2018 new command

DISPlay:V5G:SPECtrum:Y[:SCALe]:RPOSition

(Read-Write) Set and query the trace reference position of the Spectrum.

Relevant Modes 5GTF

Parameters

<integer>Maximum: 10

Examples `DISP:V5G:SPEC:Y:RPOS 5`

Query Syntax DISP:V5G:SPEC:Y:RPOS?

Default 0

Last Modified:

06dec2018	new command

:DISPlay:LTEFdd:WINDow<n>:DATA <string>

(Read-Write) Set and query the selected window trace data.

Relevant Modes LTE FDD

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

TABLe (TAB): Cell scan numeric results (for up to 6 cell sites (ID's) including Physical Channel Information (PCI) – (Cell ID), RSRP, RSRQ, RSSI, PSS, SSS, SINR, Freq Err.

Bar CHart (BCH): Vertical power bar graph of selectable cell scan result metric for up to 6 cell sites with adjustable color "heat" amplitude scale

SPECtrum (SPEC): Magnitude spectrum frequency domain (fixed span). You can only view a single component carrier at a time with Spectrum (e.g., CC0 or CC2, etcetera).

Strip CHart (SCH): Magnitude of selectable cell scan result metric graphed over time.

Couplings: Strip Chart should be active in only one window. If the strip chart window is disabled, it can be re-enabled in another active window. When the strip chart window is re-enabled, trace data is automatically reset in the Table.

Examples

```
DISP:LTEF:WIND2:DATA BCH
DISP:LTEF:WIND4:DATA SPEC
```

Query Syntax DISP:LTEF:WIND3:DATA?

Return Type string

Default TABL

Last Modified:

19-Dec-2018	New command

:DISPlay:LTEFdd:WINDow<n>:CCARier <string>

(Read-Write) Set and query the displayed component carrier (CC).

Relevant Modes LTE FDD

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active at one time on the FieldFox.)

<string> Choices:

ALL: All component carriers are displayed that meet the current setup's measurement criteria

CC0:CC4: Component carrier 0: component carrier 4

Examples

```
DISP:LTEF:WIND2:CCAR ALL
DISP:LTEF:WIND4:CCAR CC4
```

Query Syntax DISP:LTEF:WIND3:CCAR?

Return Type string

Default ALL

Last Modified:

19-Dec-2018	New command

:DISPlay:LTEFdd:WINDow<n>:DATA <string>

(Read-Write) Set and query the selected window trace data.

Relevant Modes LTE FDD

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

TABLe (TAB): Cell scan numeric results (for up to 6 cell sites (ID's) including Physical Channel Information (PCI) – (Cell ID), RSRP, RSRQ, RSSI, PSS, SSS, SINR, Freq Err.

Bar CHart (BCH): Vertical power bar graph of selectable cell scan result metric for up to 6 cell sites with adjustable color "heat" amplitude scale

SPECtrum (SPEC): Magnitude spectrum frequency domain (fixed span). You can only view a single component carrier at a time with Spectrum (e.g., CC0 or CC2, etcetera).

Strip CHart (SCH): Magnitude of selectable cell scan result metric graphed over time.

Couplings: Strip Chart should be active in only one window. If the strip chart

window is disabled, it can be re-enabled in another active window. When the strip chart window is re-enabled, trace data is automatically reset in the Table.

Examples

```
DISP:LTEF:WIND2:DATA BCH
DISP:LTEF:WIND4:DATA SPEC
```

Query Syntax DISP:LTEF:WIND3:DATA?

Return Type string

Default TABL

Last Modified:

19-Dec-2018 New command

:DISPlay:LTEFdd:WINDow<n>:SORT:DATA <string>

(Read-Write) Set and query the sorted data type.

See also DISP:LTEF:WIND<*n*>:SORT:ORD.

Relevant Modes LTE FDD

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

RSRP: Reference Symbol Received Power

RSRQ: Reference Signal Received Quality

RSSI: Reference Signal Strength Indicator

PSS: The power level in dB for the primary synchronization signal, relative to the average subcarrier power.

SSS: The power level in dB for the secondary synchronization signal, relative to the average subcarrier power.

SINR: Reference value that is used in a system simulation. Subcarriers and or resource elements are measured over the same bandwidth.

Examples

```
DISP:LTEF:WIND2:SORT:DATA SINR
DISP:LTEF:WIND4:SORT:DATA PSS
```

Query Syntax DISP:LTEF:WIND3:SORT:DATA?

Return Type string

Default RSRP

Last Modified:

19-Dec-2018 New command

:DISPlay:LTEFdd:WINDow<n>:SORT:ORDer <string>

(Read-Write) Set and query the data's sort sequence.

See also DISP:LTEF:WIND<*n*>:SORT:DATA.

Relevant Modes LTE FDD

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

AUTO: Displayed scan results is not sorted and had no related sequence.

UP: Displayed scan results is sorted up.

DOWN: Displayed scan results is sorted down.

Examples

```
DISP:LTEF:WIND2:SORT:ORD AUTO
DISP:LTEF:WIND4:SORT:ORD UP
```

Query Syntax DISP:LTEF:WIND3:SORT:ORD?

Return Type string

Default AUTO

Last Modified:

19-Dec-2018	New command

:DISPlay:LTEFdd:TRACe:DATA <string>

(Read-Write) Set and query the trace data type (Bar Chart and Strip Chart only).

NOTE: Only one trace data type result can be displayed. Choice decides which data type is shown on GUI.

Relevant Modes LTE FDD

Parameters

<string> Choices:

RSRP: Reference Symbol Received Power

RSRQ: Reference Signal Received Quality

RSSI: Reference Signal Strength Indicator

PSS: The power level in dB for the primary synchronization signal, relative to the average subcarrier power.

SSS: The power level in dB for the secondary synchronization signal, relative to the average subcarrier power.

SINR: Reference value that is used in a system simulation. Subcarriers and or resource elements are measured over the same bandwidth.

Examples

```
DISP:LTEF:TRACe:DATA SINR
DISP:LTEF:TRACe:DATA PSS
```

Query Syntax DISP:LTEF:TRACe:DATA?

Return Type string

Default RSRP

Last Modified:

19-Dec-2018 New command

:DISPlay:LTEFdd:WINDow[:SELect] <int>

(Read-Write) Set and query the selected window.

Relevant Modes LTE FDD

Parameters

<integer> Choices: 1 through 4. (Up to four windows can be selected/active at one time on the FieldFox.)

Examples

```
DISP:LTEF:WIND 2
```

Query Syntax DISP:LTEF:WIND?

Return Type numeric

Default 1

Last Modified:

19-Dec-2018 New command

:DISPlay:LTEFdd:WINDow<n>:STATe <bool>

(Read-Write) Set and query the selected window state.

Relevant Modes LTE FDD

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active at one time on the FieldFox.)

<booleon> **ON (1)**: Enable the extended frequency range.

OFF (2): Disable the extended frequency range

Examples

```
DISP:LTEF:WIND2:STAT ON
DISP:LTEF:WIND4:STAT 0
```

Query Syntax DISP:LTEF:WIND3:STAT?

Return Type numeric

Default 1

Last Modified:

19-Dec-2018	New command

DISPlay:MARKer:LARGe:STATe <char>

(Read-Write) Set and query the display state of large marker readouts.

Relevant Modes NA

Parameters

<char> Large marker readout state. Choose from:

OFF - No large marker readout.

A - The A display state is recalled. If none have been defined, then the default A display state is recalled.

B - The B display state is recalled. If none have been defined, then the default B display state is recalled.

Examples

```
DISP:MARK:LARG:STAT A
```

Query Syntax DISPlay:MARKer:LARGe:STATe?

Return Type Character

Default OFF

Last Modified:

22-Sept-2014	New command

DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:FORMat <char>

(Read-Write) Set and query the format for the specified readout line on the large marker display state.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.

Choose from: **A** or **B**

Note: This is a SCPI node and not an argument. See example below.

<n> Readout line number. Choose from 1, 2, or 3.

<char> Large marker readout format. Choose from:

DEFault - same format as the trace on which the marker resides.

MAGPhase - magnitude and phase

IMPedance - Complex impedance format: R + jX

ZMAGnitude - Impedance; magnitude only

PHASe

REAL

IMAGinary

FREQuency - displays ONLY the frequency of the marker

Examples

```
DISP:MARK:LARG:A:DEF:LINE1:FORM phase
```

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:FORMat?

Return Type Character

Default DEFault

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:MARKer<n>:STATe <char>

(Read-Write) Set and query how the specified marker is displayed.

Relevant Modes NA

Parameters

<x> Display state. Choose from:

A - Display state A

B - Display state B

<n> Marker number. Choose from:

1, 2, or 3

<char> Marker display state. Choose from:

OFF - Specified marker is set OFF.

NORMal - Specified marker is a normal marker.

DELTa - Specified marker is a delta marker.

Examples

```
DISP:MARK:LARG:B:DEF:LINE:MARK2:STAT NORM
```

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:LINE:MARKer<n>:STATe?

Return Type Character

Default NORMal

Last Modified:

8-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:MNUMber <value>

(Read-Write) Set and query the marker number to assign to the specified marker readout line.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Readout line number. Choose from 1, 2, or 3.

<value> Marker number. Choose a marker from 1 through 6.

Examples

```
DISP:MARK:LARG:A:DEF:LINE1:MNUM 6
```

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:MNUMber?

Return Type Numeric

Default Marker 1 is assigned to all three readouts, different traces.

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:STATe <bool>

(Read-Write) Set and query the ENABLE state for the specified readout line.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Readout line number. Choose from 1, 2, or 3.

<bool> Enable state. Choose from:
OFF or **0** - Specified readout line is OFF.
ON or **1** - Specified readout line is ON.

Examples `DISP:MARK:LARG:A:DEF:LINE1:STAT 1`

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:STATe?

Return Type Boolean

Default Readout line 1 is ON when the display state is first recalled.
Readout lines 2 and 3 are OFF when the display state is first recalled.

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TNUMber <value>

(Read-Write) Set and query the trace number to assign to the specified marker readout line.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Readout line number. Choose from 1, 2, or 3.

<value> Trace number. Choose a trace from 1 through 3.

Examples `DISP:MARK:LARG:A:DEF:LINE1:TNUM 3`

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TNUMber?

Return Type Numeric

Default Traces 1, 2, and 3 are assigned to the corresponding readouts (1, 2, 3)

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TRACking <bool>

(Read-Write) Set and query the marker tracking state for the specified readout line.
Select the parameter to track on the standard Marker Search menu.
When set to ON, Peak tracking is set by default.

To set a different marker search function, use the standard Calc:Mark:Function commands.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Readout line number. Choose from 1, 2, or 3.

<bool> Marker tracking state. Choose from:
OFF or **0** - Tracking disabled.
ON or **1** - Tracking enabled.

Examples `DISP:MARK:LARG:A:DEF:LINE1:TRACking 1`

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TRACking?

Return Type Boolean

Default OFF

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:BWIDth:STATe <value>

(Read-Write) Set and query the marker bandwidth search state for the specified trace.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Trace number. Choose from 1, 2, or 3.

<value> Marker bandwidth search state. Choose from:
OFF or **0** - BW search is OFF.
ON or **1** - BW search is ON.

Examples `DISP:MARK:LARG:A:DEF:TRAC1:BWID:STAT ON`

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:BWIDth:STATe?

Return Type Boolean

Default OFF

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:FORMat <value>

(Read-Write) Set and query the display format for the specified trace.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Trace number. Choose from 1, 2, or 3.

<value> Display format. Choose from:
MLOGarithmic – Log magnitude
MLINear – Linear magnitude
SWR – Standing Wave Ratio
PHASe - Phase in degrees. The trace wraps every 360 degrees, from +180 to –180
UPHase - Unwrapped phase in degrees.
SMITh – Smith chart; series resistance and reactance.
POLar - Magnitude and phase of the reflection coefficient.
GDELay – Group delay

Examples `DISP:MARK:LARG:A:DEF:TRAC1:FORM MLIN`

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:FORMat?

Return Type Character

Default MLOG

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:MEASurement <value>

(Read-Write) Set and query the measurement to display for the specified trace.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<n> Trace number. Choose from 1, 2, or 3.

<value> Measurement. Choose from:

- **S11** - Forward reflection measurement
- **S21** - Forward transmission measurement
- **S12 -** Reverse transmission
- **S22 -** Reverse reflection
- **A -** A receiver measurement
- **B** - B receiver measurement
- **R1 -** Port 1 reference receiver measurement
- **R2 -** Port 2 reference receiver measurement

Examples `DISP:MARK:LARG:A:DEF:TRAC1:MEAS S11`

Query Syntax DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:MEASurement?

Return Type Character

Default Trace1=S11
Trace2=S21
Trace1=S12

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:FONT <char>

(Read-Write) Set and query the font size for the large marker readouts.

Relevant Modes NA

Parameters

<x> Large Marker Display State to edit.
Choose from: **A** or **B**
Note: This is a SCPI node and not an argument. See example below.

<char> Font size. Choose from:
BIG - Big size.

SUP - Super big size.

Examples `DISP:MARK:LARG:A:FONT SUP`

Query Syntax DISPlay:MARKer:LARGe:<x>:FONT?

Return Type Character

Default BIG

Last Modified:

22-Sept-2014 New command

DISPlay:MARKer:LARGe:<x>:TRACe:COUNt <char>

(Read-Write) Set and query the number of traces to include in the large marker display state.

Relevant Modes NA

Parameters

<x> Display state. Choose from:
A - Display state A
B - Display state B

<char> Trace configuration. Choose from:
D1 - One trace.
D2 - Two traces overlaid on one graticule.
D3 - Three traces overlaid on one graticule.

Examples `DISP:MARK:LARG:B:TRAC:COUN D3`

Query Syntax DISPlay:MARKer:LARGe:<x>:TRACe:COUNt?

Return Type Character

Default D1

Last Modified:

22-Sept-2014 New command

:DISPlay:SCReen:GEOMetry <char>

(Read-Write) Set and query the visibility of the 10 x 10 grid on trace graph measurements.

Relevant Modes USB PM: Pulse Measurements, FOPS

Parameters

Choose from:
NORM - Normal (with softkeys)
FULL - Full screen (without softkeys)

Examples `:DISP:SCR:GEOM NORM`

Query Syntax DISPlay:SCR:GEOM?

Default NORM

Last modified:

26-Apr-2016 New command

DISPlay:TABLe:MARKer <bool>

(Read-Write) Set and query the display of the marker table.

Relevant Modes CAT, NA, RTSA, SA, Pulse Measurements

Parameters

<bool> Marker table display state. Choose from:
O or **OFF -** Table OFF
1 or **ON -** Table ON

Examples `DISP:TABL:MARK ON`

Query Syntax DISPlay:TABLe:MARKer?

Return Type Boolean

Default OFF

Last modified:

08-Aug-2016 Added RTSA

31-Oct-2013 Added Pulse

DISPlay:TABLe:RESults:DATA?

(Read-Only) Read the 10 Auto Analysis results.

Relevant Modes Pulse Measurements

Parameters None

Examples `DISP:TABLe:RES:DATA?`

Default N/A

Last modified:

31-Oct-2013 New command

DISPlay:TABLe:RESults <bool>

(Read-Write) Set and query the visibility of the of both the Marker table and the Auto Analysis table.

Relevant Modes Pulse Measurements

Parameters

<bool> Choose from:
OFF or 0 - Tables OFF
ON or 1 - Tables ON

Examples

```
DISP:TABLe:RES 1
```

Query Syntax DISPlay:TABLe:RESults?

Default OFF

Last modified:

31-Oct-2013 New command

DISPlay:TIME:FMT <char>

(Read-Write) Set and query the format of the system time on the screen. Set the time using SYST:TIME

Relevant Modes ALL

Parameters

<char> System time format. Choose from:
Argument - Example
HIDE - time is not shown on screen.
SHORT - 10:31 PM
LONG - 10:31:25 PM
SH24 - 22:31
LO24 - 22:31:25

Examples

```
DISP:TIME:FMT Long
```

Query Syntax DISPlay:TIME:FMT?

Return Type Character

Default Long

DISPlay:TITLe:DATA <string>

(Read-Write) Set and query the title that appears in the upper-left corner of the FieldFox screen. The title can contain up to approximately 65 alpha-numeric characters. Display the title using DISPlay:TITLe:STATe.

Relevant Modes ALL

Parameters

<num> Title. Choose any string.

Examples DISP:TITL:DATA "My title"

Query Syntax DISPlay:TITLe:DATA?

Return Type String

Default "User Title"

DISPlay:TITLe[:STATe] <bool>

(Read-Write) Set and query display state of the title string. Change the title using DISPlay:TITLe

Relevant Modes ALL

Parameters

<bool> Choose from:
O or **OFF** - Title OFF
1 or **ON** - Title ON

Examples
```
DISP:TITL 1
```

Query Syntax DISPlay:TITLe[:STATe]?

Return Type Boolean

Default 0 - Off

DISPlay:V5G:BCHart:Y[:SCALe]:AUTO

(Write Only) Autoscale the scale per division and reference values based on the current bar chart measurement results.

Relevant Modes 5GTF

Parameters

Examples
```
DISP:V5G:BCH:Y:AUTO
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

06dec2018 new command

DISPlay:V5G:BCHart:Y[:SCALe]:PDIVision

(Read-Write) Set and query the scale-per-division value of the Bar Graph.

Relevant Modes 5GTF

Parameters

<numeric>Minimum: 0.01 dB
Maximum: 100 dB

Examples `DISP:V5G:BCH:Y:PDIV 10`

Query Syntax DISP:V5G:BCH:Y:PDIV?

Default 10 db

Last Modified:

06dec2018 new command

DISPlay:V5G:BCHart:Y[:SCALe]:RLEVel

(Read-Write) Set and query the trace reference level of the Bar Chart.

Relevant Modes 5GTF

Parameters

<numeric>Minimum: -210 dBm
Maximum: 100 dBm

Examples `DISP:V5G:BCH:Y:RLEV 20`

Query Syntax DISP:V5G:BCH:Y:RLEV?

Default -10 dbm

Last Modified:

06dec2018 new command

DISPlay:V5G:SCHart:Y[:SCALe]:AUTO

(Write Only) Autoscale the scale per division and reference values based on the current strip chart measurement results.

Relevant Modes 5GTF

Parameters

Examples
```
DISP:V5G:SCH:Y:AUTO
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

06dec2018 new command

DISPlay:V5G:SCHart:Y[:SCALe]:PDIVision

(Read-Write) Set and query the scale-per-division value of the Strip Graph.

Relevant Modes 5GTF

Parameters

<numeric>Minimum: 0.01 dB
Maximum: 100 dB

Examples
```
DISP:V5G:SCH:Y:PDIV 10
```

Query Syntax DISP:V5G:SCH:Y:PDIV?

Default 10 db

Last Modified:

06dec2018 new command

DISPlay:V5G:SCHart:Y[:SCALe]:RLEVel

(Read-Write) Set and query the trace reference level of the Strip Chart.

Relevant Modes 5GTF

Parameters

<numeric>Minimum: -210 dBm
Maximum: 100 dBm

Examples `DISP:V5G:SCH:Y:RLEV 20`

Query Syntax DISP:V5G:SCH:Y:RLEV?

Default -10 dbm

Last Modified:

06dec2018 new command

DISPlay:V5G:SPECtrum:Y[:SCALe]:AUTO

(Write Only) Autoscale the scale per division and reference values based on the current spectrum chart measurement results.

Relevant Modes 5GTF

Parameters

Examples `DISP:V5G:SPEC:Y:AUTO`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

06dec2018 new command

DISPlay:V5G:SPECtrum:Y[:SCALe]:PDIVision

(Read-Write) Set and query the scale-per-division value of the Spectrum trace.

Relevant Modes 5GTF

Parameters

<numeric> Minimum: 0.01 dB
Maximum: 100 dB

Examples `DISP:V5G:SPEC:Y:PDIV 5`

Query Syntax DISP:V5G:SPEC:Y:PDIV?

Default 10 db

Last Modified:

06dec2018 new command

DISPlay:V5G:SPECtrum:Y[:SCALe]:RLEVel

(Read-Write) Set and query the per division reference level of the Spectrum.

Relevant Modes 5GTF

Parameters

<integer>Maximum: 10

Examples `DISP:V5G:SPEC:Y:RLEV 5`

Query Syntax DISP:V5G:SPEC:Y:RLEV?

Default 0

Last Modified:

06dec2018 new command

DISPlay:V5G:SPECtrum:Y[:SCALe]:RPOSition

(Read-Write) Set and query the trace reference position of the Spectrum.

Relevant Modes 5GTF

Parameters

<integer>Maximum: 10

Examples `DISP:V5G:SPEC:Y:RPOS 5`

Query Syntax DISP:V5G:SPEC:Y:RPOS?

Default 0

Last Modified:

06dec2018 new command

DISPlay:V5G:WINDow<n>:CCARrier <string>

(Read-Write) Set and query the component carrier (CC).

Relevant Modes 5GTF

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active at one time on the FieldFox.)

<string> Choices:

ALL: All component carriers are displayed that meet the current setup's measurement criteria

CC0:CC7: Component carrier 0:component carrier 7

Examples

```
DISP:V5G:WIND2:CCAR ALL
DISP:V5G:WIND4:CCAR CC7
```

Query Syntax DISP:V5G:WIND3:CCAR?

Return Type string

Default ALL

Last Modified:

19-Dec-2018 New command

DISPlay:V5G:WINDow<n>:DATA <string>

(Read-Write) Set and query the selected window data.

Relevant Modes 5GTF

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

TABLe (TAB): Cell scan numeric results (for up to 6 cell sites (ID's) including Physical Channel Information (PCI) – (Cell ID), PSS, SSS, Channel Power, Sync Correlation Threshold.

Bar CHart (BCH): Vertical power bar graph of selectable cell scan result metric for up to 6 cell sites with adjustable color "heat" amplitude scale

SPECtrum (SPEC): Magnitude spectrum frequency domain (fixed span). You can only view a single component carrier at a time with Spectrum (e.g., CC0 or CC2, etcetera).

Strip CHart (SCH): Magnitude of selectable cell scan result metric graphed over time.

Couplings: Strip Chart should be active in only one window. If the strip chart window is disabled, it can be re-enabled in another active window. When the

strip chart window is re-enabled, trace data is automatically reset to Table.

Examples

```
DISP:V5G:WIND2:DATA BCH
DISP:V5G:WIND4:DATA SPEC
```

Query Syntax DISP:V5G:WIND3:DATA?

Return Type string

Default TABL

Last Modified:

19-Dec-2018 New command

DISPlay:V5G:WINDow<n>:SORT:DATA <string>

(Read-Write) Set and query the sorted data type.

See also DISP:LTEF:WIND<*n*>:SORT:ORD.

Relevant Modes 5GTF

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

PSS: The power level in dB for the primary synchronization signal, relative to the average subcarrier power.

SSS: The power level in dB for the secondary synchronization signal, relative to the average subcarrier power.

POW: Channel Power (dBm)

Examples

```
DISP:V5G:WIND2:SORT:DATA POW
DISP:V5G:WIND4:SORT:DATA PSS
```

Query Syntax DISP:V5G:WIND3:SORT:DATA?

Return Type string

Default PSS

Last Modified:

19-Dec-2018 New command

DISPlay:V5G:WINDow<n>:SORT:ORDer <string>

(Read-Write) Set and query the data's sort sequence.

See also DISP:V5G:WIND<*n*>:SORT:DATA.

Relevant Modes 5GTF

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active one time on the FieldFox.)

<string> Choices:

AUTO: Displayed scan results is not sorted and had no related sequence.

UP: Displayed scan results is sorted up.

DOWN: Displayed scan results is sorted down.

Examples

```
DISP:V5G:WIND2:SORT:ORD AUTO
DISP:V5G:WIND4:SORT:ORD UP
```

Query Syntax DISP:V5G:WIND3:SORT:ORD?

Return Type string

Default AUTO

Last Modified:

19-Dec-2018	New command

DISPlay:V5G:WINDow<n>:STATe

(Read-Write) Set and query the selected window state.

Relevant Modes 5GTF

Parameters

<*n*> Window number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 (Up to four windows can be selected/active at one time on the FieldFox.)

<booleon> **ON (1)**: Enable the window.

OFF (2): Disable the window

Examples

```
DISP:V5G:WIND2:STAT ON
DISP:V5G:WIND4:STAT 0
```

Query Syntax DISP:V5G:WIND3:STAT?

Return Type numeric

Default 1

Last Modified:

19-Dec-2018	New command

DISPlay:V5G:TRACe:DATA <string>

(Read-Write) Set and query the trace data type (Bar Chart and Strip Chart only).

NOTE: Only one trace data type result can be displayed. Choice decides which data type is shown on GUI.

Relevant Modes 5GTF

Parameters

<string> Choices:

PSS: The power level in dB for the primary synchronization signal, relative to the average subcarrier power.

SSS: The power level in dB for the secondary synchronization signal, relative to the average subcarrier power.

POW: Channel power (dBm).

Examples

```
DISP:V5G:TRACe:DATA POW
DISP:V5G:TRACe:DATA PSS
```

Query Syntax DISP:V5G:TRACe:DATA?

Return Type string

Default PSS

Last Modified:

19-Dec-2018	New command

DISPlay:WAVeform:VIEW[:SELect] <char>

(Read-Write) Set and query the selected displayed waveform type.

Relevant Modes IQA

Parameters

<character> Waveform type. Choose from:

RFEN - RF envelope

IQW - I/Q waveform

Examples `DISP:WAV:VIEW IQW`

Query Syntax :DISP:WAV:VIEW?

Return Type Character

Default RFEN

Last Modified:

22-oct-2017 Added new IQA mode (10.1x).

:DISPlay:VIEW:DENSity:STATe

(Read-Write) Enables/Disables the RTSA density Show Density graphics. (Same as pressing the **Show Density** button.)

Relevant Modes RTSA

Parameters

<bool> Show density graphics value:
0 or **1**

Examples
```
DISP:VIEW:DENS:STAT 1
DISP:VIEW:DENS:STAT 0
```

Query Syntax DISPlay:VIEW:DENS:STAT?

Return Type bool

Default 1

Last modified:

08-Aug-2016 Added for RTSA Mode (A.09.50)

:DISPlay:VIEW:DENSity:PERSistence

(Read-Write) Set and query the RTSA density persistence value.

Relevant Modes RTSA

Parameters

<num> Persistence value:
0 to 5 seconds

Examples
```
DISP:VIEW:DENS:PERS 1
DISP:VIEW:DENS:PERS .002
```

Query Syntax DISPlay:VIEW:DENS:PERS?

Return Type alpha-numeric

Default 0.000E+00

Last modified:

08-Aug-2016 Added for RTSA Mode (A.09.50)

:DISPlay:VIEW:DENSity:PERSistence:INFinite

(Read-Write) Enables/Disables the RTSA density persistence infinite value.

Relevant Modes RTSA

Parameters

<bool> Persistence Infinite value:
0 or **1**

Examples

```
DISP:VIEW:DENS:PERS:INF 1
DISP:VIEW:DENS:PERS:INF 0
```

Query Syntax DISPlay:VIEW:DENS:PERS?

Return Type bool

Default 0

Last modified:

08-Aug-2016 Added for RTSA Mode (A.09.50)

DISPlay:WINDow:ANALog:LOWer <num>

(Read-Write) Set and query the Minimum scale value of the Power Meter display.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<num> Minimum scale value. Choose a number between -100 and the upper (Max) scale value.

Examples

```
DISP:WIND:ANAL:LOW -70
```

Query Syntax DISPlay:WINDow:ANALog:LOWer?

Default -100

Last modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

DISPlay:WINDow:ANALog:UPPer <num>

(Read-Write) Set and query the Maximum scale value of the Power Meter display.

Relevant Modes Power Meter, Pulse Measurements,CPM

Parameters

<num> Maximum scale value. Choose a number between the upper (Max) scale value and 100.

Examples

```
DISP:WIND:ANAL:UPP -10
```

Query Syntax DISPlay:WINDow:ANALog:UPPer?

Default 0

Last modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

DISPlay:WINDow[:NUMeric]:RESolution <num>

(Read-Write) Set and query the number of digits of resolution to display after the decimal point.

Relevant Modes VVM, Power Meter, Pulse Measurements, CPM

Parameters

<num> Number of digits of resolution.
For PM and Pulse modes, choose from: 0, 1, 2, 3.
For VVM mode, choose from 1,2

Examples

```
DISPlay:RES 1
```

Query Syntax DISPlay:WINDow[:NUMeric]:RESolution?

Default 2 for PM and Pulse
1 for VVM

Last modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

3-Aug-2010 Added VVM mode (A.05.30)

DISPlay:WINDow[:SELect] <int>

(Read-Write) Set and query the selected trace display window. This command is used to modify existing pre-defined view, or create customized view. Window and Win State (DISP:WIND:STAT) keys are used to modify layout of view, the Data (DISP:WIND:DATA) command is used to specify the displayed data results for current window.

Relevant Modes IQA

Parameters

<integer> Choices: 1, 2, 3, or 4

Examples `DISP:WIND 3`

Query Syntax DISP:WIND?

Return Type Integer

Default 1

Last Modified:

22oct2017 Added IQA mode (10.1x)

:DISPlay:WINDow:SPLit <char>

(Read-Write) Set and query the multi-trace configuration.

Select a trace using :CALCulate:PARameter:SELect

Change the measurement in each plot using:CALCulate:PARameter:DEFine

Change the format in each plot using CALCulate SELected FORMat

Relevant Modes NA and NF

Parameters

<char> Dual/Multi-trace configuration. Not case-sensitive. Choose from:

D1 - (x1)

D2 - (x2)

D12H - (x2H)

D1123 - (x3H) - NA mode ONLY

D12_34 - (x4) - NA mode ONLY

Examples DISP:WIND:SPL D2

Query Syntax DISPlay:WINDow:SPLit?

Default D1

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
1-Nov-2012	removed CAT for (6.06)
26-Apr-2012	Modified for CAT (6.0)

DISPlay:WINDow:TRACe<n>:MEMory[:STATe] <bool>

(Read-Write) Set and query the display state of a memory trace. A memory trace must already be stored using CALC:MATH:MEMorize.

To display both data and memory, set both to ON. DISPlay:WINDow:TRACe<n>:STATe sets the data trace ON.

Relevant Modes CAT, NA, NF

Parameters

<n> Trace number. If unspecified, value is set to 1.
For CAT and NF mode Choose from 1 to 2.
For NA mode Choose from 1 to 4.

<bool> Choose from:
O or **OFF** - Memory trace NOT displayed
1 or **ON** - Memory trace displayed

Examples

```
DISPlay:WINDow:TRAC1:MEM 1
```

Query Syntax DISPlay:WINDow:TRACe<n>:MEMory:STATe?

Default 0 - Not displayed

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:STATe <bool>

(Read-Write) Set and query the display state of the data trace. To display both data and memory, set both to ON. DISPlay:WINDow:TRACe<n>:MEMory[:STATe] sets the memory trace ON.

For NF mode, see also DISP:WIND:TRAC<n>:STOR.

Relevant Modes CAT, NA, NF

Parameters

<n> Trace number. If unspecified, value is set to 1.
For CAT mode Choose from 1 to 2.

For NA mode Choose from 1 to 4.

<bool> Choose from:

O or **OFF** - Data trace NOT displayed

1 or **ON** - Data trace displayed

Examples

```
DISPlay:WINDow:TRAC1:STAT 1
```

Query Syntax DISPlay:WINDow:TRACe2:STATe?

Default 1 -Displayed

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:STORe

(Write-Only) Stores the current data trace into memory.

See also, :DISP:WIND:TRAC<n>:STAT.

Relevant Modes NF

Parameters

<n> Trace number for which display state is to be set or queried. Choose from 1 through 2.

Examples

```
DISP:WIND:TRAC:STOR
DISP:WIND2:TRAC:STOR
```

Query Syntax no query

Return Type Integer

Default <n> default = 1

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

DISPlay:WINDow:ZOOM <bool>

(Read-Write) Set and query the zoom window ON / OFF state.

Relevant Modes Pulse Measurements

Parameters

<bool> Choose from:

OFF or 0 - Zoom window OFF

ON or 1 - Zoom window ON

Examples `DISP:WIND:ZOOM 1`

Query Syntax DISPlay:WINDow:ZOOM?

Default OFF

Last modified:

31-Oct-2013 New command

DISPlay:WINDow:TRACe:Y:DLINe <num>

(Read-Write) Set and query the display line Y-axis amplitude level. To turn ON/OFF display line, use DISPlay:WINDow:TRACe:Y:DLINe:STATe.

Relevant Modes NF, SA, RTSA

Parameters

<numeric> Y-axis amplitude level. Units depend on the selected setting. See [:SENSe]:AMPLitude:UNIT

Examples DISP:WIND:TRAC:Y:DLIN -50

Query Syntax DISPlay:WINDow:TRACe:Y:DLINe?

Return Type Numeric

Default Depends on current units setting.

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
1-Aug-2011	New command (A.05.50)

DISPlay:WINDow:TRACe:Y:DLINe:STATe <bool>

(Read-Write) Set and query the ON/OFF state of the Display Line. Use DISPlay:WINDow:TRACe:Y:DLINe to set the display level.

Relevant Modes IQA, NF, SA, RTSA

Parameters

<boolean> Choose from:

0 or **OFF** - Display Line OFF.

1 or **ON** - Display Line ON.

Examples DISPlay:WINDow:TRAC:Y:DLIN:STAT 1

Query Syntax DISPlay:WINDow:TRACe:Y:DLINe:STATe?

Return Type boolean

Default 0 - OFF

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
22oct2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)
1-Aug-2011	New command

DISPlay:WINDow:TRACe<n>:MEMory[:STATe] <bool>

(Read-Write) Set and query the display state of a memory trace. A memory trace must already be stored using CALC:MATH:MEMorize.

To display both data and memory, set both to ON. DISPlay:WINDow:TRACe<n>:STATe sets the data trace ON.

Relevant Modes CAT, NA, NF

Parameters

<n> Trace number. If unspecified, value is set to 1.
For CAT and NF mode Choose from 1 to 2.
For NA mode Choose from 1 to 4.

<bool> Choose from:
O or **OFF** - Memory trace NOT displayed
1 or **ON** - Memory trace displayed

Examples

```
DISPlay:WINDow:TRAC1:MEM 1
```

Query Syntax DISPlay:WINDow:TRACe<n>:MEMory:STATe?

Default 0 - Not displayed

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:STATe <bool>

(Read-Write) Set and query the display state of the data trace. To display both data and memory, set both

to ON. DISPlay:WINDow:TRACe<n>:MEMory[:STATe] sets the memory trace ON.
For NF mode, see also DISP:WIND:TRAC<n>:STOR.

Relevant Modes CAT, NA, NF

Parameters

<n> Trace number. If unspecified, value is set to 1.
For CAT mode Choose from 1 to 2.
For NA mode Choose from 1 to 4.

<bool> Choose from:
O or **OFF** - Data trace NOT displayed
1 or **ON** - Data trace displayed

Examples
```
DISPlay:WINDow:TRAC1:STAT 1
```

Query Syntax DISPlay:WINDow:TRACe2:STATe?

Default 1 -Displayed

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:AUTO

(Write-Only) Autoscale the trace.

Relevant Modes CAT, NA, NF, SA, FOPS
CAT mode: this command always acts on the selected trace. Select a trace using CALCulate:PARameter:SELect
SA mode: this command autoscales all displayed traces.

Parameters

<n> For NA mode Only: Specify the displayed trace number. Choose from 1 to 4.
For NF mode Only: Specify the displayed trace number. Choose from 1 to 2.
If unspecified, value is set to 1.

Examples
```
DISPlay:WINDow:TRAC1:Y:AUTO
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
19-Mar-2014	Added FOPS

23-Jan-2013	Modified again for CAT
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:BOTTom <num>

(Read-Write) Set and query the bottom (lower) Y-axis scale value.

Relevant Modes CAT, NA, NF, SA

CAT mode: this command always acts on the selected trace. Select a trace using CALCulate:PARameter:SELect

SA - Read ONLY

Parameters

<n> NF and NA modes Only: Specify the displayed trace number.

NA Only: Choose from 1 to 4.

NF Only: Choose from 1 to 2.

If unspecified, value is set to 1.

<num> Bottom scale value. Units depend on the selected format.

Examples DISP:WIND:TRAC1:Y:BOTT -50

Query Syntax DISPlay:WINDow:TRAC<n>:Y[:SCALe]:BOTTom?

Return Type Numeric

Default Depends on Mode

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
23-Jan-2013	Modified again for CAT
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:PDIVision <num>

(Read-Write) Set and query the Y-axis scale per division value. Use this command with DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition and DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel which establish the reference position and level.

Relevant Modes CAT, NF, NA, SA, RTSA, FOPS

CAT mode: This command always acts on the selected trace. Select a trace using CALCulate:PARameter:SELect

SA mode: Applicable ONLY when [:SENSe]:AMPLitude:SCALe = LOG; (Units are always "dB")

Parameters

<n> NA mode Only: Specify the displayed trace number. Choose from 1 to 4.
For NF mode Only: Specify the displayed trace number. Choose from 1 to 2.
If unspecified, value is set to 1.

<num> Scale value. Units depend on the selected format.

Examples DISP:WIND:TRAC1:Y:PDIV -.25

Query Syntax DISPlay:WINDow:TRACe<n>:Y[:SCALe]:PDIVision?

Return Type Numeric

Default Depends on Mode

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
19-Mar-2014	Added FOPS
11-Nov-2013	Modified again
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RLEVel <num>

(Read-Write) Set and query the Y-axis value of the reference line. Use this command with DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition which sets the position of the reference.

Relevant Modes CAT, NA, NF, SA, RTSA, FOPS
CAT mode: This command always acts on the selected trace. Select a trace using CALCulate:PARameter:SELect
SA mode: This command acts on all displayed traces.

Parameters

<n> NA mode Only: Specify the displayed trace number. Choose from 1 to 4.
For NF mode Only: Specify the displayed trace number. Choose from 1 to 2.
If unspecified, value is set to 1.

<num> Y-axis reference level. Units depend on the selected format.

Examples `DISP:WIND:TRAC1:Y:RLEV -50`

Query Syntax DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RLEVel?

Return Type Numeric

Default Depends on Mode

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS
23-Jan-2013	Modified again
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RPOSition <num>

(Read-Write) Set and query the position of the Y-axis reference line. Use this command with RLEVel which sets the Y-axis value of the reference line.

Relevant Modes CAT, NA, NF, SA, RTSA, FOPS
CAT mode: this command always acts on the selected trace.
SA mode: this command acts on all displayed traces.

Parameters

<n> NA mode Only: Specify the displayed trace number. Choose from 1 to 4.
For NF mode Only: Specify the displayed trace number. Choose from 1 to 2.
If unspecified, value is set to 1.

<num> Reference position. Choose a value from 0 to 10.

Examples

```
DISP:WIND:TRAC1:Y:RPOS -50
```

Query Syntax DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RPOSition?

Return Type Numeric

Default Depends on Mode

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS
23-Jan-2013	Modified again
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:TOP <num>

(Read-Write) Set and query the top (upper) Y-axis scale value.

Relevant Modes CAT, NA, NF, SA
CAT mode: this command always acts on the selected trace.
SA mode: Read ONLY

Parameters

<n> NA and NF mode Only: Specify the displayed trace number.
NA: Choose from 1 to 4.
NF: Choose from 1 to 2.
If unspecified, value is set to 1.

<num> Top scale value. Units depend on the selected format.

Examples
```
DISP:WIND:TRAC1:Y:TOP 0
```

Query Syntax DISPlay:WINDow:TRACe<n>:Y[:SCALe]:TOP?

Return Type Numeric

Default Depends on Mode

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
23-Jan-2013	Modified again
26-Apr-2012	Modified for CAT (5.75)

DISPlay:WINDow<n>:DATA <char>

(Read-Write) Set and query the displayed data results for the selected trace display window. The Data command is used to specify the displayed data results for current window.

See also Window (DISP:WIND) and Win State (DISP:WIND:STAT) commands.

Relevant Modes IQA

Parameters

<n> Trace number for which display state is to be set or queried. Choose from 1 through 4.

<character> Spectrum Measurement - two data type results are available:
- SPECtrum (Magnitude Spectrum)
- TIMesummary (Time Summary)

For Waveform Measurements - six data types are available:
- REAL (I vs. Time)
- IMAG (Q vs. Time)
- POLar (Q vs. I)
- WAVeform (RF Envelope)
- PHASe (Phase vs. Time)

- UPHase (Unwrapped Phase vs. Time)
- TIMesummary (Time Summary) Time Summary result includes the capture time, spectrum Analysis time, and waveform Start/Stop time.

Examples

```
DISP:WIND3:DATA UPH
DISP:WIND4:DATA SPEC
```

Query Syntax DISP:WIND<*n*>:DATA?

Return Type Character

Default Spectrum: SPEC|SPEC|SPEC|SPEC
Waveform: WAV|WAV|WAV|WAV
User Defined: SPEC|WAV|REAL|IMAG

Last Modified:

22oct2017 Added IQA mode (10.1x)

DISPlay:WINDow<n>:STATe <int>

(Read-Write) Set and query to enable or disable the selected trace display window. This command is used to modify existing pre-defined view, or create customized view. Window (DISP:WIND) and Win State commands are used to modify layout of view, the Data (DISP:WIND:DATA) command is used to specify the displayed data results for current window.

Note: Initial User Defined default displays all data results from Spectrum measurement and Waveform measurement are available (i.e., all four displays).

Relevant Modes IQA

Parameters

<n> Trace number for which display state is to be set or queried. Choose from 1 through 4.

<integer> Choices: 1, 2, 3, or 4

Examples

```
DISP:WIND3:STAT 1
DISP:WIND4:STAT 0
```

Query Syntax DISP:WIND<*n*>:STAT?

Return Type Integer

Default Spectrum | Waveform: ON|OFF|OFF|OFF
User Defined: ON|ON|ON|ON

Last Modified:

22oct2017 Added IQA mode (10.1x)

FORMat:BORDer <char>

(Read-Write) Set the byte order used for data transfer. This command is only implemented if FORMAT:DATA is set to :REAL. If FORMAT:DATA is set to :ASCII, the swapped command is ignored.

Relevant Modes ALL

Parameters

<char> Choose from:

NORMal - LSB first; for "x86 or "Little Endian" computers .

SWAPped - MSB first. Use when your controller is anything other than an IBM compatible computers. Use **SWAPped** if you are using VEE, LabView, or T&M Tool kit.

NOTE:

These descriptions may be reversed from other Keysight Instruments, but compliant with IEE 488.2.

SWAPed (MSB first) is very slow.

Examples

```
FORM:BORD NORM
```

See example parsing program in C#.

Query Syntax FORMat:BORDer?

Default NORMal

Last Modified:

31-Oct-2013	New command

FORMat[:DATA] <char>

(Read-Write) Set and query the format (binary or ASCii) by which FieldFox data is read.

Data is read using the following commands:

- NF, SA Mode: TRACe:DATA?
- NA and CAT modes: CALCulate:DATA:FDATa?, CALCulate:DATA:FMEM?, CALCulate:DATA:SDATa?, CALCulate:DATA:SMEM?
- Calibration data (NA, CAT, and VVM modes): [:SENSe]:CORRection:COEFficient[:DATA]
- To change the byte order, refer to :FORM:BORD.

Note: Do NOT do Binary Block transfers (REAL, 32 or REAL, 64) when using over Telnet to port 5024 on FieldFox.

Relevant Modes ALL

Parameters

<char> Choose from:

- **REAL,32** - Best for transferring large amounts of measurement data.(Binary data)
- **REAL,64** - Slower but has more significant digits than REAL,32. Use REAL,64 if you have a computer that doesn't support REAL,32. (Binary data)
- **ASCii,0** - The easiest to implement, but very slow. Use when you have small amounts of data to transfer. ASCii,0 returns a carriage return (“\n”) terminated, comma-separated list of numbers, which might be re,im pairs, or could be scalar numbers corresponding to the current instrument format (such as LogMag) for FDATA?

Notes:

- The REAL,32 and REAL,64 arguments transfer data in block format. The byte order is **little endian**. FORM:BORDer, which reverses the byte order, is NOT supported.

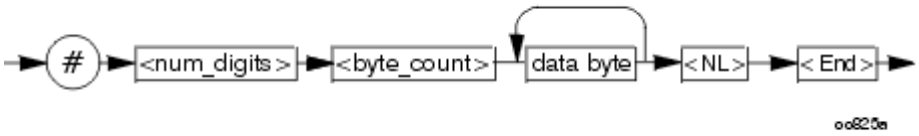
- If the I/Q data format is set to ASCii,0, the maximum I/Q data length is 50k.

Block Data

The following graphic shows the syntax for definite block data.

Only the **Data Byte** is sent in either Binary or ASCii format.

All other characters are ASCii format.



<num_digits> specifies how many digits are contained in <byte_count>

<byte_count> specifies how many data bytes will follow in <data bytes>

Example of Definite Block Data

#17ABC+XYZ<nl><end>

Where:

- # - always sent before definite block data (ascii format)
- **1** - specifies that the byte count is one digit (7) (ascii format)
- **7** - specifies the number of data bytes that will follow, not counting <NL><END> (ascii format)
- **ABC+XYZ** – Data (binary or ascii format)
- **<NL>** - always sent at the end of block data to indicate the last character being sent (program message terminator) - (ascii format)
- <**END>** - just for illustrative purposes and indicates the end of the data transmission.

Binary Data Notes:

The format is described by either REAL,32 (which indicates that each number takes 4 bytes) or REAL,64 (which indicates that each number takes 8 bytes). No separator is necessary between the numbers.

For a trace with 1001 complex points (real, imag) in REAL,64 format, the

header would describe a 1001*2*8=16016 byte block, so it would be: #516016 followed by 16016 bytes of data.

For a trace with 5 data points in LogMag format in REAL,32 format, the header would describe a 5*1*4=20 byte block, so it would be: #220 followed by 20 bytes of data.

Examples FORM REAL,32

See example parsing program in C#.

Query Syntax FORMat[:DATA]?

Default ASCii,0

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
28-Oct-2011	Added more
30-Nov-2010	Added explanations
22-Oct-2010	New command (5.30)

INITiate:IQCapture

(Write-Only) Causes the FieldFox to start the I/Q capture process. When in Single sweep (acquisition for I/Q) mode, the IQA performs the current defined I/Q capture before going to the hold state again.

This command is overlapped. This means that it will execute and, while the FieldFox performs a single sweep (acquisition for I/Q), it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Note: This command can only be used in single acquisition mode. It is ignored when the I/Q capture is set to continuous acquisition. To enable/disable continuous acquisition, refer to INITiate:CONTinuous.

Relevant Modes IQA

Examples INIT:IQC;*OPC?

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

13nov2017	Added IQA mode (10.1x)

INITiate:CONTinuous <bool>

(Read-Write) Specify acquisition mode for the FieldFox.

The **OFF** setting for this command is overlapped. This means that it will execute and also accept new commands while switching to single sweep (acquisition for I/Q) mode.

Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.
See also, INITiate:IQCapture.

Relevant Modes	ALL
Parameters	
<boolean>	Acquisition mode. Choose from: **O** or **OFF** - Single acquisition mode. Use INIT:IMM to trigger a acquisition. **1** or **ON** - Continuous acquisition mode
Examples	INIT:CONT 0;*OPC? See example in VVM mode
Query Syntax	INITiate:CONTinuous?
Return Type	Boolean
Default	ON - Continuous

Last Modified:

22oct2017	Added IQA mode (10.1x)

INITiate[:IMMediate]

(Write-Only) Causes the FieldFox to perform a single sweep, then hold. Use this sweep mode for reading trace data. First send INIT:CONT 0 to set single sweep mode.

When in Continuous sweep mode, this command is ignored.

This command is overlapped. This means that it will execute and, while the FieldFox performs a single sweep, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes	ALL
Examples	`INIT;*OPC?`
Query Syntax	Not Applicable
Default	Not Applicable

INITiate:RESTart

(Write-Only) Behavior is mode and Sweep type (Continuous/Hold/Single) dependent.

SA/RTSA/IQA:

Causes the FieldFox to restart trace averaging at count of 1. When in Single sweep (acquisition for I/Q) mode, the IQ/RTSA/SA performs a complete set of averages before going to the hold state again.

This command is overlapped. This means that it will execute and, while the FieldFox performs a single sweep (acquisition for I/Q), it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

In Single sweep (acquisition for I/Q) mode, the IQA/RTSA/SA performs a complete set of averages before

going to the hold state again.

NA and CAT:

In Hold mode:

1) Causes the FieldFox to restart trace averaging at count of 1.

2) Takes a single sweep.

Note: Does not support the SA/IQA/RTSA behavior of acquiring ALL averages when average mode is set to SWEEP average mode. If in SWEEP average mode, will only completes the first of the required averages. INIT:IMM command is required to keep adding to the average trace until desired average count has been reached.

In Continuous sweep mode:

1) Resets the average counter and continue free run sweeping. Similar to Hold mode, if in sweep average mode, will start acquiring sweeps to collect the required averages and will continue sweeping. Average counter will climb to set value (This set value displays on the Fieldfox).

2) If in point average mode, will acquire all averages in a single sweep as expected, and will continue acquiring data.

Note: If you are in Continuous sweep mode, resets averaging at a count of 1.

Relevant Modes	CAT, IQA,LTE FDD, 5GTF, NA, SA, RTSA
Examples	`INIT:REST;*OPC?`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

27nov2018	Added CAT, LTE FDD, & 5GTF modesand updated descriptions (11.0)
22oct2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)

:INPut:LAN:IDENtify:SNUMber <number>

(Read-Write) Specify the last 5 digits for a target power sensor serial number to auto-generate the hostname.

Relevant Modes	Power Meter (USB Sensor), Pulse Modes: Supports Options 208 Frequency Offset Mode, 310 Power Meter Mode (USB), and 330 Pulse Measurements
Parameters	
<number>	**12345**
Examples	`:INP:LAN:IDEN:SNUM 12345`
Query Syntax	:INP:LAN:IDEN:SNUM?
Return Type	

Default n/a

Last Modified:

05-May-2016 New command

:INPut:LAN:IDENTify:TYPe SNUM | IPA

(Read-Write) Specifies where to find a LAN hostname.

Relevant Modes Power Meter (USB Sensor), Pulse Modes: Supports Options 208 Frequency Offset Mode, 310 Power Meter Mode (USB), and 330 Pulse Measurements

Parameters

<char> **SNUM** - use autofind (i.e., default uses the device serial number)

IPA - user enters an IP address.

Examples

```
:INP:LAN:IDEN:TYP IP 168.212.226.204
```

Query Syntax :INP:LAN:IDEN:TYP?

Return Type Numeric

Default SNUM

Last Modified:

05-May-2016 New command

INSTrument:CATalog?

(Read-Only) Read the modes available on the FieldFox.

Relevant Modes ALL

Examples

Inst:Cat?

Returns:

NA,SA,Power Meter,CAT

Return Type Comma-separated list of strings.

Default Not Applicable

INSTrument:GTL

(Write-Only) Returns front panel key press control. To lockout front panel operation, send INST:GTR.

Relevant Modes ALL

Examples	`INST:GTR`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

20-Nov-2014	New command (7.75)

INSTrument:GTR

(Write-Only) Locks out the front panel key presses. **RMT** is displayed on the screen. To return to front panel operation, press **ESC** or send INST:GTL.

Relevant Modes	ALL
Examples	`INST:GTR`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

20-Nov-2014	New command (7.75)

INSTrument[:SELect] <string>

(Read-Write) Set and query the current operating mode. Use Inst:CAT? to read the available modes on the FieldFox.

This command is overlapped. This means that it will execute and, while the FieldFox changes mode, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes ALL

Parameters

<string> Operating Mode. **Case-sensitive.** Choose from the modes that are installed on your FieldFox:

- **"CAT"**
- **"IQ"**
- **"NA"**
- **"SA"**
- **"Power Meter"**
- **"VVM"**
- **"Pulse Measurements"**
- **"ERTA"**

Examples	INST "NA";*OPC?
Query Syntax	INSTrument[:SELect]?
Default	Depends on FieldFox model

Last Modified:

05Oct2017	Added IQA mode (10.1x)

:LTEFdd:DATA:GPS?

(Read-Only) Returns LTE FDD result with GPS information.

Relevant Modes	LTE FDD
Parameters	None
Examples	`LTEF:DATA:GPS?`
Default	Not Applicable

Last Modified:

19-Dec-2018	New command

:LTEFdd:DATA?

(Read-Only) Returns LTE FDD result without GPS information.

Relevant Modes	LTE FDD
Parameters	None
Examples	`LTEF:DATA?`
Default	Not Applicable

Last Modified:

19-Dec-2018	New command

MMEMory:CATalog? [string]

(Read-Only) Returns a comma-separated string of file names.

See ALL MMEM commands.

Relevant Modes ALL

Parameters

[string] String. Optional argument. FieldFox drive/folder to catalog.

If unspecified, the active drive/folder is cataloged.

Use MMEMory:CDIRectory to change the active drive/folder and to learn how to specify a drive/folder.

Examples

```
'Read the files in the internal root folder.
MMEM:CAT? "[INTERNAL]:"
'Read the files in the internal Keywords folder
MMEM:CAT? "[INTERNAL]:\Keywords"
'Read the files in the default folder
mmemory:catalog?
```

Return Type Comma-separated list of strings.

Default Not Applicable

Last Modified:

23-Apr-2012	Major modifications

MMEMory:CDIRectory <string>

(Read-Write) Change the active drive/folder. All subsequent MMEM commands will use this drive/folder as the default.

See ALL MMEM commands.

Relevant Modes ALL

Parameters

<string> Folder name enclosed in quotes. Case-sensitive. Include brackets, and colon.

Specify the following drives:

- "[INTERNAL]:" - FieldFox internal drive.
- "[SDCARD]:" - External SD card.
- "[USBDISK]:" or "[USBDISK1]:" - The first USB flash drive to be plugged into either of the FieldFox USB slots.
- "[USBDISK2]:" - The second USB flash drive to be plugged into either of the FieldFox USB slots.

Specify a folder on the drive by appending the folder name within the quotes. See examples.

The following arguments are superseded (but still accepted):

- An SD card is specified as "\Storage Card"
- A USB flash drive is specified as "\Hard Disk"
- The internal memory is specified as "\UserData"

Examples

```
'Change active drive to internal
MMEM:CDIR "[INTERNAL]:"
'On the internal drive, specify the Keywords folder
MMEM:CDIR "[INTERNAL]:\Keywords"
'Change active drive to the USB flash disk
mmemory:cdirectory "[USBDISK]:"
```

Query Syntax MMEMory:CDIRectory?

Folders on the active drive are shown in brackets as **`[My Folder]`**

Return Type String

Default "[INTERNAL]:"

Last Modified:

23-Apr-2012	Major modifications

MMEMory:COPY <file1>,<file2>

(Write-Only) Copies file1 to file2. Extensions must be specified.

See MMEM:CDIR to learn how to set the active drive and how to specify a drive/folder.

See ALL MMEM commands.

Relevant Modes ALL

Parameters

<file1> String - Drive, folder, filename, and extension of the file to be copied. If drive and folder are unspecified, the active drive/folder is used.

<file2> String - Drive, folder, filename, and extension to be created from <file1>. If unspecified, the active drive/folder is used.

Examples

```
'Copies the existing file to the same folder with a new file name.
MMEM:COPY "MyFile.sta", "MyFile.sta"
'Copies the existing file from the active drive to the USB drive with the same file name.
MMEM:COPY "MyFile.sta","[USBDISK]:\MyFile.sta"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

23-Apr-2012	Major modifications

MMEMory:DATA <filename>,<data>

(Read-Write) Read and store <*data*> into the file <*filename*>. Because this is block data, any file format can be read.

See MMEM:CDIR to learn how to set the active drive and how to specify a drive/folder.

See ALL MMEM commands and Memory Command Examples.

Relevant Modes ALL

Parameters

<filename> String - Drive, folder, filename, and extension into which data will be loaded. If drive and folder are unspecified, the active drive/folder is used.

<data> Data in 488.2 block format.

Examples

```
'Stores data into "MyFile"
MMEM:DATA "MyFile",<data>
'Stores data into "MyFile" on USB
MMEM:DATA "[USBDISK]:\MyFile",<data>
```

See a transfer image to PC example using this command.

Query Syntax MMEMory:DATA? <filename>

Default Not Applicable

Last Modified:

17-Dec-2013	Added link to example
23-Apr-2012	Major modifications

MMEMory:DELete <string>

(Write-Only) Deletes the specified file.

See MMEM:CDIR to learn how to set the active drive and how to specify a drive/folder.

See ALL MMEM commands.

Relevant Modes ALL

Parameters

<string> String - Drive, folder, filename, and extension to delete. If unspecified, the active drive/folder is used.

Examples

```
'Delete file from active drive/folder
MMEM:DEL "MyOldFile.sta"
'Delete file from USB
MMEM:DEL "[USBDISK]:\MyOldFile.sta"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

23-Apr-2012	Major modifications

MMEMory:IMPort:DUT <string>,<char>

(Write-only) Load a match data (*.csv or *.snp) file from the specified device.

- Imports *.csv and *.snp files from the "NoiseFigure\DUT" folder.

Note: Before importing a file, the file must be stored in the NoiseFigure\DUT folder.

See also, MMEMory:STORe:DUT and MMEMory:LOAD:DUT.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> *.csv or *.snp

<char> Memory device where the match data file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:IMP:DUT "MySNP.s2p",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

MMEMory:IMPort:PAMPlifier <string>,<char>

(Write-only) Load a match data (*.csv or *.snp) file from the specified device.

- Imports *.csv and *.snp files from the "NoiseFigure\Preamp" folder.

Note: Before importing a file, the file must be stored in the NoiseFigure\Preamp folder.

See also, MMEMory:LOAD:PAMPlifier and MMEMory:STORe:PAMPlifier.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> *.csv or *.snp

<char> Memory device where the match data file is stored. Choose from the following:

- **INTernal** - internal storage device

- **USB** - first USB device
- **SD** - SD storage card

Examples `MMEM:IMP:PAMP "MySNP.s2p",INT`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

MMEMory:LOAD:PAMPlifier <string>,<char>

(Write-only) Load an uncertainty preamplifier (*.amp) file from the specified device.

- Preamplifier files (*.amp) are saved and recalled from the "NoiseFigure\AMP" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

Note: Template *.amp files for several common models of preamplifiers may be found in the default AMP table directory of the FieldFox. In these files, the reflection coefficients have been set to the values specified for the respective model numbers, but the values for the preamplifier or preamplifier uncertainty will need to be entered at each frequency.

See also, MMEMory:STORe:PAMPlifier and MMEMory:IMPort:PAMPlifier.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> For *.amp files, provide filename of the *.amp file WITHOUT an extension.

<char> Memory device where the preamplifier file (*.amp) is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples `MMEM:LOAD:PAMP "MyAMP",INT`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

MMEMory:LOAD:ANTenna <string>,<char>

(Write-only) Load a receiver antenna file from the specified device. If using only one antenna file, use this

command.

For SA (Only), to load a source antenna file, use MMEMory:LOAD:SANTenna.

- All Channel Scanner (ChScn) and SA mode Antenna files are saved and recalled as *.csv files, which allows them to also be read by spreadsheet programs.
- The FieldFox can also read *.ANT (Antenna) files that were created from older Keysight Spectrum Analyzers.
- Antenna files are saved and recalled from the "Antenna" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

See ALL MMEM commands.

Relevant Modes ChScn, SA

Parameters

<string> For *.csv files, provide filename of the antenna file WITHOUT an extension.
For *.ant files, provide filename and .ant extension.

<char> Memory device where the Antenna file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:ANT "MyAntenna",INT
mmemory:load:antenna "demo_antenna_26m_3g.ant",internal
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for source
16-Dec-2014	Fixed .ant recall
29-Oct-2010	New command (5.30)

MMEMory:LOAD:CABLe <string>,<char>

(Read-Write) Loads a receiver cable file from the specified device. If using only one cable file, use this command.

To load a source cable file, use MMEMory:LOAD:SCABle

- Channel Scanner (ChnScn) and SA Cable files are saved as *.csv files, which allows them to also be read by spreadsheet programs.
- DTF Cable files are saved as *.xml files.
- Cable files are saved and recalled from the "Cables" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

See ALL MMEM commands.

Relevant Modes ChScn, CAT, SA

Parameters

<string> SA mode: Filename of the cable file withOUT an extension.
CAT mode: Filename of the cable file with an extension.

<char> Memory device where the cable file is stored. Choose from:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:CABL "MyCable",INT */ChnSCn and SA modes
MMEM:LOAD:CABL "MyCable.xml",INT */CAT mode
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

27nov2-18	Updated filename load descriptions with mode specific content.
01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for source
29-Oct-2010	New command (5.30)

MMEMory:LOAD:DUT <string>,<char>

(Write-only) Load a uncertainty DUT (*.dut) file from the specified device.

- DUT files are saved and recalled from the "NoiseFigure\DUT" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

See also, MMEMory:STORe:DUT and MMEMory:IMPort:DUT.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> For *.dut files, provide filename of the *.dut file WITHOUT an extension.

<char> Memory device where the DUT file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:DUT "MyDUT",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

MMEMory:LOAD:ENR <string>,<char>

(Write-only) Load a noise figure ENR (*.enr) file from the specified device.

- ENR files are saved and recalled from the "NoiseFigure\ENR" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

Note: Template *.enr files for several common models of noise sources may be found in the default ENR table directory of the FieldFox. In these files, the reflection coefficients have been set to the values specified for the respective model numbers, but the values for the ENR or ENR uncertainty will need to be entered at each frequency.

See also, MMEMory:STORe:ENR.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> For *.enr files, provide filename of the *.enr file WITHOUT an extension.

<char> Memory device where the ENR file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:ENR "MyENR",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

:MMEMory:LOAD:LIST

(Write-only) Load a *.csv custom file.

See ALL MMEM commands.

Relevant Modes ChScn

Parameters

<string> For *.csv files, provide filename of the antenna file WITHOUT an extension.

<char> Memory device where the Antenna file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:ANT "ChanScan",INT
mmemory:load:antenna "demo_channel_3g.csv",internal
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

:MMEMory:LOAD:OTA:LOG <string>

(Write-only) Load a *.csv log file.
See ALL MMEM commands.

Relevant Modes LTE FDD, 5GTF

Parameters

<string> For *.csv files, provide filename and .csv.

Examples

```
MMEM:LOAD:OTA:LOG "MyOTAfile.csv"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

19-Dec-2018 New command

:MMEMory:LOAD:LOG

(Write-only) Load a *.csv or *.kml log file.
See ALL MMEM commands.

Relevant Modes ChScn

Parameters

<string> For *.csv files, provide filename and .csv extension.
For *.kml files, provide filename and .kml extension.

<char> Memory device where the Antenna file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:ANT "MyAntenna",INT
mmemory:load:antenna "demo_antenna_26m_3g.kml",internal
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

MMEMory:LOAD:STATe <string>

(Write-Only) Loads an instrument state file.
This command CAN be used with *OPC?.

Relevant Modes ALL

Parameters

<string> Filename and extension of the state file.

Examples

```
MMEMory:LOAD:STATe "AutoSave1.sta"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

11-Nov-2013	Linked to Q
28-Mar-2013	Removed OPC? limitation
26-Jul-2012	Added note about *OPC?

MMEMory:MDIRectory <string>

(Write-Only) Makes a new folder.
See MMEM:CDIR to learn how to set the active drive/folder and how to specify a drive/folder.
See ALL MMEM commands.

Relevant Modes ALL

Parameters

<string> Drive/folder to create. If unspecified, the folder is created in the active drive/folder.

Examples

```
'Folder is created in the active drive/folder
MMEMory:MDIRectory "MyFolder"
'Folder is created on the USB drive.
MMEMory:MDIRectory "[USBDISK]:\MyFolder"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

23-Apr-2012 Major modifications

MMEMory:MOVE <file1,<file2>

(Write-Only) Renames <file1> to <file2>. File extensions must be specified.

See MMEM:CDIR to learn how to set the active drive/folder and how to specify a drive/folder.

See ALL MMEM commands.

Relevant Modes ALL

Parameters

<file1> String - Drive, folder, filename, and extension of the file to be renamed. If unspecified, the active drive/folder is used.

<file2> String - Drive, folder, filename, and extension of the new file. If unspecified, the active drive/folder is used.

Examples

```
'Rename file from/to active drive/folder.
MMEM:MOVE "OldFile.sta", "NewFile.sta"
'Rename file from active drive/folder to USB drive.
MMEM:MOVE "OldFile.sta", "[USBDISK]:\NewFile.sta"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

23-Apr-2012 Major modifications

MMEMory:RDIRectory <string>[,<recursive>]

(Write-Only) Removes the specified folder if it is empty. If the folder is NOT empty, a 'Media Protected' message appears.

See MMEM:CDIR to learn how to set the active drive/folder and how to specify a drive/folder.

See ALL MMEM commands.

Relevant Modes ALL

Parameters

<string> String - Drive, folder from which folder is to be removed. If unspecified, the active drive/folder is used.

<recursive> String - Optional. Case-sensitive.

"recursive" - Removes everything in the specified folder and all sub-folders and their contents.

Examples

```
'Removes 'oldfolder' from active drive if it is empty.
MMEMory:RDIR "OldFolder"
'Removes 'oldfolder' from USB drive
MMEMory:RDIR "[USBDISK]:\OldFolder"
'Removes 'oldfolder' and all sub-folders
MMEMory:RDIR "OldFolder","recursive"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

1-Apr-2014	Added optional argument
23-Apr-2012	Major modifications

:MMEMory:STATe:STORe:LIST

(Write-only) Save a csv custom list file.

See ALL MMEM commands.

Relevant Modes ChScn

Parameters

<string> For *.kml files, provide filename and .kml extension.

<char> Memory device where the Antenna file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:LOAD:ANT "ChanScan",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

MMEMory:STORe:ANTenna <string>,<char>

(Write-only) Saves the currently-loaded receiver antenna table to a file on the specified device.

- All Channel Scanner (ChScn) and SA modes the Antenna files are saved and recalled as *.csv files, which allows them to also be read by spreadsheet programs.
- The FieldFox can also read, but NOT save, *.ANT (Antenna) files. These files were created from older Keysight Spectrum Analyzers.
- Antenna files are saved and recalled from the "Antenna" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

See ALL MMEM commands.

Relevant Modes ChScn, SA

Parameters

<string> Filename of the antenna file WITHOUT an extension.

<char> Memory device where the antenna file is to be stored. Choose from:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:STOR:ANT "MyAntenna_1",USB
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
16-Dec-2014	Edit to *.ant files
22-Aug-2012	Fixed example
22-Oct-2010	New command (5.30)

MMEMory:STORe:CABLe <string>,<char>

(Read-Write) Saves the currently-loaded receiver cable table to a file at the specified location and device.

Channel Scanner (ChScn) and SA Cable files are saved as *.csv files, which allows them to also be read by spreadsheet programs.

DTF Cable files are saved as *.xml files.

Cable files are saved and recalled from the "Cables" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

See ALL MMEM commands.

Relevant Modes CAT (DTF), ChScn, SA

Parameters

<string> ChScn and SA mode: Filename of the cable file withOUT an extension.
CAT mode: Filename of the cable file with an extension.

<char> Memory device where the file is to be stored. Choose from:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:STOR:CABL "MyCable",INT */ChScn and SA mode
MMEM:STOR:CABL "MyCable.xml",INT */CAT (DTF) mode
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

27nov2-18	Updated filename store with mode specific content.
01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for source
22-Aug-2012	Fixed example
22-Oct-2010	New command (5.30)

MMEMory:STORe:DUT <string>,<char>

(Write-Only) Store a uncertainty DUT (*.dut) file to the specified device.

- ENR files are saved and recalled from the "NoiseFigure\DUT" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

See also, MMEMory:LOAD:DUT and MMEMory:IMPort:DUT.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> For *.dut files, provide filename of the *.dut file WITHOUT an extension.

<char> Memory device where the DUT file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:STOR:DUT "MyDUT",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

MMEMory:STORe:ENR <string>,<char>

(Write-Only) Store a noise figure ENR (*.enr) file to the specified device.

- ENR files are saved and recalled from the "NoiseFigure\ENR" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

Note: Template *.enr files for several common models of noise sources may be found in the default ENR table directory of the FieldFox. In these files, the reflection coefficients have been set to the values specified for the respective model numbers, but the values for the ENR or ENR uncertainty will need to be entered at each frequency.

See also, MMEMory:LOAD:ENR.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> For *enr files, provide filename of the *enr file WITHOUT an extension.

<char> Memory device where the ENR file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:STOR:ENR "MySNR",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

MMEMory:STORe:FDATa <filename>

(Write-only) Saves the selected formatted trace to a CSV or KML file to a default folder. (i.e., this is a screen capture from the currently displayed trace.)

See also, MMEM:STOR:MAT, MMEM:STOR:SDF, and MMEM:STOR:TXT.

Relevant Modes 5GTF, CAT, IQA, LTE FDD, NA, NF, RTSA, SA, Pulse Measurements

Parameters

<filename>	Filename and extension into which data will be loaded.
Examples	MMEM:STOR:FDAT "MyFile.csv"
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

03dec2018	Added LTE FDD & 5GTF (A.11.0)
01june2018	Added NF mode Opt. 356 (10.3)
21nov2017	Added IQA mode (A.10.15)
20-sep-2016	Added RTSA mode (A.09.50)
31-Oct-2013	Added Pulse
23-Apr-2012	Major modifications

:MMEMory:STORe:IMAGe <string>

(Write-only) Saves the current FieldFox screen to a *.png (picture) file. This file can NOT be read by the FieldFox.

Relevant Modes	ALL
Parameters	
<string>	Filename and extension of the *.png file.
Examples	**MMEMory:STORe:IMAGe "MyPic.png"** **See an example using this command.**
Query Syntax	Not Applicable
Default	Not Applicable

:MMEMory:STORe:IMAGe:NOKeys <string>

(Write-only) Command to store full-screen images (without the softkeys)

Relevant Modes	ALL
Parameters	
<string>	Filename and extension of the *.png file.
Examples	**MMEMory:STORe:IMAGe:NOKeys "MyPic.png"** **See an example using this command.**
Query Syntax	Not Applicable
Default	Not Applicable

MMEMory:STORe:IQCapture:DEVice

(Read-Write) Set and query the type of device storage type for IQA data capture (i.e., INT, USB, or SD).
Use MMEM:STOR:IQC:FTYP to set the data capture file type.
Use MMEM:STOR:IQC:FCO to manually set the IQA file capture count.

Relevant Modes	IQA
Parameters	
<"device">	Data capture device storage-type. **INT** - internal FieldFox memory **SD -** SD card **USB -** USB storage device
Examples	`MMEM:STOR:IQC:DEV SD`
Query Syntax	MMEM:STOR:IQC:DEV?
Return Type	character
Default	INT

Last Modified:

22-Oct-2017	Added new IQA mode content (10.1x).

MMEMory:STORe:IQCapture:FCOunt

(Read-Write) Set and query number of data capture files.
Use MMEM:STOR:IQC:FCO:MULT to enable or to disable the continuous mode file storage to an external SD card or USB storage device.

Relevant Modes	IQA
Parameters	
<num>	Capture file count. **Preset:** 1 **Minimum: 1** **Maximum:** 1000000000 (1e9)
Examples	`MMEM:STOR:IQC:FCO 1e9`
Query Syntax	MMEM:STOR:IQC:FCO?
Return Type	Numeric

Default 1

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

MMEMory:STORe:IQCapture:FCOunt:MULTiple <bool>

(Read-Write) Set and query to enable or disable multiple (continuous) IQA file captures.
Use MMEMory:STORe:IQCapture:FCOunt to manually set the IQA file capture count.

Relevant Modes IQA

Parameters

<boolean> Capture file count.
ON (1): Enables multiple (continuous) IQA file captures
OFF (0): Disables multiple (continous) IQA file captures

Examples

```
MMEM:STOR:IQC:FCO:MULT ON
MMEM:STOR:IQC:FCO:MULT 0
```

Query Syntax MMEM:STOR:IQC:FCO:MULT?

Return Type boolean

Default OFF (0)

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

MMEMory:STORe:IQCapture:FNAMe <"string">

(Read-Write) Set and query the filename for IQA data capture.
Use MMEM:STOR:IQC:FTYP to set the data capture file type.

Relevant Modes IQA

Parameters

<"string"> Data capture filename.

Examples

```
MMEM:STOR:IQC:FNAM "filename"
```

Query Syntax MMEM:STOR:IQC:FNAM?

Return Type character

Default IQDataFile

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

MMEMory:STORe:IQCapture:FTYPe <char>

(Read-Write) Set and query the type of file type for IQA data capture (i.e., CSV, TXT, SDF, or MAT).
Use MMEM:STOR:IQC:FCO to manually set the IQA file capture count.
Use MMEM:STOR:IQC:DEV to set and query the type of device storage.

Relevant Modes IQA

Parameters

<dataType> Data capture file-type.
CSV - csv file
TXT - txt file
SDF - sdf file
MAT - matlab file

Examples
```
MMEM:STOR:IQC:FTYP MAT
```

Query Syntax MMEM:STOR:IQC:FTYP:MULT?

Return Type character

Default CSV

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

MMEMory:STORe:IQCapture:STARt

(Write Only) Starts the IQA data capture.
Use SENS:MEAS:CAPT:TIME to set the data capture time or use MEAS:CAPT:LENGth to set capture samples for the IQA data.

Relevant Modes IQA

Parameters

n/a

Examples
```
MMEM:STOR:IQC:STAR
```

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

MMEMory:STORe:IQCapture:STOP

(Write Only) Stops the IQA data capture.

Use SENS:MEAS:CAPT:TIME to set the data capture time or use MEAS:CAPT:LENGth to set capture samples for the IQA data.

Relevant Modes IQA

Parameters

n/a

Examples

```
MMEM:STOR:IQC:STOP
```

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

:MMEMory:STORe:LOG:CSV

(Read-Write) Saves a CSV file to the Channel Scanner folder on customer-selected device: Int, USB, SD card.

Relevant Modes ChScn

Parameters

<filename>

Examples

```
:MMEMory:STORe:LOG:CSV 'samplefile'
```

Query Syntax :MMEMory:STORe:LOG:CSV?

Return Type character

Default

Last Modified:

:MMEMory:STORe:LOG:KML

(Read-Write) Saves a KML file to the Channel Scanner folder on customer-selected device: Int, USB, SD card.

Relevant Modes ChScn

Parameters

<filename>

Examples

```
:MMEMory:STORe:LOG:KML 'samplefile'
```

Query Syntax :MMEMory:STORe:LOG:KML?

Return Type character

Default

Last Modified:

MMEMory:STORe:MAT <string>

(Write-only) Save I/Q data as Matlab (mat) file. Only save file in one time. I/Q screen data cannot be recalled.

See also, MMEM:STOR:FDAT, MMEM:STOR:SDF, and MMEM:STOR:TXT.

Relevant Modes IQA

Parameters

<string> Filename of the mat file.

Examples

```
MMEM:STOR:MAT "MyMatFile"
```

Query Syntax N/A

Default N/A

Last Modified:

19-Dec-2018 New command

MMEMory:STORe:PAMPlifier <string>,<char>

(Write-Only) Store an uncertainty preamplifier (*.amp) file to the specified device.

- Preamplifier files (*.amp) are saved and recalled from the "NoiseFigure\AMP" folder. If the folder does not already exist on a USB or SD card, it is created automatically before storing the file.

Note: Template *.amp files for several common models of preamplifiers may be found in the default AMP table directory of the FieldFox. In these files, the reflection coefficients have been set to the values specified for the respective model numbers, but the values for the AMP or AMP uncertainty will need to be entered at each frequency.

See also, MMEMory:LOAD:PAMPlifier and MMEMory:IMPort:PAMPlifier.

See ALL MMEM commands.

Relevant Modes NF

Parameters

<string> For *.amp files, provide filename of the *.amp file WITHOUT an extension.

<char> Memory device where the preamplifier file is stored. Choose from the following:

- **INTernal** - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples

```
MMEM:STOR:PAMP "MyAMP",INT
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

MMEMory:STORe:SDF <string>

(Write-only) Save I/Q data as sdf file. Only save file in one time. I/Q screen data cannot be recalled.

See also, MMEM:STOR:FDAT, MMEM:STOR:TXT, and MMEM:STOR:MAT.

Relevant Modes IQA

Parameters

<string> Filename of the sdf file.

Examples

```
MMEM:STOR:SDF "MySdfFile"
```

Query Syntax N/A

Default N/A

Last Modified:

19-Dec-2018	New command

MMEMory:STORe:SNP[:DATA] <filename>

(Write-only) Saves the selected trace to an SNP file.

See ALL MMEM commands.

Relevant Modes CAT, NA

Parameters

<filename> Filename and extension to which data will be saved.
When saving 1-port data, use *.s1p
When saving 2-port data, use *.s2p

Examples

```
'With S11 trace active:
MMEM:STOR:SNP "MyFile.s1p"
'With S21 trace active:
MMEM:STOR:SNP "MyFile.s2p"
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

23-Apr-2012 Major modifications

MMEMory:STORe:STATe <string>

(Write-only) Saves the current settings to an instrument state file.

Relevant Modes ALL

Parameters

<string> Filename and extension of the state file.

Examples

```
MMEMory:STORe:STATe "MyStateFile.sta"
```

Query Syntax Not Applicable

Default Not Applicable

MMEMory:STORe:TXT<string>,<char>

(Write-only) Save I/Q data as text (TXT) file. Only save file in one time. I/Q screen data cannot be recalled.

See also, MMEM:STOR:FDAT, MMEM:STOR:SDF, and MMEM:STOR:MAT.

Relevant Modes IQA

Parameters

<string> Filename of the txt file.

Examples	`MMEM:STOR:TXT "MyTxtFile"`
Query Syntax	N/A
Default	N/A

Last Modified:

19-Dec-2018	New command

:RECPlayback:ACTion:PAUSe

(Write-Only) Recording or playback is temporarily halted. When the command is resent, recording or playback is resumed. A session should first be opened and recording or playing. Otherwise, this command is ignored.

Relevant Modes	LTE FDD, 5GTF, SA, RTSA
Parameters	None
Examples	`RECP:ACT:PAUS`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

27nov2018	Added LTE FDD and 5GTF mode (11.0)
10-june-2016	Added RTSA mode (9.50)

:RECPlayback:ACTion:PLAY

(Write-Only) Plays the current Record/Playback session. (Opt 236). A session with records should first be opened and stopped. Otherwise, this command is ignored.

Relevant Modes	LTE FDD, 5GTF, SA, RTSA
Parameters	None
Examples	`RECP:ACT:PLAY`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

27nov2018	Added LTE FDD and 5GTF mode (11.0)
10-june-2016	Added RTSA mode (9.50)

:RECPlayback:ACTion:POSition <num>

(Read-Write) Set and return a component carrier position. Use this command to specify a component carrier number when playback is paused.

Relevant Modes LTE FDD, 5GTF

Parameters

<num> Enter a value between 1 and the total recorded result:
- 10000 maximum

Examples
```
RECP:ACT:POS 2
```

Query Syntax :RECPlayback:ACTion:POSition?

Default 1

Last Modified:

19-Dec-2018 New command

:RECPlayback:ACTion:POSition:AUTO <string/num>

(Read-Write) Set and return a recorded result position. Use this command to move to a specific recorded result number when playback is paused.

Relevant Modes LTE FDD, 5GTF

Parameters

<num> 0 (OFF) - disables AUTO and the component carrier is not random

1 (ON) - enables AUTO and a random component carrier number is selected when playing is paused.

Examples
```
RECP:ACT:POS:AUTO 0
RECP:ACT:POS:AUTO ON
```

Query Syntax :RECPlayback:ACTion:POSition:AUTO?

Default 1 (ON)

Last Modified:

19-Dec-2018 New command

:RECPlayback:ACTion:RECord

(Write-Only) Begins or resumes recording. (Opt 236).

Relevant Modes LTE FDD, 5GTF, SA, RTSA

Parameters	None
Examples	**RECP:ACT:REC**
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

27nov2018	Added LTE FDD and 5GTF mode (11.0)
10-june-2016	Added RTSA mode (9.50)

:RECPlayback:ACTion:SAVE

(Write-Only) Saves the current data as a *.kml (default) or *.csv file.

Relevant Modes	LTE FDD, 5GTF
Parameters	None
Examples	**RECP:ACT:SAVE**
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

19-Dec-2018	New command

:RECPlayback:ACTion:SPOSition <num>

(Read-Write) Set and return a state position. Use this command to move to a specific state number when playback is paused.

Relevant Modes	SA, RTSA
Parameters	
<num>	Enter a value between 1 and the total number of state tags.
Examples	**RECP:ACT:SPOS 2**
Query Syntax	:RECPlayback:ACTion:SPOSition?
Default	Not Applicable

Last Modified:

10-june-2016	Added RTSA mode (9.50)

:RECPlayback:ACTion:STOP

(Write-Only) Stops recording or playback or a Record/Playback session. (Opt 236). A session must first be opened and recording, playing, or paused. Otherwise, this command is ignored.

Relevant Modes SA, RTSA

Parameters None

Examples
```
RECP:ACT:STOP
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

27nov2018	Added LTE FDD and 5GTF mode (11.0)
10-june-2016	Added RTSA mode (9.50)

:RECPlayback:ACTion:TPOSition <num>

(Read-Write) Set and return the current trace position. Use this command to move to a specific trace recording number when playback is paused.

Relevant Modes SA, RTSA

Parameters

<num> Enter a value between 1 and the total number of recorded traces.

Examples
```
RECP:SESS:TPOS 2
```

Query Syntax :RECPlayback:ACTion:TPOSition?

Default Not Applicable

Last Modified:

10-june-2016	Added RTSA mode (9.50)

:RECPlayback:CONFig:FILE:DEVice <string>

(Read-Write) Set and query the data storage device type (INTernal, USB, or SD).

Relevant Modes LTE FDD, 5GTF

Parameters

<string> Available device types:

USB First (detected) USB flash drive is used to store data.

SD SD storage card

INT INTernal FieldFox storage

Examples

```
RECPlayback:CONFig:FILE:DEVice USB
RECPlayback:CONFig:FILE:DEVice SD
RECPlayback:CONFig:FILE:DEVice INT
```

Query Syntax RECPlayback:CONFig:FILE:DEVice?

Return Type <string>

Default INTernal

Last Modified:

19-Dec-2018 New command for OTA modes

:RECPlayback:CONFig:FILE:OWRite <string/booleon>

(Read-Write) Set and query the status of the Record Playback file overwrite command.

Relevant Modes LTE FDD, 5GTF

Parameters

<string/booleon> Available file types:

ON (1) Enable file overwrite to overwrite the mode's default filename (e.g., for LTE FDD and 5GTF the filename is: OTARecorder).

OFF (0) Disables the Playback Recorder's file overwrite command. Storing Playback Record data, requires manual naming of the data filename.

Examples

```
RECPlayback:CONFig:FILE:OWRite 1
RECPlayback:CONFig:FILE:OWRite OFF
```

Query Syntax RECPlayback:CONFig:FILE:OWRite?

Return Type <booleon>

Default 1

Last Modified:

19-Dec-2018 New command

:RECPlayback:CONFig:FILE:TYPE <string>

(Read-Write) Set and query the data type (KML (default) or CSV).

Relevant Modes LTE FDD, 5GTF

Parameters

<string> Available file types:

KML Keyhole Markup Language

CSV Comma-Separated Values

Examples

```
RECPlayback:CONFig:FILE:TYPE KML
RECPlayback:CONFig:FILE:TYPE CSV
```

Query Syntax RECPlayback:CONFig:FILE:TYPE?

Return Type <string>

Default KML

Last Modified:

19-Dec-2018 New command

:RECPlayback:CONFig:INTerval:DISTance <num>

(Read-Write) Set and query record distance interval. Only available when the measurement interval is set to DISTance. See RECP:CONF:INT:TYPE.

Relevant Modes LTE FDD, 5GTF

Parameters

<num> Available choices:

Preset 10

Range 1 to 10000

Examples

```
RECPlayback:CONFig:INTerval:DISTance 5500
RECPlayback:CONFig:INTerval:DISTance 1
```

Query Syntax RECPlayback:CONFig:INTerval:DISTance?

Return Type <num>

Default 10

Last Modified:

19-Dec-2018 New command

:RECPlayback:CONFig:INTerval:STATe <string/booleon>

(Read-Write) Set and query the status of the interval requirement for saving records.

Relevant Modes LTE FDD, 5GTF

Parameters

<string/booleon> Available file types:

ON (1) Enable records to be only saved when they meet the Interval requirement. See RECP:CONF:INT:TYPE.

OFF (0) Disables the interval requirement for saving records.

Examples

```
RECPlayback:CONFig:INTerval:STATe 1
RECPlayback:CONFig:INTerval:STATe OFF
```

Query Syntax RECPlayback:CONFig:INTerval:STATe?

Return Type <booleon>

Default 0

Last Modified:

19-Dec-2018 New command

:RECPlayback:CONFig:INTerval:TIME <num>

(Read-Write) . Only available when the measurement interval is set to TIME. See RECP:CONF:INT:TYPE.

Relevant Modes LTE FDD, 5GTF

Parameters

<num> Available choices:

Preset 20 second

Range 1 to 999 seconds

Examples

```
RECPlayback:CONFig:INTerval:TIME 50
RECPlayback:CONFig:INTerval:TIME 1
```

Query Syntax RECPlayback:CONFig:INTerval:TIME?

Return Type <num>

Default 20

Last Modified:

19-Dec-2018 New command

:RECPlayback:CONFig:INTerval:TYPE <string>

(Read-Write) Set and query the measurement interval for saving records type (DISTance or TIME (default)).

Relevant Modes LTE FDD, 5GTF

Parameters

<string> Available file types:

TIME Sets the measurement interval type for saving records to TIME.

DIST Sets the measurement interval type for saving records to DISTance.

Examples

```
RECPlayback:CONFig:INTerval:TYPE TIME
RECPlayback:CONFig:INTerval:TYPE DIST
```

Query Syntax RECPlayback:CONFig:INTerval:TYPE?

Return Type <string>

Default TIME

Last Modified:

19-Dec-2018	New command

:RECPlayback:CONFig:FMTRigger:DATA <data> - Superseded

Note: This command is replaced by RECPlayback:CONFig:FMTRigger:LLData which can be used with Relative masks.

(Read-Write) Set and query the data to complete the Frequency Mask Trigger (FMT) table, used for Record Playback. Measured power levels above an upper limit and below a lower limit will trigger recording.

For **ACP** measurements, use CALC:ACP:OFFS:LIST:LIMit:NEG[:UPPer]:DATA and CALC:ACP:OFFS:LIST:LIM:POS[:UPPer]:DATA.

Relevant Modes SA

Parameters

<data> Data for all FMT segments in the following format:

- **n** = number of segments, followed by segment data.
- each segment: **State, Type, BegStim, EndStim, BegResp, EndResp**
- Where:

State 0 for limit line disabled
1 for limit line enabled.

Type Type of limit segment. Choose from:
0 - Upper limit
1 - Lower limit

BegStim Start of X-axis value (freq, power, time)

EndStim End of X-axis value

BegResp Y-axis value that corresponds with Start of X-axis value

EndResp Y-axis value that corresponds with End of X-axis value

Subsequent segments are appended to the data in the same manner.

Examples

```
' The following writes three upper limit segments.
' individual segments are colored for readability.
RECP:CONF:FMTR:DATA 3,1,0,2e7,3e7,-30,0,1,0,3e7,5e7,0,0,1,0,5e7,6e7,0,-30
```

Query Syntax RECPlayback:CONFig:FMTRigger:DATA?

Return Type Block data

Default 0 - Limit line data off

Last Modified:

16-Aug-2012 Superseded A.06.00

:RECPlayback:CONFig:FMTRigger:ENABle <bool>

(Read-Write) Set and return the state of Frequency Mask Triggering. Use RECPlayback:CONFig:FMTRigger:DATA to construct Frequency Mask Trigger limits.

Relevant Modes SA

Parameters

<bool> Frequency Mask Trigger state. Choose from:
OFF or **0** - Frequency Mask Trigger disabled.
ON or **1** - Frequency Mask Trigger enabled.

Examples

```
RECP:CONF:FMTR:ENABle 1
```

Query Syntax :RECPlayback:CONFig:FMTRigger:ENABle?

Default OFF

:RECPlayback:CONFig:FMTRigger:LLData <data>

Note: This command replaces RECPlayback:CONFig:FMTRigger:DATA which can be used ONLY with a Fixed mask. This command can also be used with Relative masks.

(Read-Write) Set and query the data to complete the Frequency Mask Trigger (FMT) table, used for Record Playback. Measured power levels above an upper limit and below a lower limit will trigger recording.

For **ACP** measurements, use CALC:ACP:OFFS:LIST:LIMit:NEG[:UPPer]:DATA and CALC:ACP:OFFS:LIST:LIM:POS[:UPPer]:DATA.

Relevant Modes SA

Parameters

<data> Data for all FMT segments in the following format:

- **n** = number of segments, followed by segment data.
- Where:

<nL>	number of FMT segments to follow
State	0 - segment disabled 1 - segment enabled.
Fixed/Rel	0 - Relative 1 - Fixed
Upper/Lower	0 - Upper segment 1 - Lower segment
<nP>	Number of points to follow
Freq value	X-axis value
Amp value	Y-axis value

Subsequent points are appended to the data in the same manner.

Examples

```
' The following writes three upper segments.
' individual segments are colored for readability.
RECP:CONF:FMTR:LLData 1,1,0,0,4,-30e6,-20,-20e6,-10,-10e6,0,10e6,0,20e6,-10,30e6,-20
```

Query Syntax RECPlayback:CONFig:FMTRigger:LLData?

Return Type Block data

Default 0 - Limit line data off

Last Modified:

16-Aug-2012 New command

:RECPlayback:CONFig:PTINterval <num>

(Read-Write) Set and return the Playback Time Interval - the delay that occurs between each trace as it is played back.

Relevant Modes SA, RTSA

Parameters

<num> Playback Time Interval (in seconds). Choose a delay value between 0 (play as fast as possible) and 100.

Examples

```
RECP:CONF:PTIN 10
```

Query Syntax :RECPlayback:CONFig:PTINterval?

Default 0

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:CONFig:RSCLength <num>

(Read-Write) Set and return the Record Segment Counting Length - the number of traces to record, after which the recording will automatically pause. Use Pause/Resume or Record to capture another <num> traces, or Stop to end recording.

When set, a counter appears in the lower-left corner which counts UP to the specified number of recordings.

Relevant Modes SA, RTSA

Parameters

<num> Number of traces to record. Choose a value between 0 (no limit to the number of traces) and 100.

Examples

```
RECP:CONF:RSCL 10
```

Query Syntax :RECPlayback:CONFig:RSCLength?

Default OFF - NO limit to the number of traces to be recorded.

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:CONFig:RSOurce <char>

(Read-Write) Set and return the Record Source - the location in the FieldFox data flow from where data is recorded.

Relevant Modes SA, RTSA

Parameters

<num> Record Source. Choose from:

FATR - First Active Trace. Means the first active trace that is not set to BLANK and or not set to VIEW. (RTSA mode only)

RAWM - Records raw measurement data (SA mode only)

TRA1 - Trace 1

TRA2 - Trace 2

TRA3 - Trace 3

TRA4 - Trace 4

Examples

```
RECP:CONF:RSO RAWM
```

Query Syntax :RECPlayback:CONFig:RSOurce?

Default FATR (RTSA mode default)

RAWM (SA mode default)

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:CONFig:RTINerval <num>

(Read-Write) Set and return the Record Time Interval - the delay between each recording.

Relevant Modes SA, RTSA

Parameters

<numeric> Record Time Interval (in seconds). Choose a delay value between 0 (record as fast as possible) and 10,000.

Examples

```
RECP:CONF:RTIN 10
```

Query Syntax :RECPlayback:CONFig:RTINterval?

Default 0

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:CONFig:RTLSeconds <num>

(Read-Write) Set and return the Record Time limit seconds - the time duration for the recording, after which the recording will automatically pause. Use Pause/Resume to capture another <num> seconds, or

Stop to end recording.

When set, a timer appears in the lower-left corner which counts DOWN from the specified number of seconds.

Relevant Modes SA, RTSA

Parameters

<numeric> Record Time limit (in seconds). Choose a delay value between 0 (NO limit - MAX) and 1e6 seconds.

Examples `RECP:CONF:PTLS 100`

Query Syntax :RECPlayback:CONFig:RTLSeconds?

Default 0 - NO limit to the number of seconds for a recording.

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:MACHine:TPOSition?

(Read-Only) Can be issued during Playback to yield the same trace position information that is currently displayed on-screen .

Relevant Modes SA, RTSA

Parameters None

Examples `RECP:MACH:/TPOS?`

Default Not Applicable

Last Modified:

19-Dec-2018 New command

:RECPlayback:MACHine:TTIMe?

(Read-Only) Can be issued during Playback to yield the same trace time information that is currently displayed on-screen .

Relevant Modes SA, RTSA

Parameters None

Examples `RECP:MACH:TTIM?`

Default Not Applicable

Last Modified:

19-Dec-2018	New command

:RECPlayback:SESSion:CARecords

(Write-Only) Clears all recorded traces from the currently-open Record/Playback session. (Opt 236)

Relevant Modes	SA, RTSA
Parameters	None
<string>	Filename and extension of the state file.
Examples	`RECP:SESS:CAR`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

10-june-2016	Added RTSA mode (9.50)

:RECPlayback:SESSion:CLOSe

(Write-Only) Closes the currently-open Record/Playback session. (Opt 236). The session can be opened again for recording or playback using :RECPlayback:SESSion:OPEN?

Relevant Modes	SA, RTSA
Parameters	None
Examples	`RECP:SESS:CLOS`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

10-june-2016	Added RTSA mode (9.50)

:RECPlayback:SESSion:NEW

(Write-Only) Creates and opens a new Record/Playback session with an auto-generated name "AutoSession xx". (Opt 236).

Relevant Modes	SA, RTSA
Parameters	None
Examples	`RECP:SESS:NEW`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:SESSion:OPEN? <"string">

(Read-Only) Opens an existing Record/Playback session and returns 2 numbers separated by a comma.
1. The current quantity of traces in the session.
2. The current quantity of states in the session.

- -1, -1 means nothing was opened. A session may already be open.
- 0, 0 means the session was opened but currently empty.

Relevant Modes SA, RTSA

Parameters None

<"string"> Name of the session to be opened, enclosed in quotes. Not case sensitive.

Examples

```
RECP:SESS:OPEN? "MyOldSession"
```

Default Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:RECPlayback:SESSion:SDEVice <char>

(Read-Write) Storage device to be used for record playback. (Opt 236)

Relevant Modes SA, RTSA

Parameters

<character> Storage device. Choose from:
INTernal - Internal storage
SD - SD card
USB - USB device

Examples

```
RECP:SESS:SDEV USB
```

Query Syntax RECPlayback:SESSion:SDEVice?

Default INTernal

Last Modified:

10-june-2016	Added RTSA mode (9.50)

:RECPlayback:SESSion:TRLimit <num>

(Read-Write) Trace record limit for the current record playback session (Opt 236). An upper limit is set when the session opens. You can reduce this value to save storage space, but you cannot increase it beyond the upper default limit.

Relevant Modes SA, RTSA

Parameters

<numeric> Trace record limit. Choose a value from 1 to the default upper limit. Send a query before setting this value to learn the upper limit.

Examples

```
RECP:SESS:TRL 100
```

Query Syntax RECPlayback:SESSion:TRLimit?

Default Not Applicable

Last Modified:

10-june-2016	Added RTSA mode (9.50)

[:SENSe]:ACPower:LIMit[:STATe] <bool>

(Read-Write) Set and query the limit testing On/Off state in an Adjacent Channel Power measurement. To establish limits, use:

[:SENSe]:ACPower:OFFSet:LLIMit (Lower limit)

[:SENSe]:ACPower:OFFSet:ULIMit (Upper limit)

Relevant Modes SA

Parameters

<bool> ACP limit testing ON | OFF state. Choose from:
0 or OFF - Limit testing OFF
1 or ON - Limit testing **ON**

Examples

```
ACPower:LIMit ON
```

Query Syntax [:SENSe]:ACPower:LIMit[:STATe]?

Return Type Boolean

Default OFF

[:SENSe]:ACPower:MREFerence <num>

(Read-Write) Set and query the reference value for the measured offset power in an Adjacent Channel Power measurement. See also: [:SENSe]:ACPower:MREFerence:AUTO

Relevant Modes SA

Parameters

<num> Reference value in dB or dBc.

Examples ACP:MREF -1.5

Query Syntax [:SENSe]:ACPower:MREF?

Return Type Numeric

Default 0

Last Modified:

16-Aug-2012 New command

[:SENSe]:ACPower:MREFerence:AUTO <bool>

(Read-Write) Set and query the method of computing the measured carrier power from the measured offset power in an Adjacent Channel Power measurement.

Relevant Modes SA

Parameters

<bool> **Choose from:**

1or ON (Automatic) **-** dB or dBc value is computed by subtracting the measured carrier power from the measured offset power.

0 or OFF (Manual) - dB or dBc value is computed by subtracting the entered Ref Value from the measured offset power. Use [:SENSe]:ACPower:MREFerence to enter a value.

Examples ACP:MREF:AUTO 1

Query Syntax [:SENSe]:ACPower:MREFerence:AUTO?

Return Type Boolean

Default ON

Last Modified:

16-Aug-2012 New command

[:SENSe]:ACPower:MTYPe <char>

(Read-Write) Set and query the ACP measurement type. This setting determines how the measured carrier and offset power levels are presented.

Relevant Modes SA

Parameters

<num>	Measurement type. Choose from: **TPWR** - Total Power Ref **PSDR** - Power Spectral Density
Examples	ACP:MREF -1.5
Query Syntax	[:SENSe]:ACPower:MTYPe?
Return Type	Character
Default	TPWR

Last Modified:

16-Aug-2012 New command

[:SENSe]:ACPower:OFFSet<n>:BWIDth <num>

(Read-Write) Set and query the integration bandwidths for the 3 offset channels in an Adjacent Channel Power measurement.

Relevant Modes	SA
Parameters	
<n>	Offset number to be set. Choose from 1, 2, or 3.
<num>	Offset Integration Bandwidth in Hz. Choose a number between the Minimum Integration Bandwidth (100 Hz) and Maximum Integration Bandwidth (100 MHz)
Examples	ACP:OFFS1:BWID 2e6 Sets integration bandwidth of offset 1 to 2 MHz
Query Syntax	[:SENSe]:ACPower:OFFSet:BWIDth?
Return Type	Numeric
Default	2 MHz

[:SENSe]:ACPower:OFFSet<n>:FREQuency <num>

(Read-Write) Set and query the Offset frequencies for all 3 offset channels in an Adjacent Channel Power measurement.

Relevant Modes	SA
Parameters	
<n>	Offset number to be set. Choose from 1, 2, 3.
<num>	Offset Channel Frequency in Hz. For each offset, choose a number between the Minimum Offset Frequency (0 Hz) and Maximum Offset Frequency (500 MHz).

Examples **ACP:OFFS1:FREQ 2e6**
Sets offset 1 to 2 MHz

Query Syntax [:SENSe]:ACPower:OFFSet:FREQuency?

Return Type Numeric

Default 3 MHz, 0 Hz, 0 Hz

[:SENSe]:ACPower:OFFSet<n>:LLIMit <num>

(Read-Write) Set and query the limit for the 3 Lower offset channels in an ACP measurement. Power measurements that exceed this limit will FAIL. To turn limit testing ON and OFF, use [:SENSe]:ACPower:LIMit[:STATe].

Relevant Modes SA

Parameters

<n> Offset number. Choose from 1, 2, or 3

<num> Limit value for Lower offsets in dBc. For each offset, choose a value between 500 and -1000.

Examples ACP:OFFS1:LLIM -10
Sets the first lower offset limit value to -10 dBc.

Query Syntax [:SENSe]:ACPower:OFFSet<n>:LLIMit?

Return Type Numeric

Default 0 dBc for all offsets

Last Modified:

17-Aug-2012 New command- replaces CALC command

[:SENSe]:ACPower:OFFSet<n>:STATe <bool>

(Read-Write) Set and query the On/Off state for the 3 offset channels in an Adjacent Channel Power measurement.

Relevant Modes SA

Parameters

<n> Offset number. Choose from 1, 2, 3.

<bool> ACP Limit Test ON | OFF state. For each offset, choose from:
0 or **OFF** - Offset OFF
1 or **ON** - Offset ON

Examples ACP:OFFS1:STAT ON

Query Syntax [:SENSe]:ACPower:OFFSet:STATe?

Return Type Boolean

Default ON, OFF, OFF

[:SENSe]:ACPower:OFFSet<n>:ULIMit <num>

(Read-Write) Set and query the limit for the 3 Upper offset channels in an ACP measurement. Power measurements that exceed this limit will FAIL. To turn limit testing ON and OFF, use [:SENSe]:ACPower:LIMit[:STATe].

Relevant Modes SA

Parameters

<n> Offset number. Choose from 1, 2, or 3

<num> Limit value for Upper offsets in dBc. For each offset, choose a value between 500 and -1000.

Examples

ACP:OFFS1:ULIM -10

Sets the first upper offset limit value to -10 dBc.

Query Syntax [:SENSe]:ACPower:OFFSet<n>:ULIMit?

Return Type Numeric

Default 0 dBc for all offsets

Last Modified:

17-Aug-2012 New command- replaces CALC command

[SENSe]:ACQuisition:TIME

(Read-Write) Sets the acquisition time between Density and Real-Time traces. (Spectrogram is not supported.)

Relevant Modes RTSA

Parameters

<num> Range: *Span dependent*

Examples

```
ACQ:TIME.05
ACQ:TIME 5.00E-1
```

Query Syntax [:SENSe]:ACQuisition:TIME?

Return Type numeric

Default 2.00E-02

Last Modified:

19-sep-2016	Added new RTSA command (A.09.50).

[SENSe]:ACQuisition:TIME:AUTO <bool>

(Read-Write) Sets the acquisition time between Density and Real-Time traces to AUTO. (Spectrogram is not supported.)

Relevant Modes	RTSA
Parameters	
<Boolean>	Automatically sets the range: 20 ms (2.00E-02) to 541.2 ms (5.412E-1) ON (1) - The FieldFox automatically sets the acquisition time. OFF (0) - Auto acquisition is disabled.
Examples	`ACQ:TIME:AUTO`
Query Syntax	[:SENSe]:ACQuisition:TIME:AUTO?
Return Type	numeric
Default	0

Last Modified:

19-sep-2016	Added new RTSA command (A.09.50).

[:SENSe]:ADEMod:METRics:AMTY

(Read-Write) Sets the AM window Y axis top percentage value (10-100%). .

Relevant Modes	SA
Parameters	
<value>	AM Y axis percentage
Examples	`:ADEM:METR:AMTY 10`
Query Syntax	:ADEM:METR:AMTY?
Return Type	Value
Default	100

Last Modified:

16-Dec-2015	Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:DTYPe

(Read-Write) Select the type of metrics AM, FW wideband, or FM narrow band.

Relevant Modes SA

Parameters **AM** - Selects AM metrics

FMN - Selects FM narrow band metrics

FMW - Selects FM wide band metrics

<string>

Examples `:ADEM:METR:DTYP FMN`

Query Syntax :ADEM:METR:DTYP?

Return Type String

Default

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:FMTY

(Read-Write) Set the FM window Y axis top percentage value (10-100%).

Relevant Modes SA

Parameters

<num> FM Y axis percentage

Examples `:ADEM:METR:FMTY 25`

Query Syntax :ADEM:METR:FMTY?

Return Type Numeric

Default 100

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:LON

(Read-Write) Enable or disable the audio while AM/FM metrics are on.

Relevant Modes SA

Parameters **ON** - Enable audio while metrics are on

OFF - Disable audio while metrics are on

<string>

Examples
```
:ADEM:METR ON
```

Query Syntax :ADEM:METR?

Return Type String

Default OFF

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:LTIMe

(Read-Write) Sets the listen time.

Relevant Modes SA

Parameters

<num> Listen time value (100 ms to 100 seconds)

Examples
```
:ADEM:METR:LTIM 100ms
```

Query Syntax :ADEM:METR:LTIM?

Return Type Numeric

Default 100s

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:MMENable

(Read-Write) Enable or disable of AM Mod Depth or FM Freq Deviation Peak+ and Peak- in the

demodulation window.

Relevant Modes SA

Parameters **ON** - Enables Peak+ and Peak-

OFF - Disables Peak+ and Peak-

<string>

Examples
```
:ADEM:METR:MMEN ON
```

Query Syntax :ADEM:METR:MMEN?

Return Type String

Default OFF

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:STIMe

(Read-Write) Sets the time span of the modulation window.

Relevant Modes SA

Parameters

<num> Modulation time value (50 us to 50 ms)

Examples
```
:ADEM:METR:STIM .025
```

Query Syntax :ADEM:METR:LTIM?

Return Type Numeric

Default 2.000 ms

Last Modified:

16-Dec-2015 Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ADEMod:METRics:TFREq

(Read-Write) Sets the tune frequency (i.e., center frequency).

Relevant Modes SA

Parameters	
<num>	Tune (Center) frequency values vary with the FieldFox.
Examples	**:ADEM:METR:TFR 6GHZ**
Query Syntax	:ADEM:METR:TFR?
Return Type	Numeric
Default	Varies with model

Last Modified:

16-Dec-2015	Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:ALIGnment:ALL:NOW

(Write-only) An "InstAlign" alignment now is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered, and alignments are simultaneously performed on all of the individual alignments (i.e., InstAlign Amplitude Alignment, RF Burst, and Channel Equalization alignments). Refer to ALIGn:ALL.

Relevant Modes	IQA, NF, SA, CPM, RTSA All models with InstAlign (All EXCEPT N9912A)
Parameters	None
Examples	ALIG:ALL:NOW
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
19-Dec-2018	New command & new IQA mode (A.10.15)

[:SENSe]:ALIGnment:ALL[:STATe] <char>

(Read-Write) Set and query the align all (InstAlign all) state. When the individual alignments are coupled (Align All state is set to Auto), the state of all of them can be changed simultaneously using the Align All (i.e., InstAlign Amplitude Alignment, RF Burst, and Channel Equalization alignments). Refer to ALIGn:ALL:NOW.

Relevant Modes	ChScn, IQA, LTE FDD, SA, CPM, RTSA All models with InstAlign capability (All EXCEPT N9912A).

Parameters

<character> InstAlign state. Choose from:

AUTO - The alignment process is performed every 300 seconds or when the temperature has changed about 1 degree. It occurs only at the beginning of a sweep and takes about 0.5 seconds to complete.

HOLD - The alignment process is stopped, but the last alignment values are applied to subsequent sweeps.

OFF - The alignment process is NOT performed. Only factory correction values are used.

Examples ALIG:AMPL HOLD

Query Syntax [:SENSe]:ALIGnment:ALL[:STATe]?

Return Type Character

Default AUTO

Last Modified:

19-Dec-2018 New command

[:SENSe]:ALIGnment:AMPLitude:NOW

(Write-only) An "InstAlign" alignment is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered and alignment is performed.

Relevant Modes ChScn, IQA, LTE FDD, SA, CPM, RTSA

All models with InstAlign (All EXCEPT N9912A)

Parameters None

Examples `ALIG:AMPL:NOW`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

19-Dec-2018 New command & new IQA mode (A.10.15)

[:SENSe]:ALIGnment:AMPLitude[:STATe] <char>

(Read-Write) Set and query the amplitude alignment (InstAlign) state.

Relevant Modes ChScn, IQA, LTE FDD, SA, CPM, RTSA

All models with InstAlign capability (All EXCEPT N9912A).

Parameters

<character> InstAlign state. Choose from:

AUTO - The alignment process is performed every 300 seconds or when the temperature has changed about 1 degree. It occurs only at the beginning of a sweep and takes about 0.5 seconds to complete.

HOLD - The alignment process is stopped, but the last alignment values are applied to subsequent sweeps.

OFF - The alignment process is NOT performed. Only factory correction values are used.

Examples `ALIG:AMPL HOLD`

Query Syntax [:SENSe]:ALIGnment:AMPLitude[:STATe]?

Return Type Character

Default AUTO

Last Modified:

19-Dec-2018 New command & new IQA mode (A.10.15)

[:SENSe]:ALIGnment:BURSt:NOW

(Write-only) A RF Burst alignment is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered and alignment is performed.

Relevant Modes IQA, SA & RTSA Modes

All models with RF Burst triggering (All EXCEPT N9912A)

Parameters None

Examples ALIG:BURS:NOW

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

19-Dec-2018 New command and new IQA mode (A.10.15)

[:SENSe]:ALIGnment:BURSt[:STATe]

(Read-Write) Set and query the RTSA and SA modes burst alignment (InstAlign) state.

Relevant Modes IQA, SA, CPM, RTSA

All models with InstAlign capability (All EXCEPT N9912A).

Parameters

<char> InstAlign state. Choose from:

AUTO - The alignment process is performed every 300 seconds or when the temperature has changed about 1 degree. It occurs only at the beginning of a sweep and takes about 0.5 seconds to complete.

HOLD - The alignment process is stopped, but the last alignment values are applied to subsequent sweeps.

OFF - The alignment process is NOT performed. Only factory correction values are used.

Examples ALIG:BURS HOLD

Query Syntax [:SENSe]:ALIGnment:BURSt[:STATe]?

Return Type Character

Default AUTO

Last Modified:

19-Dec-2018 New command & new IQA mode (A.10.15)

[:SENSe]:ALIGnment:CHEQ:NOW

(Write-only) A channel equalization is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered and alignment is performed.

Relevant Modes IQA, RTSA

Parameters None

Examples ALIG:CHEQ:NOW

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

19-Dec-2018 New command & new IQA mode (A.10.15)

[:SENSe]:ALIGnment:CHEQ[:STATe]

(Read-Write) Set and query the channel equalization (InstAlign) state.

Relevant Modes IQA, RTSA

Parameters

<char>	InstAlign state. Choose from: **AUTO** - The alignment process is performed every 300 seconds or when the temperature has changed about 1 degree. It occurs only at the beginning of a sweep and takes about 0.5 seconds to complete. **HOLD** - The alignment process is stopped, but the last alignment values are applied to subsequent sweeps. **OFF** - The alignment process is NOT performed. Only factory correction values are used.
Examples	ALIG:CHEQ HOLD
Query Syntax	[:SENSe]:ALIGnment:CHEQ[:STATe]?
Return Type	Character
Default	AUTO

Last Modified:

19-Dec-2018	New command & new IQA mode (A.10.15)

[:SENSe]:AMPLitude:ALIGnment:NOW

This command has been replaced by [:SENSe]AMPLitude:ALIGnment:NOW. Learn about superseded commands.

(Write-only) An "InstAlign" alignment is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered and alignment is performed.

Relevant Modes	ChScn, IQA, LTE FDD, SA, CPM, RTSA All models with InstAlign (All EXCEPT N9912A)
Parameters	None
Examples	`AMPL:ALIG:NOW`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

22-oct-2016	Added IQA mode and superseded note (A.010.15)
20-sep-2016	Added RTSA mode (A.09.50)
1-Apr-2014	Added CPM
17-Jul-2012	New command (6.00)

[:SENSe]:AMPLitude:ALIGnment[:STATe] <char>

This command has been replaced by [:SENSe]:ALIGnment:AMPLitude[:STATe]. Learn about superseded commands.

(Read-Write) Set and query the alignment amplitude (InstAlign) state.

Relevant Modes IQA, SA, CPM, RTSA

All models with InstAlign capability (All EXCEPT N9912A).

Parameters

<character> InstAlign state. Choose from:

AUTO - The alignment process is performed every 300 seconds or when the temperature has changed about 1 degree. It occurs only at the beginning of a sweep and takes about 0.5 seconds to complete.

HOLD - The alignment process is stopped, but the last alignment values are applied to subsequent sweeps.

OFF - The alignment process is NOT performed. Only factory correction values are used.

Examples :AMPL:ALIG HOLD

Query Syntax :SENSe:AMPLitude:ALIGnment:STATe?

Return Type Character

Default AUTO

Last Modified:

22-oct-2016	Added IQA mode and superseded note (A.010.15)
20-sep-2016	Added RTSA mode (A.09.50)
1-Apr-2014	Added CPM
28-Mar-2013	Changed time from 30 to 300 secs
17-Jul-2012	New command (6.00)

[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault

(Write-only) Clears the Receiver Antenna Correction table. This is the same as selecting the **New** softkey and then confirming “Yes” from the Edit/Save/Recall Antennas menu.

If using only one antenna correction, use this command.

For source antenna, use: [:SENSe]:AMPLitude:CORRections:SANTenna:DEFault

Relevant Modes ChScn, SA

Parameters None

Examples `AMPL:CORR:ANT:DEF`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for Src/Rec
17-Jul-2012	New command (6.00)

[:SENSe]:AMPLitude:CORRections:ANTenna[:STATe] <bool>

(Read-Write) Set and query the Receiver Antenna Corrections ON/OFF state.

If using only one antenna correction, use this command.

For source antenna, use: [:SENSe]:AMPLitude:CORRections:SANTenna[:STATe]

Relevant Modes ChScn, SA

Parameters

<bool> Antenna correction state. Choose from:
OFF (or 0) - Antenna correction OFF.
ON (or 1) - Antenna correction ON.

Examples AMPL:CORR:ANT 1

Query Syntax [:SENSe]:AMPLitude:CORRections:ANTenna[:STATe]?

Return Type Boolean

Default OFF

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for Src/Rec
17-Jul-2012	New command (6.00)

[:SENSe]:AMPLitude:CORRections:CABLe:DEFault

(Write-only) Clears the Receiver Cable Correction table. This is the same as selecting the **New** softkey and then confirming “Yes” from the Edit/Save/Recall Antennas menu.

If using only one cable correction, use this command. For source cable, use [:SENSe]:AMPLitude:CORRections:SCABle:DEFault

Relevant Modes ChScn, SA

Parameters None

Examples	AMPL:CORR:CABL:DEF
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for Src/Rec
17-Jul-2012	New command (6.00)

[:SENSe]:AMPLitude:CORRections:CABLe[:STATe] <bool>

(Read-Write) Set and query the Receiver Cable Corrections ON/OFF state.
If using only one cable correction, use this command.
For source cable, use: [:SENSe]:AMPLitude:CORRections:SCABle[:STATe]

Relevant Modes	ChScn, SA
Parameters	
<bool>	Cable correction state. Choose from: OFF (or 0) - Cable correction OFF. ON (or 1) - Cable correction ON.
Examples	AMPL:CORR:CABL 1
Query Syntax	[:SENSe]:AMPLitude:CORRections:CABLe[:STATe]?
Return Type	Boolean
Default	OFF

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
26-Jan-2015	Modified for source.
20-Oct-2010	New command (5.30)

[:SENSe]:AMPLitude:CORRections[:STATe] <bool>

(Read-Write) Set and query the Channel Scanner (ChScn) and SA mode corrections ON/OFF state.
This setting is labeled "Apply Corrections" on the FieldFox softkeys.
See all corrections commands

Relevant Modes	ChScn, SA
Parameters	
<bool>	Correction state. Choose from: OFF (or 0) - Correction OFF. ON (or 1) - Correction ON.
Examples	AMPL:CORR 1
Query Syntax	[:SENSe]:AMPLitude:CORRections[:STATe]?
Return Type	Boolean
Default	OFF

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
20-Oct-2010	New command (5.30)

[:SENSe]:AMPLitude:SCALe <char>

(Read-Write) Set and query the scale type.

Relevant Modes	SA
Parameters	
<char>	Scale type. Choose from: **LOG** -units in dB **LIN** - units in mV
Examples	AMPL:SCAL LIN
Query Syntax	[:SENSe]:AMPLitude:SCALe?
Return Type	Character
Default	LOG

[:SENSe]:AMPLitude:UNIT <char>

(Read-Write) Set and query the Display Units, regardless of the current Scale setting. The UNIT choice affects the following: Reference Level, Trigger Level, Limit Lines, Marker annotation, Channel Power, and Adjacent Channel Power.

This command affects the TRACe:DATA? return values.

Antenna correction units are available ONLY by loading an Antenna file that contains the desired units setting. Use MMEMory:LOAD:ANTenna.

Relevant Modes	ChScn, SA,CPM

Parameters

<char> Display Units with Antenna correction OFF, choose from:

- W - watts
- DBM - dBm

The following are NF and SA ONLY - not allowed for CPM

- DBMV - dB milliVolts
- DBUV - dB microvolts
- DBMA - dB milliAmps
- DBUA - dB microAmps
- V - volts
- A - amps

Examples AMPL:UNIT W

Query Syntax [:SENSe]:AMPLitude:UNIT?

Return Type Character

Default DBM

Last Modified:

01june2018	Added Channel Scanner (ChScn) - (10.3)
24-Mar-2014	Added CPM
20-Oct-2010	New command (5.30)

[:SENSe]:AVERage:CLEar

Write-only) Resets sweep averaging to zero so that the next sweep performed will be back to AVG 1. This command does NOT trigger the sweep.

Relevant Modes CAT, NA, VVM

Parameters None

Examples `AVER:CLE`

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

03Oct2017	Added command for VVM mode
23-Aug-2011	New command

[:SENSe]:AVERage:COUNt <num>

(Read-Write) Set and query the number of sweep averages.

Relevant Modes	ALL
Parameters	
<number>	Number of averages. Choose from: 1 to 10000. Average count of 1 = No averaging.
Examples	**AVER:COUN 45**
Query Syntax	[:SENSe]: AVERage:COUNt?
Return Type	Numeric
Default	SA - Depends on measurement IQA - 10

Last Modified:

22oct2017	Added IQA mode (10.1x)
24-Mar-2014	Added

[:SENSe]:AVERage[:ENABle] <value>

(Read-Write) Set and query the averaging state.

Relevant Modes	CPM
Parameters	
<value>	(Boolean) Choose from: **ON (or 1) -** Averaging ON. Set the number of averages using [:SENSe]:AVERage:COUNt **OFF (or 0)** - Performs NO averaging.
Examples	AVER 1
Query Syntax	[:SENSe]:AVERage[:ENABle]?
Return Type	Boolean
Default	ON

Last Modified:

24-Mar-2014	New command

[:SENSe]:AVERage[:MODE] <char>

(Read-Write) Set and query the averaging mode for Power Meter measurements.

Relevant Modes Power Meter, Pulse Measurements

Parameters

<char> Average Mode.

Choose from:

AUTO - Allows the USB Power Sensor to use its Auto Averaging settings.

MAN - Manually enter an averaging count by setting SENSe]:AVERage:COUNt

OFF - Performs NO averaging.

Examples AVER MAN

Query Syntax [:SENSe]:AVERage[:MODE]?

Return Type Character

Default AUTO

[:SENSe]:AVERage:MODE <char>

(Read-Write) Set and query the averaging mode for NA measurements.

Relevant Modes NA

Only Sweep averaging is allowed in CAT mode.

Parameters

<char> Average Mode. Choose from:

SWEep - Each data point is based on the average of the same data point being measured over <n> consecutive sweeps. The average counter shows the number of previous sweeps that have been averaged together to form the current trace. When the counter reaches the specified count, then a 'running average' of the last <n> sweeps is displayed.

POINT - Each data point is measured <n> times and averaged before going to the next data point. On subsequent sweeps, averaging restarts by measuring each data point again <n> times. The average counter is not updated because data is not displayed until all the averages have been applied.

Examples AVER:MODE POINT

Query Syntax [:SENSe]:AVERage:MODE?

Return Type Character

Default SWEEP

Last Modified:

17-Jul-2012 New command (6.00)

[SENSe]:AVERage:SDETect <bool>

(Read-Write) Set and query the step detection mode state for Power Meter measurements.

Relevant Modes Power Meter

Parameters

<bool> Step Detection state. Choose from:

ON (or 1) - Step Detection enabled.

OFF (or 0) - Step Detection disabled.

Examples AVER:SDET On

Query Syntax [:SENSe]:AVERage:SDETect?

Return Type Boolean

Default ON

[:SENSe]:AVERage:TYPE <char>

(Read-Write) Set and query the averaging type for IQA and SA measurements.

Relevant Modes IQA, SA

Parameters

<char> Average type. Choose from:

AUTO - (SA Only) The FieldFox chooses the most appropriate type of averaging for the current settings. When Detection Method is set to Average, a Noise Marker is present, or a Channel measurement is active, then Power Average is ALWAYS selected. Otherwise, Log Average is selected.

POWer - (Linear) Averaging – Best for measuring true power levels. Used in Detection Average and Noise Marker Average. Mathematically, trace noise is 2.5 dB higher than when using Log Average. **PAvg** is shown on the left side of the FieldFox screen when selected.

LOG - Best for displaying Trace Averaging. **LgAv** is shown on the left side of the FieldFox screen when selected.

VOLT - Best for measuring true voltage levels.

Examples AVER:TYPE POW

Query Syntax [:SENSe]:AVERage:TYPE?

Return Type Character

Default AUTO

Last Modified:

22sept2017 Added IQA mode (10.1x)

[:SENSe]:BANDwidth:IF:OUT <char>

(Read-Write) Set and query IF Output state.

Relevant Modes SA Mode

All models with an IF Output connector.

Parameters

<char> Choose from:

OFF - The IF output signal is NOT processed.

NARRow - The IF output signal is processed and has approximately 5 MHz bandwidth.

WIDE - The IF output signal is processed and has approximately 25 MHz bandwidth.

Examples

```
BAND:IF:OUT NARR
```

Query Syntax [:SENSe]:BANDwidth:IF:OUT?

Return Type Character

Default OFF

Last modified:

17-Jul-2012 New command (A.06.00)

[:SENSe]:BANDwidth[:RESolution] <num>

(Read-Write) Set and query the resolution bandwidth.

Relevant Modes SA, RTSA

Parameters

<num> Resolution Bandwidth in Hz. Choose from: 10 Hz to 2 MHz.

This command will accept MIN and MAX as arguments.

Examples

```
BAND 10e3
```

Query Syntax [:SENSe]:BANDwidth[:RESolution]?

Return Type Numeric

Default 2 MHz

Last Modified:

19-sep-2016 Added RTSA to relevant modes.

[:SENSe]:BANDwidth[:RESolution]:AUTO <bool>

(Read-Write) Set and query the automatic resolution bandwidth state.

Relevant Modes SA, RTSA

Parameters

<bool> Choose from:

O or **OFF -** Set Resolution BW manually using BAND:RES <num>

1 or **ON -** Automatic Bandwidth setting

Examples `BAND:AUTO 0`

Query Syntax [:SENSe]:BANDwidth[:RESolution]:AUTO?

Return Type Boolean`

Default ON

Last Modified:

19-sep-2016 Added RTSA to relevant modes.

[:SENSe]:BWIDth:VIDeo <char>

(Read-Write) Set and query the video bandwidth for the measurement.

Relevant Modes Pulse Measurements

Parameters

<char> Video Bandwidth. Choose from the following:

- **OFF** - Video Bandwidth is disabled.
- **LOW** - Similar to a low pass filter, ripple in the pass band is minimized but allows higher side-lobes on the filter skirt.
- **MEDium** - Smooth pass band with reasonable transition ripple.
- **HIGH** - The pass band ripple is similar to the OFF setting, but the transition skirts are smoother.

Examples `BWID:VID LOW`

Query Syntax [:SENSe]:BWIDth:VIDeo?

Return Type Character

Default OFF

Last modified:

31-Oct-2013 New command

[:SENSe]:BANDwidth:VIDeo <num>

(Read-Write) Set and query the video bandwidth. Also set BAND:VID:AUTO OFF.

Relevant Modes SA

Parameters

<num> Video bandwidth. Choose a value between 1 and 2E6.

Examples `BAND:VID 1e3`

Query Syntax SENSe:BANDwidth:VIDeo?

Return Type Numeric

Default 2E6

[:SENSe]:BANDwidth:VIDeo:AUTO <bool>

(Read-Write) Set and query the ON | OFF state of Video Bandwidth.

Relevant Modes SA

Parameters

<bool> Choose from:

O or **OFF** Set Video BW manually using BAND:VIDeo <num>

1 or **ON** Automatic Bandwidth setting.

Examples `BAND:VID:AUTO 1`

Query Syntax :SENSe:BANDwidth:VIDeo:AUTO?

Return Type Boolean

Default ON

[:SENSe]:BURSt:ALIGnment:NOW

This command has been replaced by [:SENSe]:ALIGnment:BURSt[:STATe]. Learn about superseded commands.

(Write-only) A RF Burst alignment is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered and alignment is performed.

Relevant Modes IQA, SA & RTSA Modes

All models with RF Burst triggering (All EXCEPT N9912A)

Parameters None

Examples BURS:ALIG:NOW

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

22nov2017	Updated as a superseded note & added IQA for backwards compatibility.
20-sep-2016	Add RTSA mode (A.09.50)

28-Mar-2013 New command (6.25)

[:SENSe]:BWIDth <num>

(Read-Write) Set and query the IF bandwidth for the measurement.

Relevant Modes Pulse Measurements, NA

Parameters

<numeric> IF Bandwidth.
Choices: 10 | 30 | 100 | 300 | 1000 | 10000 | 30000 | 100000
Minimum: 10 Hz
Maximum: 100 kHz

Examples

```
BWID 30
BWID 10e4
```

Query Syntax [:SENSe]:BWIDth?

Return Type numeric

Default 10000

Last modified:

31-Oct-2013 New command

[:SENSe]:CMEasurement:AVERage:ENABle <bool>

(Read-Write) Set and query the state of averaging for an SA channel measurement.

Relevant Modes SA

Parameters

<bool> Average State. Choose from:
OFF or **0** - Averaging OFF
ON or **1** - Averaging ON

Examples

```
CME:AVER:ENAB 1
```

Query Syntax [:SENSe]:CMEasurement:AVERage:ENABle?

Return Type Boolean

Default ON

[SENSe]:CMEasurement:IBW <num>

(Read-Write) Set and query the Channel Integrating Bandwidth. This value specifies the range of integration used in calculating the power in the main channel. It is applied to both ACP and Channel Power Measurements in SA mode.

Relevant Modes SA

Parameters

<num> Channel Integrating Bandwidth value in Hz. Choose a number between the Minimum Integration Bandwidth (100 Hz) and Maximum Integration Bandwidth (3 GHz).

Examples SENS:CME:IBW 3e6

Query Syntax [:SENSe]:CMEasurement:IBW?

Return Type Numeric

Default 2 MHz

[:SENSe]:CMEasurement:RRCFilter <bool>

(Read-Write) Set and query the state of RRC (Root-Raised-Cosine) filter weighting for Channel Power and ACPR measurements.

Relevant Modes SA

Parameters

<bool> RRC State. Choose from:

OFF or **0** - RRC weighting OFF

ON or **1** - RRC weighting ON

Examples CME:RRCF 1

Query Syntax [:SENSe]:CMEasurement:RRCFilter?

Return Type Boolean

Default OFF

[:SENSe]:CMEasurement:RRCFilter:ALPHa <num>

(Read-Write) Set and query the value of RRC (Root-Raised-Cosine) filter weighting for Channel Power and ACPR measurements. When RRC weighting is applied to transmitted and received power, the edges of the channel are "smoothed" to help prevent interference.

Relevant Modes SA

Parameters

<num> RRC value. Choose a value between 0 (no smoothing) and 1 (most smoothing).

Examples CME:RRCF:ALPH .50

Query Syntax [:SENSe]:CMEasurement:RRCFilter:ALPHa?

Return Type Numeric

Default .22

[SENSe]:CORRection:LOSS:AFTer:TEMPerature <double>

(Read-Write) Set and query the loss correction values after the DUT (DUT In). Returns a the temperature correction in double numerical format.

See also CORRection:LOSS:AFTer[:VALue] and CORRection:LOSS:AFTer:ENABLed.

Relevant Modes NF

Parameters

<double numbers> Enter values in Centigrade, Fahrenheit, or Kelvin. All values converted to Kelvin.

Examples

```
:CORR:LOSS:AFT:TEMP 87.43 (Converts any value entered to Kelvin units.)
```

Query Syntax :CORRection:LOSS:AFTer:TEMPerature?

Return Type double numbers

Default 296.50K

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)

[SENSe]:CORRection:LOSS:BEFore:TEMPerature <double>

(Read-Write) Set and query the loss correction values before the DUT (DUT In). Returns a the temperature correction in double numerical format.

See also CORRection:LOSS:BEFore[:VALue] and CORRection:LOSS:BEFore:ENABLed.

Relevant Modes NF

Parameters

<double numbers> Enter values in Centigrade, Fahrenheit, or Kelvin. All values converted to Kelvin.

Examples

```
:CORR:LOSS:BEF:TEMP 87.43 (Converts any Centigrade or Fahrenheit value entered to Kelvin units.)
```

Query Syntax :CORRection:LOSS:BEFore:TEMPerature?

Return Type double numbers

Default 296.50K

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:CALReady:TYPE <char>

(Write-Read) Specifies the type of CalReady calibrations that is performed when the FieldFox is Preset.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<char> Choose from:

TWOPort - Corrects all four S-parameters. Requires a forward and reverse sweep, which causes slower trace measurements.

ERESponse - (Enhanced response) Corrects forward (S21 and S11) and reverse (S12 and S22) measurements separately. Therefore, when measurements in only one direction are required, this choice provides faster trace measurements than a full 2-port cal.

Note: There is no programming command to choose 'reciprocal' for Enhanced Response as there is from the User Interface.

Examples

```
CORR:COLL:CALR:TYPE TWOP
```

Query Syntax [:SENSe]:CORRection:CALReady:TYPE?

Default TWOPort

Last Modified:

18-Oct-2012	New command

[:SENSe]:CORRection:COAX <char>

(Read-Write) Set and query the state of Cable Correction in DTF measurements.

Relevant Modes CAT

Parameters

<char> Choose from:

MAN - DTF cable specifications are entered manually.

AUTO - DTF cable specifications are entered from a cable file.

Examples

```
CORR:COAX MAN
```

Query Syntax [:SENSe]: CORRection:COAX?

Return Type Character

Default MAN

[:SENSe]:CORRection:COEFficient[:DATA] <char>,<resp1,stim2>,<data>

(Read-Write) Set and query the correction coefficients (error terms) for the current calibration.

Relevant Modes CAT, NA

Parameters

<char> Error term. Choose from:

ES - Source match

ER - Reflection tracking

ED - Directivity

All models EXCEPT N9912A:

EL - Load Match

ET - Transmission tracking

EX - Isolation

<resp1,stim2> Response port, Stimulus port.

For N9912A, choose **1,1**.

For all other models, choose from 1 or 2 for each port.

- For ES, ER, or ED, the response port and the stimulus port must be the same.
- For EL, ET, or EX, the response port and the stimulus port must be different.

<data> Two values per data point: (Real value, Imaginary value), separated by commas.

Examples

```
'Writes 3 data points of complex source match data
CORR:COEF ES,1,1,2.626292E-01,1.823261E-01,2.537209E-
01,1.943861E-01,2.448751E-01,2.059776E-01
```

Query Syntax [:SENSe]: CORRection:COEFficient[:DATA]? <char>, <resp1, stim2>

Return Type Numeric

Default Not Applicable

Last Modified:

18-Oct-2012	Added new models

[:SENSe]:CORRection:COLLect[:ACQuire]:INT <num>

(Write-Only) Measures the internal (Quick Cal) standard for the specified port. Prompt to leave the port OPEN for this step.

Use [:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate for both 1-port and 2-port QuickCal.

Use [:SENSe]:CORRection:COLLect[:ACQuire]:LOAD for the optional LOAD measurement.

This command is overlapped. This means that it will execute and, while the FieldFox measures the cal standard, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Port number to calibrate.

N9912A - Choose 1 (RF OUT)

All others - Choose 1 or 2

Examples

```
CORR:COLL:INT 1
```

See Cal Examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Modified for new models

[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD <num>

(Write-Only) Measures the LOAD calibration standard that is connected to the specified port.

This command is overlapped. This means that it will execute and, while the FieldFox measures the cal standard, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Port number to which the LOAD standard is connected.

N9912A - Choose 1 (RF OUT)

All other models - Choose 1 or 2

Examples

```
CORR:COLL:LOAD 1
```

See Cal Examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Added new models

[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN <num>

(Write-Only) Measures the OPEN calibration standard that is connected to the specified port.

This command is overlapped. This means that it will execute and, while the FieldFox measures the cal standard, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Port number to which the OPEN standard is connected.

N9912A - Choose 1 (RF OUT)

All other models - Choose 1 or 2

Examples

```
CORR:COLL:OPEN 1
```

See Cal Examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Added new models

[:SENSe]:CORRection:COLLect[:ACQuire]:SHORt <num>

(Write-Only) Measures the SHORT calibration standard that is connected to the specified port.

This command is overlapped. This means that it will execute and, while the FieldFox measures the cal standard, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Port number to which the SHORT standard is connected.

N9912A - Choose 1 (RF OUT)

All other models - Choose 1 or 2

Examples

```
CORR:COLL:SHOR 1
```

See Cal Examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Added new models

[:SENSe]:CORRection:COLLect[:ACQuire]:THRU <p1>,<p2>

(Write-Only) Measures the THRU calibration standard that is connected between the specified ports.

This can be used in any of the following Cal Methods:

- THRU Response - both reference planes are connected.
- Unknown THRU - any cable or adapter is used to connect both reference planes.
- Enhanced Response - both reference planes are connected.
- Quick Cal Enhanced Response - both reference planes are connected.

This command is overlapped. This means that it will execute and, while the FieldFox measures the cal standard, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1>,<p2> Port numbers to which the THRU standard is connected.

Choose 1,2

Examples

```
CORR:COLL:THRU 1,2
```

See Cal Examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Reviewed for new models

[:SENSe]:CORRection:COLLect:CKIT:LABel <port>,<ckit>

(Write-Read) Set and read the Cal Kit to use for the specified port number.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<port> Port number for the Cal Kit.

N9912A, choose 1

All other models, choose 1 or 2

<ckit> (String) Cal Kit for the specified port number. Case-sensitive.

Use [:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog? to read a list of valid Cal Kits.

```
CORR:COLL:CKIT:LAB 1,"85052D"
See Cal examples
```

Using ECal

ECal modules that are connected to a FieldFox USB port with connectors that match the specified <port> are appended to the end of the list of valid Cal Kits that are returned using [:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog?.

NOTE: The ECal module MUST be connected.

To specify an ECal module, instead of <ckit> use the following (String) syntax:

<model>;[serial];[char index]

- <model> - ECal module model number
- [serial] - Optional argument. If unspecified, then the first module detected with a matching model and characterization index will be used.
- [char index] - Optional argument. If unspecified, then 0 (factory characterization) is used.

The following are valid ECal specifiers:

```
'Specify all three arguments including User Char 1:
CORR:COLL:CKIT:LAB 1,"N4431A;02673;1"

'The first N4431A will be used with the Factory Characterization
CORR:COLL:CKIT:LAB 1,"N4431A"

'Use the Factory Char.
CORR:COLL:CKIT:LAB 1,"N4431A;02673"

'The first N4431A will be used with User Char 1
CORR:COLL:CKIT:LAB 1,"N4431A;;1"
```

See ECal example program

Query Syntax [:SENSe]:CORRection:COLLect:CKIT:LABel? <port>

Default Not Applicable

Last Modified:

26-Jul-2013	Added ECal
18-Oct-2012	Added new models

[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog?

(Read-Only) Reads the available Cal Kits in the FieldFox.

ECal reference strings for attached ECal modules are included in the list. The format of ECal reference strings can be found at [:SENSe]:CORRection:COLLect:CKIT:LABel.

Relevant Modes CAT, NA

Parameters None

Examples

```
CORR:COLL:CKIT:LAB:CAT?
'Returns comma-separated strings:
'The following is NOT a complete list
"85054D","85052D","85039B","85038A","85036B/E",
"85033D/E","85032F","85032B/E","85031B"
```

See Cal examples

Default Not Applicable

Last Modified:

26-Jul-2013	Edited for ECal
18-Oct-2012	Reviewed for new models

[:SENSe]:CORRection:COLLect:CONNector <port>,<type -gen-,imp>

(Write-Read) Set and read the DUT connector that will be connected to the specified FieldFox port.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<port> Port number for the Cal Kit.

N9912A, choose 1

All other models, choose 1 or 2

<type -gen-,imp> (String) Type, gender, and impedance of the DUT connector.

> **Type:** choose from: **Type N** | **3.5 mm** | **7 mm** | **7/16 | Type F | WR-10 | WR-15 | WR-19 | WR-22 | WR-28 | WR-42 | WR-62 | WR-75 | WR-90 | WR-112 | WR-137 | WR-187 | WR-284 | WR-650 | Other**

- For QuickCal above 18 GHz, select **Other**.

> **Gender:** choose from one of the following when the connector type includes gender. 7mm, 7/16, and waveguide (WR-*nn*) do NOT include gender.

- **-M-** (Male)
- **-F-** (Female)
- **Be VERY careful with the leading and trailing dashes. Some text editors change the dash style.**

- Provide a space before each.

> **Impedance:** choose from: **50** or **75.**

- Provide a leading comma as in the following examples.

A regular expression/compact sequence for the connector name could be expressed as:

`"[^\s].*( -M|F-)?,\d+"`

Examples

```
CORR:COLL:CONN 1,"Type N -M-,50"
Correction:Collect:Connector 2, "7 mm,50"
CORR:COLL:CONN 1, "WR-10,1"
CORR:COLL:CONN 2, "WR-650,1"
```

See Cal examples

Query Syntax [:SENSe]:CORRection:COLLect:CONNector? <port>

Default Not Applicable

Last Modified:

22-Oct-2012	Updated for new models
16-Feb-2011	Updated

[:SENSe]:CORRection:COLLect:ECAL:AORient <bool>

(Write-Read) Set and read the state of auto orientation for a calibration using an ECal module.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<bool> Auto orientation state. Choose from the following:

ON or 1 - Automatically detect the orientation of the ECal module.

OFF or 0 - Connect the ECal module to the FieldFox ports as prompted during calibration. Select when using low power to the module.

Examples

```
CORR:COLL:ECAL:AOR 1
Sense:Correction:Collect:Ecal:Aorient off
```

See Cal examples

Query Syntax [:SENSe]:CORRection:COLLect:ECAL:AORient ?

Default ON or 1

Last Modified:

26-Jul-2013	New topic

[:SENSe]:CORRection:COLLect:ECAL:SIMPle <bool>

(Write-Read) Choose to receive a single prompt to connect the ECal or one for each reference plane.

Note: This command should be sent before sending any of the SENS:CORR:COLL:METH commands. See Calibration Commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<bool> Simple ECal state. Choose from the following:

ON or 1 (default) - The FieldFox assumes that both ports of the ECal module can be connected at both calibration reference planes. You therefore receive a single prompt to connect the ECal module to both ports.

OFF or 0- Select when physical restrictions prohibit the ECal module from being connected to both calibration reference planes simultaneously. You will receive separate prompts to connect the ECal module to Port 1, then to connect the ECal to Port 2.

Examples

```
CORR:COLL:ECAL:SIMP 1
Sense:Correction:Collect:Ecal:Simple off
```

See Cal examples

Query Syntax [:SENSe]:CORRection:COLLect:ECAL:SIMPle ?

Default ON or 1

Last Modified:

1-Nov-2013	New command

[:SENSe]:CORRection:COLLect:GUIDed:SCOunt?

(Read-Only) Returns the number of steps required to complete the guided calibration.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters None

Examples

```
CORR:COLL:GUID:SCO?
```

See Example Program

Default Not Applicable

Last Modified:

18-Oct-2012	New command

[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire <num>

(Write-Only) Measures the standard for the specified step number in the guided cal. Use [:SENSe]:CORRection:COLLect:GUIDed:SCOunt to read the number of steps required for the cal.

This command is overlapped. This means that it will execute and, while the FieldFox measures the cal standard, it will also accept new commands. Follow this command with *OPC? to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Step number of the guided calibration.

Examples

```
CORR:COLL:GUID:STEP:ACQ 1
```

See Guided Cal Example

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	New command

[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt? <num>

(Read-Only) Returns the cal standard prompt to be used for the specified step number in the guided cal. Use [:SENSe]:CORRection:COLLect:GUIDed:SCOunt to read the number of steps required for the cal.

Use [:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire to perform the cal std measurement.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Step number of the guided calibration.

Examples

```
CORR:COLL:GUID:STEP:PROM? 1
```

See Guided Cal Example

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	New command

[:SENSe]:CORRection:COLLect:METHod:ERES <p1>,<p2>

(Write-Only) Sets the Cal method to Enhanced Response.

This Cal Method requires mating (insertable) DUT connectors. Use [:SENSe]:CORRection:COLLect:CONNector to change connector and gender.

Prompt for, then measure standards:

- OPEN, SHORt, and LOAD on the <p1> (source) port.
- THRU connection between the ports.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA

Parameters

<p1>,<p2> Port numbers to calibrate.

For N9912A with Opt 110, choose **1,2**.

For all other models with Full S-parameter option, choose **1,2** (forward) or **2,1** (reverse).

Examples

```
CORR:COLL:METH:ERES 1,2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	Added new models

[:SENSe]:CORRection:COLLect:METHod:ORESponse <p1>

(Write-Only) During a Guided calibration, sets the Cal method to 1-port Response using an Open standard.

Prompt for, then measure standards:

- Open on the <p1> port.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA (NOT available on N9912A)

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1> Port number to be calibrated.

Examples

```
CORR:COLL:METH:ORES 2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

25-Mar-2014 New command

[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate <p1>[,p2]

(Write-Only) Sets the Cal Method to 1-port or 2-port QuickCal.

For 1-port QuickCal:

- Prompt for INT Stds on <p1>, then optional LOAD on <p1>

For 2-port QuickCal with Insertable connectors, performs QSOLT.

- Prompt for INT Stds on <p1>, then optional LOAD on <p1>, then Flush THRU

For 2-port QuickCal with Non-Insertable connectors, performs SOLR.

- Prompt for INT Stds on <p1> and <p2>, then optional LOAD on <p1> and <p2>, then ANY THRU.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1> First port to calibrate.

- For N9912A, choose 1.
- For all other models, choose 1 or 2.

[p2] For all models with Full S-parameter option, second port to calibrate.

Choose 1 or 2 (alternate to <p1>).

Examples

```
CORR:COLL:METH:QCAL:CAL 1,2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Added new models

[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse <p1>,<p2>

(Write-Only) Sets the Cal Method to QuickCal - Enhanced Response. Calibrates either forward (S11/S21)

or reverse (S22/S12) measurements.

This Cal Method requires mating (insertable) DUT connectors. Use [:SENSe]:CORRection:COLLect:CONNector to change connector and gender.

Requires QuickCal Option.

- Prompt to "Leave ports OPEN", then use [:SENSe]:CORRection:COLLect[:ACQuire]:INT to measure internal OPEN and SHORT.
- Optional - Prompt to "Connect LOAD to ports", then use [:SENSe]:CORRection:COLLect[:ACQuire]:LOAD to measure LOAD.
- For 2-port Cal - Prompt to connect THRU between ports, then use [:SENSe]:CORRection:COLLect[:ACQuire]:THRU to measure THRU

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes N9912A with Opt 110: CAT, NA - ONLY <**1,2**> are supported (NOT **2,1** reverse)

All other models with Full S-parameter option, CAT, NA modes.

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1> First port.

- For N9912A, choose 1.
- For all other models, choose 1 or 2.

<p2> Second port to calibrate.

- For N9912A, choose 2.
- For all other models, choose 1 or 2 (alternate to <p1>).

Examples

```
CORR:COLL:METH:QCAL:ERES 1,2
```

See Cal example

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	Added new models

[:SENSe]:CORRection:COLLect:METHod:QSOLt <p1,p2>

(Write-Only) Sets the Cal Method to 2-port QSOLT. Calibrate for sweeps in BOTH directions.

This Cal Method is NOT available on N9912A and all other models without full 2-port S-parameter option.

This Cal Method requires mating (insertable) DUT connectors. Use [:SENSe]:CORRection:COLLect:CONNector to change connector and gender.

Prompt for, then measure standards:

- OPEN, SHORt, and LOAD on the <p1> (source) port. (This selection is NOT available from the user interface.)

- FLUSH THRU connection between the ports.

This Cal Method requires mating (insertable) connectors. Use [:SENSe]:CORRection:COLLect:CONNector to change connector and gender.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT and NA Mode

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1,p2> Port numbers to calibrate.

Choose **1,2** or **2,1**

Examples

```
CORR:COLL:METH:QSOLt 1,2
```

See Cal example

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Added new models

[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN <p1>

(Write-Only) Sets the Cal method to Open Response using a Mechanical Cal Kit.

Prompt for, then measure standards:

- OPEN on the <p1> port.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1> Port number to be calibrated.

For N9912A and all other models without full 2-port S-parameter option, choose 1.

For all models with full 2-port S-parameter option, choose 1 or 2.

Examples

```
CORR:COLL:METH:OPEN 2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORt <p1>

(Write-Only) Sets the Cal method to Short Response using a Mechanical Cal Kit.

Prompt for, then measure standards:

- SHORt on the <p1> port.
- THRU connection between the ports.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1> Port number to be calibrated.

For N9912A and all other models without full 2-port S-parameter option, choose 1.

For all models with full 2-port S-parameter option, choose 1 or 2.

Examples

```
CORR:COLL:METH:SHOR 1
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:THRU <ports>

(Write-Only) Sets the Cal method to THRU Response (also known as Normalization cal).

Prompt for, then measure standard:

- THRU connection between the ports.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<ports> Port numbers to be calibrated. Choose **1,2**

Examples	`CORR:COLL:METH:THRU 1,2` See Cal examples
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:COLLect:METHod:SOLT1 <p1>

(Write-Only) Sets the Cal Method to 1-port OSL calibration.

Prompt for, then measure standards:

- OPEN, SHORt, and LOAD on the <p1> (source) port.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes	CAT, NA To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.
Parameters	
<p1>	Port number to be calibrated. For N9912A, choose 1. For all other models, choose 1 or 2.
Examples	`CORR:COLL:METH:SOLT1 1` See Cal examples
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:COLLect:METHod:SOLT2 <p1,p2>

(Write-Only) Sets the Cal Method to 2-port SOLT calibration. Calibrate for sweeps in BOTH directions.

This Cal Method is NOT available on N9912A and all other models without Opt 122.

NOTE: [:SENSe]:CORRection:COLLect:METHod:SOLR is usually a more accurate 2-port calibration.
Learn more about FieldFox Cal Methods using SCPI.

Prompt for, then measure standards:

- OPEN, SHORt, and LOAD on BOTH ports.

- THRU connection between the ports. This should be a known (characterized) THRU standard.

Relevant Modes CAT and NA Mode

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1,p2> Port numbers to be calibrated. Choose 1,2.

Examples

```
CORR:COLL:METH:SOLT2 1,2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012 Edited for new models

[:SENSe]:CORRection:COLLect:METHod:SOLR <p1>,<p2>

(Write-Only) Sets the Cal Method to Short-Open-Load-Reciprocal Thru. (Also known as 2-port Unknown Thru).

This Cal Method is NOT available on the N9912A.

Prompt for, then measure standards:

- OPEN, SHORt, and LOAD on the <p1> and <p2> source ports.
- THRU connection between the ports.

The Unknown Thru Standard:

- Can have up to about 40 dB of loss and long electrical length.
- Must be reciprocal: S21=S12.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1>,<p2> Port numbers to be calibrated. Choose 1,2

Examples

```
CORR:COLL:METH:SOLR 1,2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:COLLect:METHod:SRESponse <p1>

(Write-Only) During a Guided calibration, sets the Cal method to 1-port Response using a Short standard. Prompt for, then measure standards:

- SHORt on the <p1> port.

Learn more about FieldFox Cal Methods using SCPI.

Relevant Modes CAT, NA (NOT available on N9912A)

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1> Port number to be calibrated.

Examples

```
CORR:COLL:METH:SRES 2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

25-Mar-2014	New command

[:SENSe]:CORRection:COLLect:METHod:TRL <p1,p2>

(Write-Only) Sets the Cal Method to 2-port TRL calibration. Calibrate for sweeps in BOTH directions. This Cal Method is NOT available on N9912A.

Use the Guided Calibration interface to:

1. Select the DUT connectors: [:SENSe]:CORRection:COLLect:CONNector
2. Select a TRL Cal Kit: [:SENSe]:CORRection:COLLect:CKIT:LABel
3. Query number of steps:[:SENSe]:CORRection:COLLect:GUIDed:SCOunt
4. Display prompts: [:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt
5. Acquire standards: [:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire

Relevant Modes CAT and NA Mode

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<p1,p2> Port numbers to be calibrated. Choose 1,2.

Examples

```
CORR:COLL:METH:TRL 1,2
```

See Cal examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

13-Nov-2013 New command

[:SENSe]:CORRection:COLLect:METHod:TYPE?

(Read-Only) Query the current calibration type.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

Examples

```
CORR:COLL:METH:TYPE?
```

See Cal examples

Default Depends on installed options.

Last Modified:

18-Oct-2012 Edited for new models

[:SENSe]:CORRection:COLLect:OISolation <bool>

(Write-Read) Set and query the state of the Omit Isolation setting.

The optional isolation step of a calibration corrects for crosstalk which is the internal signal leakage between the test ports. The additional Isolation step measures Load standards that are connected to both FieldFox test ports.

Perform an isolation calibration when you are testing a device with high insertion loss, such as the stop band of a filter or a switch in the open position. See FieldFox User's Guide for more information.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<bool> Choose from the following:

ON or 1 - Omit the Isolation step.

OFF or 0 - Perform the Isolation step

Examples

```
CORR:COLL:OIS 1
Sense:Correction:Collect:Oisolation off
```

Query Syntax [:SENSe]:CORRection:COLLect:OISolation?

Default ON or 1

Last Modified:

1-Nov-2013	New command

[:SENSe]:CORRection:COLLect:SAVE <num>

(Write-Only) Ends the calibration, computes the error terms, and turns correction ON.

Relevant Modes CAT, NA

To Cal in VVM mode, perform a Cal in CAT or NA mode, then switch to VVM mode.

Parameters

<num> Cal Set to which the Cal is saved. Choose **0**

Examples

```
CORR:COLL:SAVE 0
```

See Cal Examples

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

18-Oct-2012	Reviewed for new models

[:SENSe]:CORRection:DUT:MODe <char>

(Read-Write) Set and query the DUT uncertainty setup values being measured.

See also [:SENSe]:CORRection:DUT:INGamma, [:SENSe]:CORRection:DUT:OUTGamma, [:SENSe]:CORRection:DUT:SPEC, [:SENSe]:CORRection:DUT:DISTribution.

See also, MMEMory:LOAD:DUT and MMEMory:STORe:DUT.

Relevant Modes NF

Parameters

<character> DUT mode uncertainty settings. Choose from:

SPOT- Sets the DUT mode to Spot, where you can customize the DUT uncertainty values.

TABL - Time per point can be set, but other integration SCPIs are not settable.

Examples

```
CORR:DUT:MOD SPOT
CORR:DUT:MOD TABL
```

Query Syntax CORRection:DUT:MODe?

Return Type Character

Default SPOT

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:DUT:SPOT:DISTribution

(Read-Write) Set and query the DUT specified fixed value. This value indicates the nature of the entered value relative to the population of values it represents. (i.e., Fixed, Rayleigh, or Uniform (Uniform in Circle).

Note: Only available when CORR:DUT:MOD is set to SPOT.

See also [:SENSe]:CORRection:DUT:MODe, [:SENSe]:CORRection:DUT:SPOT:INGamma, [:SENSe]:CORRection:DUT:SPOT:OUTGamma, [:SENSe]:CORRection:DUT:SPOT:SPECify.

See also, MMEMory:LOAD:SPOT:DUT and MMEMory:STORe:SPOT:DUT.

Relevant Modes NF

Parameters

<character> DUT Spot mode's distribution value. Choose from:

RAYL - The probability density function (pdf) of the magnitude of the reflection coefficient is a Rayleigh distribution. This is normally the case for specified values when the overall mismatch is due to several interacting impedance transitions within the device.

UNIF - A distribution that was historically used in the industry, before the Rayleigh research, as documented in Keysight Application Note 1449-3, but is rarely accurate. Refer to https://literature.cdn.keysight.com/litweb/pdf/5988-9215EN.pdf.

FIX - The reflection coefficient magnitude is always at the given level. This is often the case when measured values are used.

Examples

```
CORR:DUT:SPOT:DIST FIX
CORR:DUT:SPOT:DIST RAYL
```

Query Syntax CORRection:DUT:SPOT:DIST?

Return Type Character

Default FIX

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:DUT:INGamma

(Read-Write) Set and query the DUT's input 50Ω match, Γ (0.000 to 1.000).

Note: Only available when CORR:DUT:MOD is set to SPOT.

See also [:SENSe]:CORRection:DUT:MODe, [:SENSe]:CORRection:DUT:SPOT:OUTGamma, [:SENSe]:CORRection:DUT:SPOT:SPEC, [:SENSe]:CORRection:DUT:SPOT:DISTribution.

See also, MMEMory:LOAD:SPOT:DUT and MMEMory:STORe:SPOT:DUT.

Relevant Modes NF

Parameters

<numeric> DUT spot mode's input 50Ω match, Γ value. Choose from:
Minimum of 0.000 up to
Maximum of 1

Examples

```
CORR:DUT:SPOT:ING .2
CORR:DUT:SPOT:ING 0.347
```

Query Syntax CORRection:DUT:SPOT:INGamma?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:DUT:SPOT:OUTGamma

(Read-Write) Set and query the DUT's output 50Ω match, Γ (0.000 to 1.000).

Note: Only available when CORR:DUT:MOD is set to SPOT.

See also [:SENSe]:CORRection:DUT:MODe, [:SENSe]:CORRection:DUT:SPOT:NGamma, [:SENSe]:CORRection:DUT:SPOT:SPEC, [:SENSe]:CORRection:DUT:SPOT:DISTribution.

See also, MMEMory:LOAD:SPOT:DUT and MMEMory:STORe:SPOT:DUT.

Relevant Modes NF

Parameters

<numeric> DUT spot mode's, output 50Ω match, Γ value. Choose from:
Minimum of 0.000 up to
Maximum of 1

Examples

```
CORR:DUT:SPOT:OUTG .2
CORR:DUT:SPOT:OUTG 0.347
```

Query Syntax CORRection:DUT:SPOT:OUTGamma?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:DUT:SPOT:SPECify

(Read-Write) Set and query the DUT specified fixed value. This value indicates the nature of the entered value relative to the population of values it represents.

Note: Only available when CORR:DUT:MOD is set to SPOT.

See also [:SENSe]:CORRection:DUT:MODe, [:SENSe]:CORRection:DUT:ISPOT:INGamma, [:SENSe]:CORRection:DUT:SPOT:OUTGamma, [:SENSe]:CORRection:DUT:SPOT:DISTribution.

See also, MMEMory:LOAD:DUT and MMEMory:STORe:DUT.

Relevant Modes NF

Parameters

<character> DUT Spot mode's fixed value. Choose from:

MAX - Use this if this value represents the largest possible reflection coefficient for the population of devices to which the DUT belongs. This is true for "does not exceed" specifications.

PCTL95 - Use this if 95% of the population has a lower reflection coefficient than the value entered. This is the case for "2 standard deviation" (2s) type specifications.

PCTL80 - Use this if 80% of the population has a lower reflection coefficient than the value entered.

MED or **MEAN** - Use this if this value represents the median / mean reflection coefficient for the population of devices to which the DUT belongs.

FIX - Use this if the value is a measured value for the DUT.

Examples

```
CORR:DUT:SPOT:SPEC PCTL95
CORR:DUT:SPOT:SPEC MED
```

Query Syntax CORRection:DUT:SPOT:SPEC?

Return Type Character

Default FIX

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:EXTRapolated?

(Read-Only) Queries the ENR table's extrapolation status (Extrapolation Enabled (1)/ Extrapolation Disabled (0).

Note: The ENR extrapolation status is only relevant when the CORRection:ENR:MODe is set to Table.

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration:RUN, and [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration[:STATe], [:SENSe]:CORRection:USER:INTerpolated?, and [:SENSe]:CORRection:RCALibration[:STATe]?.

Relevant Modes	NF
Parameters	
<not applicable>	
Examples	`n/a`
Query Syntax	CORR:USER:EXTR?
Return Type	**0 (False)** - Extrapolation is disabled **1 (True)** - Extrapolation is enabled
Default	not applicable

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:ENR:MODe <char>

(Read-Write) Set and query the noise source ENR mode setting.

See also [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:UNCertainty, [:SENSe]:CORRection:ENR:ONGamma, [:SENSe]:CORRection:ENR:OFFGamma, [:SENSe]:CORRection:ENR:COVerage, [:SENSe]:CORRection:ENR:SPECify, [:SENSe]:CORRection:ENR:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes	NF
Parameters	
<character>	ENR mode. Choose from: **SPOT**- Sets the ENR mode to Spot, where you can customize the ENR values for your device. **TABL** - Time per point can be set, but other integration SCPIs are not settable.
Examples	`CORR:ENR:MOD SPOT` `CORR:ENR:MOD TABL`
Query Syntax	CORRection:ENR:MODe?
Return Type	Character

Default TAB

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:SPOT:COVerage <char>

(Read-Write) Set and query the value of the ENR uncertainty coverage (1σ, 2σ, or 3σ).

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:SPOT:UNCertainty, [:SENSe]:CORRection:ENR:SPOT:ONGamma, [:SENSe]:CORRection:ENR:SPOT:OFFGamma, [:SENSe]:CORRection:ENR:SPOT:SPECify, [:SENSe]:CORRection:ENR:SPOT:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<character> ENR Spot mode's ENR uncertainty coverage value. Choose from:

SD1 - 1σ (About 68% of the values fall within 1 standard deviation of the mean.)

SD2 - 2σ (About 95% of the values fall within 2 standard deviations of the mean.)

SD3 - 3σ (About 99.7% of the values fall within 3 standard deviations of the mean.)

Examples

```
CORR:ENR:SPOT:COV SD1
CORR:ENR:SPOT:COV SD3
```

Query Syntax CORRection:ENR:SPOT:COV?

Return Type Character

Default SD2

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:DISTribution <char>

(Read-Write) Set and query the ENR specified fixed value. This value indicates the nature of the entered value relative to the population of values it represents. (i.e., Fixed, Rayleigh, or Uniform (Uniform in Circle).

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:UNCertainty, [:SENSe]:CORRection:ENR:ONGamma,

[:SENSe]:CORRection:ENR:OFFGamma, [:SENSe]:CORRection:ENR:COVerage, [:SENSe]:CORRection:ENR:SPECify, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<character> ENR Spot mode's distribution value. Choose from:

RAYL - The probability density function (pdf) of the magnitude of the reflection coefficient is a Rayleigh distribution. This is normally the case for specified values when the overall mismatch is due to several interacting impedance transitions within the device.

UNIF - A distribution that was historically used in the industry, before the Rayleigh research, as documented in Keysight Application Note 1449-3, but is rarely accurate. Refer to https://literature.cdn.keysight.com/litweb/pdf/5988-9215EN.pdf.

FIX - The reflection coefficient magnitude is always at the given level. This is often the case when measured values are used.

Examples

```
CORR:ENR:DIST FIX
CORR:ENR:DIST RAYL
```

Query Syntax CORRection:ENR:DIST?

Return Type Character

Default FIX

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:SPOT:ENR <num>

(Read-Write) Set and query the ENR Spot value in dB.

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:UNCertainty, [:SENSe]:CORRection:ENR:SPOT:ONGamma, [:SENSe]:CORRection:ENR:SPOT:OFFGamma, [:SENSe]:CORRection:ENR:SPOT:COVerage, [:SENSe]:CORRection:ENR:SPOT:SPECify, [:SENSe]:CORRection:ENR:SPOT:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<numeric> ENR Spot mode. Choose from:

Minimum of -100 dB up to

Maximum of 100 dB

Examples

```
CORR:ENR:SPOT:ENR 20
CORR:ENR:SPOT:ENR -10.507
```

Query Syntax CORRection:ENR:SPOT:ENR?

Return Type Numeric

Default 1.5000+01

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:SPOT:OFF:Gamma <num>

(Read-Write) Set and query the Off value (cold) of the ENR spot value's 50Ω match, Γ (0.000 to 1.000).

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:SPOT:UNCertainty, [:SENSe]:CORRection:ENR:SPOT:ONGamma, [:SENSe]:CORRection:ENR:SPOT:COVerage, [:SENSe]:CORRection:ENR:SPOT:SPECify, [:SENSe]:CORRection:ENR:SPOT:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<numeric> ENR Spot mode's 50Ω match, Γ Off value (cold). Choose from:
Minimum of 0.000 up to
Maximum of 1

Examples

```
CORR:ENR:SPOT:OFFG .2
CORR:ENR:SPOT:OFFG 0.347
```

Query Syntax CORRection:ENR:SPOT:OFFGamma?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:SPOT:ONGamma <num>

(Read-Write) Set and query the On value (hot) of the ENR spot value's 50Ω match, Γ (0.000 to 1.000).

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:SPOT:UNCertainty, [:SENSe]:CORRection:ENR:SPOT:OFFGamma, [:SENSe]:CORRection:ENR:SPOT:COVerage, [:SENSe]:CORRection:ENR:SPOT:SPECify, [:SENSe]:CORRection:ENR:SPOT:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<numeric> ENR Spot mode's 50Ω match, Γ On value (hot). Choose from:
Minimum of 0.000 up to
Maximum of 1

Examples

```
CORR:ENR:SPOT:ONG .2
CORR:ENR:SPOT:ONG 0.347
```

Query Syntax CORRection:ENR:SPOT:ONGamma?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:SPOT:SPEC <char>

(Read-Write) Set and query the ENR specified fixed value. This value indicates the nature of the entered value relative to the population of values it represents.

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:SPOT:UNCertainty, [:SENSe]:CORRection:ENR:SPOT:ONGamma, [:SENSe]:CORRection:ENR:SPOT:OFFGamma, [:SENSe]:CORRection:ENR:SPOT:COVerage, [:SENSe]:CORRection:ENR:SPOT:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<character> ENR Spot mode's fixed value. Choose from:

MAX - Use this if this value represents the largest possible reflection coefficient for the population of devices to which the DUT belongs. This is true for "does not exceed" specifications.

PCTL95 - Use this if 95% of the population has a lower reflection coefficient than the value entered. This is the case for "2 standard deviation" (2s) type

specifications.

PCTL80 - Use this if 80% of the population has a lower reflection coefficient than the value entered.

MED or **MEAN** - Use this if this value represents the median / mean reflection coefficient for the population of devices to which the DUT belongs.

FIX - Use this if the value is a measured value for the DUT.

Examples

```
CORR:ENR:SPOT:SPEC PCTL80
CORR:ENR:SPOT:SPEC MED
```

Query Syntax CORRection:ENR:SPOT:SPEC?

Return Type Character

Default FIX

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:ENR:SPOT:UNCertainty <num>

(Read-Write) Set and query the spot value ENR uncertainty value in dB.

Note: Only available when CORR:ENR:MOD is set to SPOT.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:SPOT:ONGamma, [:SENSe]:CORRection:ENR:OFF:SPOT:Gamma, [:SENSe]:CORRection:ENR:SPOT:COVerage, [:SENSe]:CORRection:ENR:SPOT:SPECify, [:SENSe]:CORRection:ENR:SPOT:DISTribution, and [:SENSe]:CORRection:TCOLd.

Relevant Modes NF

Parameters

<numeric> ENR Spot mode's uncertainty value. Choose from:

Minimum of -100 dB up to

Maximum of 100 dB

Examples

```
CORR:ENR:SPOT:UNC 20
CORR:ENR:SPOT:UNC -10.507
```

Query Syntax CORRection:ENR:SPOT:UNCertainty?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:EXTension:PORT1 <num>

(Read-Write) Set and query the port extension value on port 1.
Use [:SENSe]:CORRection:EXTension[:STATe] to turn port extensions ON and OFF.
Use [:SENSe]:CORRection:RVELocity:COAX to set velocity factor.

Relevant Modes	CAT, NA
Parameters	
<bool>	Port extension in seconds. Choose a value between -10.0 to +10.0.
Examples	`CORR:EXT:PORT1 1e-10`
Query Syntax	[:SENSe]:CORRection:EXTension:PORT1?
Return Type	Numeric
Default	0

Last Modified:

10-Aug-2010	New command (5.30)

[:SENSe]:CORRection:EXTension:PORT2 <num>

(Read-Write) Set and query the port extension value on port 2.
Use [:SENSe]:CORRection:EXTension[:STATe] to turn port extensions ON and OFF.
Use [:SENSe]:CORRection:RVELocity:COAX to set velocity factor.

Relevant Modes	CAT, NA
Parameters	
<bool>	Port extension in seconds. Choose a value between -10.0 to +10.0.
Examples	`CORR:EXT:PORT2 1e-10`
Query Syntax	[:SENSe]:CORRection:EXTension:PORT2?
Return Type	Numeric
Default	0

Last Modified:

10-Aug-2010	New command (5.30)

[:SENSe]:CORRection:EXTension[:STATe] <bool>

(Read-Write) Set and query the port extension ON | OFF state.
Use [:SENSe]:CORRection:EXTension:PORT1 and [:SENSe]:CORRection:EXTension:PORT2 to set port extensions value.

Use [:SENSe]:CORRection:RVELocity:COAX to set velocity factor.

Relevant Modes CAT, NA

Parameters

<bool> Port extensions state. Choose from:
0 or **OFF** - Port extensions OFF
1 or **ON -** Port extensions ON

Examples
```
CORR:EXT 1
```

Query Syntax [:SENSe]:CORRection:EXTension[:STATe]?

Return Type Boolean

Default OFF

Last Modified:

10-Aug-2010 New command (5.30)

[:SENSe]:CORRection:GAIN2[:INPut][:MAGNitude] <num>

(Read-Write) Set and query the Power Meter Offset value.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<bool> Offset value in dB. A positive value compensates for a component with loss. A negative value compensates for a component with gain.

Examples
```
CORR:GAIN2 3
```

Query Syntax [:SENSe]:CORRection:GAIN2?

Return Type Numeric

Default 0

Last modified:

1-Apr-2014 Added CPM

31-Oct-2013 Added Pulse

[:SENSe]:CORRection:GAIN2:STATe <bool>

(Read-Write) Set and query the ON | Off state of Power Meter Offset.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<bool> Offset state. Choose from:
0 or **OFF** - Offset OFF
1 or **ON -** Offset ON

Examples
```
CORR:GAIN2:STAT 1
```

Query Syntax [:SENSe]:CORRection:GAIN2:STATe?

Return Type Boolean

Default 0

Last modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude] <num>

(Read-Write) Set and query the system impedance.

Relevant Modes NA

Parameters

<num> System impedance. Choose either 50 or 75.

Examples
```
CORR:IMP 75
```

Query Syntax [:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]?

Return Type Numeric

Default 50

[:SENSe]:CORRection:LOSS:AFTer:ENABled <bool>

(Read-Write) Set and query the enable/disable state of the noise figure correction loss after the DUT. Use CORRection:LOSS:AFTer to set the correction loss level after the DUT (DUT Out).

Relevant Modes NF

Parameters

<bool> Enable/Disable the DUT Out state. Choose from:
ON (or 1) - The correction loss value stated using the CORRection:LOSS:AFTer command.
OFF (or 0) -The correction loss after the DUT is disabled.

Examples
```
:CORR:LOSS:AFT:ENAB 1
correction:loss:after:enabled off
```

Query Syntax :CORRection:LOSS:AFTer:ENABled?

Return Type Boolean

Default OFF

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:LOSS:AFTer[:VALue] <double>

(Read-Write) Set and query the amount of noise figure correction loss after the DUT input.

Use CORRection:LOSS:AFTer:ENABled to set the correction loss level after the DUT input.

Relevant Modes NF

Parameters

<double> Set the amount of noise figure loss correction after the DUT input. Choose from:

-100 to 100 dB - The correction loss value stated using the CORRection:LOSS:AFTer:ENABled command.

0.00 dB - Default

Examples

```
:CORR:LOSS:AFT -15.55
```

Query Syntax :CORRection:LOSS:AFTer?

Return Type Double

Default OFF

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:LOSS:BEFore:ENABled <bool>

(Read-Write) Set and query the enable/disable state of the noise figure correction loss before the DUT (DUT In).

Use CORRection:LOSS:BEFore[:VALue] to set the correction loss level before the DUT (DUT In).

Relevant Modes NF

Parameters

<bool> Enable/Disable the DUT In state. Choose from:

ON (or 1) - The correction loss value stated using the CORRection:LOSS:BEFore[:VALue] command.

OFF (or 0) -The correction loss before the DUT (DUT In) is disabled.

Examples

```
:CORR:LOSS:BEF:ENABL 1
  off
```

Query Syntax :CORRection:LOSS:BEFore:ENABled?

Return Type Boolean

Default OFF

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:LOSS:BEFore[:VALue] <double>

(Read-Write) Set and query the amount of noise figure correction loss before the DUT input.

Use CORRection:LOSS:BEFore:ENABled to set the correction loss level before the DUT input.

Relevant Modes NF

Parameters

<double> Set the amount of noise figure loss correction before the DUT input. Choose from:

-100 to 100 dB - The correction loss value stated using the CORRection:LOSS:BEFore:ENABled command.

0.00 dB - Default

Examples

```
:CORR:LOSS:BEF -15.55
```

Query Syntax :CORRection:LOSS:BEFore?

Return Type Double

Default OFF

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:LOSS:COAX <num>

(Read-Write) Set and query the electrical loss of transmission cable to be used with DTF measurements.

Relevant Modes CAT

Parameters

<num> Loss in dB.

Examples
```
CORR:LOSS:COAX .5
```

Query Syntax [:SENSe]:CORRection:LOSS:COAX?

Return Type Numeric

Default 0

[:SENSe]:CORRection:LOSS:WAVeguide

Type topic text here.

[:SENSe]:CORRection:MEDium <char>

(Write-Read) Set and query the calibration media type.

If the measurement requires electrical delay or port extensions, available ONLY in NA Mode, you must specify the waveguide Media Type and Cutoff Frequency. These settings are needed to help specify dispersion. They are NOT used if electrical delay and port extensions are both zero.

Relevant Modes NA, CAT

Parameters

<bool> Media type. Choose from the following:

COAX - Calibration standards are coaxial.

WAVeguide - Calibration standards are waveguide.

Examples
```
CORR:MED WAV
Sense:Correction:Medium Waveguide
See Cal examples
```

Query Syntax [:SENSe]:CORRection:MEDium?

Default COAX

Last Modified:

1-Nov-2013	New command

[:SENSe]:CORRection:PAMPLifier:MODe <char>

(Read-Write) Set and query the Preamplifier uncertainty setup values being measured.

See also [:SENSe]:CORRection:PAMPLifier:INGamma, [:SENSe]:CORRection:PAMPLifier:OUTGamma, [:SENSe]:CORRection:PAMPLifier:SPEC, [:SENSe]:CORRection:PAMPLifier:DISTribution.

See also, MMEMory:LOAD:PAMPLifier and MMEMory:STORe:PAMPLifier.

Relevant Modes NF

Parameters

<character>	Preamplifier mode uncertainty settings. Choose from: **SPOT**- Sets the Preamplifier mode to Spot, where you can customize the ENR values for your device. **TABL** - Time per point can be set, but other integration SCPIs are not settable.
Examples	**CORR:PAMPL:MOD SPOT** **CORR:PAMPL:MOD TABL**
Query Syntax	CORRection:PAMPL:MODe?
Return Type	Character
Default	SPOT

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:PAMPLifier:SPOT:DISTribution <char>

(Read-Write) Set and query the preamplifier specified fixed value. This value indicates the nature of the entered value relative to the population of values it represents. (i.e., Fixed, Rayleigh, or Uniform (Uniform in Circle).

Note: Only available when CORR:PAMP:MOD is set to SPOT.

See also [:SENSe]:CORRection:PAMPLifier:SPOT:INGamma, [:SENSe]:CORRection:PAMPLifier:SPOT:OUTGamma, [:SENSe]:CORRection:PAMPLifier:MODe, [:SENSe]:CORRection:PAMPLifier:SPOT:SPEC.

See also, MMEMory:LOAD:PAMPLifier and MMEMory:STORe:PAMPLifier.

Relevant Modes	NF
Parameters	
<character>	Preamplifier Spot mode's distribution value. Choose from: **RAYL** - The probability density function (pdf) of the magnitude of the reflection coefficient is a Rayleigh distribution. This is normally the case for specified values when the overall mismatch is due to several interacting impedance transitions within the device. **UNIF** - A distribution that was historically used in the industry, before the Rayleigh research, as documented in Keysight Application Note 1449-3, but is rarely accurate. Refer to https://literature.cdn.keysight.com/litweb/pdf/5988-9215EN.pdf. **FIX** - The reflection coefficient magnitude is always at the given level. This is often the case when measured values are used.
Examples	**CORR:PAMP:SPOT:DIST FIX** **CORR:PAMP:SPOT:DIST RAYL**
Query Syntax	CORRection:PAMP:SPOT:DIST?

Return Type Character

Default FIX

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:PAMPLifier:SPOT:INGamma <num>

(Read-Write) Set and query the preamplifier's input 50Ω match, Γ (0.000 to 1.000).

Note: Only available when CORR:PAMP:MOD is set to SPOT.

See also [:SENSe]:CORRection:PAMPLifier:MODe, [:SENSe]:CORRection:PAMPLifier:SPOT:OUTGamma, [:SENSe]:CORRection:PAMPLifier:SPOT:SPEC, [:SENSe]:CORRection:PAMPLifier:SPOT:DISTribution.

See also, MMEMory:LOAD:PAMPLifier and MMEMory:STORe:PAMPLifier.

Relevant Modes NF

Parameters

<numeric> Preamplifier spot mode's input 50Ω match, Γ value. Choose from:
Minimum of 0.000 up to
Maximum of 1

Examples

```
CORR:PAMP:SPOT:ING .2
CORR:PAMP:SPOT:ING 0.347
```

Query Syntax CORRection:PAMP:SPOT:INGamma?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:PAMPLifier:SPOT:OUTGamma <num>

(Read-Write) Set and query the preamplifier's output 50Ω match, Γ (0.000 to 1.000).

Note: Only available when CORR:PAMP:MOD is set to SPOT.

See also [:SENSe]:CORRection:PAMPLifier:SPOT:INGamma, [:SENSe]:CORRection:PAMPLifier:MODe, [:SENSe]:CORRection:PAMPLifier:SPOT:SPEC, [:SENSe]:CORRection:PAMPLifier:SPOT:DISTribution.

See also, MMEMory:LOAD:PAMPLifier and MMEMory:STORe:PAMPLifier.

Relevant Modes NF

Parameters

<numeric> Preamplifier spot mode's, output 50Ω match, Γ value. Choose from:
Minimum of 0.000 up to
Maximum of 1

Examples

```
CORR:PAMP:SPOT:OUTG .2
CORR:PAMP:SPOT:OUTG 0.347
```

Query Syntax CORRection:PAMP:SPOT:OUTGamma?

Return Type Numeric

Default 0.000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:PAMPLifier:SPOT:SPEC <char>

(Read-Write) Set and query the preamplifier's specified fixed value. This value indicates the nature of the entered value relative to the population of values it represents.

Note: Only available when CORR:PAMP:MOD is set to SPOT.

See also [:SENSe]:CORRection:AMPLifier:SPOT:INGamma, [:SENSe]:CORRection:PAMPLifier:SPOT:OUTGamma, [:SENSe]:CORRection:PAMPLifier:MODe, [:SENSe]:CORRection:PAMPLifier:SPOT:DISTribution.

See also, MMEMory:LOAD:PAMPLifier and MMEMory:STORe:PAMPLifier.

Relevant Modes NF

Parameters

<character> Preamplifier Spot mode's fixed value. Choose from:

MAX - Use this if this value represents the largest possible reflection coefficient for the population of devices to which the preamplifier belongs. This is true for "does not exceed" specifications.

PCTL95 - Use this if 95% of the population has a lower reflection coefficient than the value entered. This is the case for "2 standard deviation" (2s) type specifications.

PCTL80 - Use this if 80% of the population has a lower reflection coefficient than the value entered.

MED or **MEAN** - Use this if this value represents the median / mean reflection coefficient for the population of devices to which the preamplifier belongs.

FIX - Use this if the value is a measured value for the preamplifier.

Examples

```
CORR:AMP:SPOT:SPEC PCTL95
CORR:AMP:SPOT:SPEC MED
```

Query Syntax CORRection:AMP:SPOT:SPEC?

Return Type Character

Default FIX

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:RCALibration:CANCel

(Write-Only) Cancels the receiver calibration.

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration:RUN, [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:UCALibration[:STATe], [:SENSe]:CORRection:UCALibration:INTerpolated?, [:SENSe]:CORRection:ENR:EXTRapolated?, and [:SENSe]:CORRection:RCALibration[:STATe]?.

Note: You can use the IEEE command *.OPC? to query the status of your calibrations.

Relevant Modes NF

Parameters

<not applicable>

Examples

```
CORR:RCAL:CANC 'Cancels the receiver calibration, when a SCPI is used to run the Receiver calibration.
```

Query Syntax no query

Return Type not applicable

Default not applicable

Last Modified:

01-june-2018 Added Opt. 356 NF (10.3)

[:SENSe]:CORRection:RCALibration:RUN

(Write-Only) Runs the receiver calibration.

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration[:STATe], [:SENSe]:CORRection:ENR:EXTRapolated?, [:SENSe]:CORRection:UCALibration:INTerpolated?, and

[:SENSe]:CORRection:RCAlibration[:STATe]?.

Note: You can use the IEEE command *.OPC? to query the status of your calibrations.

Relevant Modes NF

Parameters

<not applicable>

Examples

```
CORR:RCAL:RUN 'Runs the user calibration
```

Query Syntax no query

Return Type not applicable

Default not applicable

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:RCALibration[:STATe]?

(Read-Only) Queries the receiver calibration's status (Enabled (1)/Disabled (0).

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration:RUN, [:SENSe]:CORRection:UCALibration[:STATe], [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration:INTerpolated?, and [:SENSe]:CORRection:ENR:EXTRapolated?.

Relevant Modes NF

Parameters

<not applicable>

Examples

```
n/a
```

Query Syntax CORR:RCAL?

Return Type **0 (False)** - Receiver calibration is disabled
1 (True) - Receiver calibration is enabled

Default not applicable

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:RVELocity:COAX <num>

(Read-Write) Set and query the velocity factor to be used with DTF measurements (CAT mode) and with Port Extensions (NA mode).

Relevant Modes CAT, NA

Parameters

<num> Velocity factor. Choose a number between **0** and **1**
.66 = polyethylene dielectric
.7= PTFE dielectric

Examples `CORR:RVEL:COAX .7`

Query Syntax [:SENSe]: CORRection:RVELocity:COAX?

Return Type Numeric

Default 1

Last Modified:

27-Apr-2012	Edited for PTFE
10-Aug-2010	New command for NA mode (5.30)

[:SENSe]:CORRection[:STATe] <bool>

(Read-Write) Set and query the correction ON | OFF state.
This will turn ALL calibration OFF, including "Cal Ready". This can NOT be done from the user-interface.
See also [:SENSe]:CORRection:USER[:STATe]

Relevant Modes CAT, NA

Parameters

<bool> Correction state. Choose from:
0 or **OFF** - Error Correction OFF
1 or **ON -** Error Correction ON

Examples CORR 1

Query Syntax [:SENSe]:CORRection[:STATe]?

Return Type Boolean

Default ON

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:TCOLd <num>

(Read-Write) Set and query the ENR temperature (cold). All temperature values Centigrade and Fahrenheit are converted to Kelvin.

See also [:SENSe]:CORRection:ENR:MODe, [:SENSe]:CORRection:ENR:SPOT:ENR, [:SENSe]:CORRection:ENR:UNCertainty, [:SENSe]:CORRection:ENR:ONGamma, [:SENSe]:CORRection:ENR:COVerage, [:SENSe]:CORRection:ENR:SPECify, [:SENSe]:CORRection:ENR:DISTribution, and [:SENSe]:CORRection:ENR:OFFGamma.

Relevant Modes NF

Parameters

<numeric> ENR tempearture (cold). Choose from:
Minimum of 0.000 up to
Maximum of 2.965 MK

Examples

```
CORR:TCOL .2
CORR:TCOL 0.347
```

Query Syntax CORRection:TCOLd?

Return Type Numeric

Default 2.9650E+02

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:UCALibration:CANCel

(Write-Only) Cancels the user calibration.

See also, [:SENSe]:CORRection:UCALibration:RUN, [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration:INTerpolated?, [:SENSe]:CORRection:ENR:EXTRapolated?, [:SENSe]:CORRection:UCALibration[:STATe], and [:SENSe]:CORRection:RCALibration[:STATe]?.

Note: You can use the IEEE command *.OPC? to query the status of your calibrations.

Relevant Modes NF

Parameters

<not applicable>

Examples

```
CORR:UCAL:CALC 'Cancels the user calibration, when a SCPI
is used to run the User calibration.
```

Query Syntax no query

Return Type not applicable

Default not applicable

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:UCALibration:INTerpolated?

(Read-Only) Queries the user calibration's interpolation status (Interpolation Enabled (1)/ Interpolation Disabled (0).

Note: The User Cal interpolation is only relevant when a User Cal is applied.

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration:RUN, [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration[:STATe], [:SENSe]:CORRection:ENR:EXTRapolated?, and [:SENSe]:CORRection:RCALibration[:STATe]?.

Relevant Modes NF

Parameters

<not applicable>

Examples

```
n/a
```

Query Syntax CORR:UCAL:INT?

Return Type **0 (False)** - Interpolation is disabled
1 (True) - Interpolation is enabled

Default not applicable

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:UCALibration:RUN

(Write-Only) Runs the user calibration.

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration[:STATe], [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration:INTerpolated?, [:SENSe]:CORRection:ENR:EXTRapolated?, and [:SENSe]:CORRection:RCALibration[:STATe]?.

Note: You can use the IEEE command *.OPC? to query the status of your calibrations.

Relevant Modes NF

Parameters

<not applicable>

Examples

```
CORR:UCAL:RUN 'Runs the user calibration
```

Query Syntax no query

Return Type not applicable

Default not applicable

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:CORRection:UCALibration[:STATe] <bool>

(Read-Write) Set and query the Apply User Calibration (correction) ON | OFF state.

See also, [:SENSe]:CORRection:UCALibration:CANCel, [:SENSe]:CORRection:UCALibration:RUN, and [:SENSe]:CORRection:RCALibration:RUN, [:SENSe]:CORRection:RCALibration:CANCel, [:SENSe]:CORRection:UCALibration:INTerpolated?, [:SENSe]:CORRection:ENR:EXTRapolated?, and [:SENSe]:CORRection:RCALibration[:STATe]?.

Relevant Modes NF

Parameters

<bool> User calibration state. Choose from:

0 or **OFF** - User calibration OFF (do not apply)

1 or **ON -** User calibration ON (do not apply)

Examples

```
CORR:UCAL 1
```

Query Syntax [:SENSe]:CORRection:UCALibration[:STATe]?

Return Type Boolean

Default On after calibration

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3) and new command

[:SENSe]:CORRection:UNCertainty:BARS

(Read-Write) Set and query the uncertainty bars ON | OFF state.

See also, [:SENSe]:CORRection:UNCertainty:JITTer, [:SENSe]:CORRection:UNCertainty:MISMatch, [:SENSe]:CORRection:UNCertainty:ENR, [:SENSe]:CORRection:UNCertainty:COVerage, and [:SENSe]:CORRection:UNCertainty:CALibration

For trace-related uncertainty commands, refer to CALCulate:[SELected]TRACe:UNCertainty:DATA?, CALCulate:[SELected]:TRACe:UNCertainty:UPPer:DATA?, and CALCulate:[SELected]:TRACe:UNCertainty:LOWer:DATA?.

Relevant Modes NF

Parameters

<bool> Uncertainty bars state. Choose from:

0 or **OFF** - Uncertainty bars OFF

1 or **ON -** Uncertainty bars ON

Examples

```
CORR:UNC:BARS 1
```

Query Syntax [:SENSe]:CORRection:UNCertainty:BARS?

Return Type Boolean

Default Off (0)

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:UNCertainty:CALibration <bool>

(Read-Write) Set and query the user calibration uncertainty ON | OFF state.

See also, [:SENSe]:CORRection:UNCertainty:JITTer, [:SENSe]:CORRection:UNCertainty:MISMatch, [:SENSe]:CORRection:UNCertainty:ENR, [:SENSe]:CORRection:UNCertainty:COVerage, and [:SENSe]:CORRection:UNCertainty:BARS

For trace-related uncertainty commands, refer to CALCulate:[SELected]TRACe:UNCertainty:DATA?, CALCulate:[SELected]:TRACe:UNCertainty:UPPer:DATA?, and CALCulate:[SELected]:TRACe:UNCertainty:LOWer:DATA?.

Relevant Modes NF

Parameters

<bool> User calibration uncertainty state. Choose from:

0 or **OFF** - User calibration uncertainty OFF

1 or **ON -** User calibration uncertainty ON

Examples

```
CORR:UNC:CALC ON 'Can only be enabled when a user
calibration has been completed
```

Query Syntax [:SENSe]:CORRection:UNCertainty:CALibration?

Return Type Boolean

Default Off (0)

Last Modified:

18-Oct-2012	Edited for new models

[:SENSe]:CORRection:UNCertainty:COVerage <char>

(Read-Write) Set and query the value of the current settings uncertainty contributions coverage (1σ, 2σ, or 3σ).

See also, [:SENSe]:CORRection:UNCertainty:JITTer, [:SENSe]:CORRection:UNCertainty:MISMatch, [:SENSe]:CORRection:UNCertainty:ENR, [:SENSe]:CORRection:UNCertainty:CALibration, and [:SENSe]:CORRection:UNCertainty:BARS

For trace-related uncertainty commands, refer to CALCulate:[SELected]TRACe:UNCertainty:DATA?, CALCulate:[SELected]:TRACe:UNCertainty:UPPer:DATA?, and CALCulate:[SELected]:TRACe:UNCertainty:LOWer:DATA?.

Relevant Modes NF

Parameters

<character> Current settings uncertainty coverage value. Choose from:

SD1 - 1σ (About 68% of the values fall within 1 standard deviation of the mean.)

SD2 - 2σ (About 95% of the values fall within 2 standard deviations of the mean.)

SD3 - 3σ (About 99.7% of the values fall within 3 standard deviations of the mean.)

Examples

```
CORR:UNC:COV SD1
CORR:UNC:COV SD3
```

Query Syntax CORRection:UNC:COV?

Return Type Character

Default SD2

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:UNCertainty:ENR<bool>

(Read-Write) Set and query the ENR source uncertainty ON | OFF state.

See also, [:SENSe]:CORRection:UNCertainty:JITTer, [:SENSe]:CORRection:UNCertainty:MISMatch, [:SENSe]:CORRection:UNCertainty:CALibration, [:SENSe]:CORRection:UNCertainty:COVerage, and [:SENSe]:CORRection:UNCertainty:BARS

For trace-related uncertainty commands, refer to CALCulate:[SELected]TRACe:UNCertainty:DATA?, CALCulate:[SELected]:TRACe:UNCertainty:UPPer:DATA?, and CALCulate:[SELected]:TRACe:UNCertainty:LOWer:DATA?.

Relevant Modes NF

Parameters

<bool> ENR source uncertainty state. Choose from:

0 or **OFF** - Source uncertainty OFF

1 or **ON -** Source uncertainty ON

Examples
```
CORR:UNC:ENR 0
```

Query Syntax [:SENSe]:CORRection:UNCertainty:ENR?

Return Type Boolean

Default On (1)

Last Modified:

18-Oct-2012 Edited for new models

[:SENSe]:CORRection:UNCertainty:JITTer <bool>

(Read-Write) Set and query the jitter uncertainty ON | OFF state.

See also, [:SENSe]:CORRection:UNCertainty:ENR, [:SENSe]:CORRection:UNCertainty:MISMatch, [:SENSe]:CORRection:UNCertainty:CALibration, [:SENSe]:CORRection:UNCertainty:COVerage, and [:SENSe]:CORRection:UNCertainty:BARS

For trace-related uncertainty commands, refer to CALCulate:[SELected]TRACe:UNCertainty:DATA?, CALCulate:[SELected]:TRACe:UNCertainty:UPPer:DATA?, and CALCulate:[SELected]:TRACe:UNCertainty:LOWer:DATA?.

Relevant Modes NF

Parameters

<bool> Jitter uncertainty state. Choose from:

0 or **OFF** - Jitter OFF

1 or **ON -** Jitter uncertainty ON

Examples
```
CORR:UNC:JITT 0
```

Query Syntax [:SENSe]:CORRection:UNCertainty:JITTer?

Return Type Boolean

Default On (1)

Last Modified:

18-Oct-2012 Edited for new models

[:SENSe]:CORRection:UNCertainty:MISMatch <bool>

(Read-Write) Set and query the mismatch uncertainty ON | OFF state.

See also, [:SENSe]:CORRection:UNCertainty:JITTer, [:SENSe]:CORRection:UNCertainty:ENR, [:SENSe]:CORRection:UNCertainty:CALibration, [:SENSe]:CORRection:UNCertainty:COVerage, and [:SENSe]:CORRection:UNCertainty:BARS

For trace-related uncertainty commands, refer to CALCulate:[SELected]TRACe:UNCertainty:DATA?, CALCulate:[SELected]:TRACe:UNCertainty:UPPer:DATA?, and

CALCulate:[SELected]:TRACe:UNCertainty:LOWer:DATA?.

Relevant Modes NF

Parameters

<bool> Mismatch uncertainty state. Choose from:
0 or **OFF** - Mismatch uncertainty OFF
1 or **ON -** Mismatch uncertainty ON

Examples
```
CORR:UNC:MISM 0
```

Query Syntax [:SENSe]:CORRection:UNCertainty:MISMatch?

Return Type Boolean

Default On (1)

Last Modified:

18-Oct-2012 Edited for new models

[:SENSe]:CORRection:UNCertainty:QUEStionable?

(Read-Only) Reads the status of the uncertainty questionable state (1 or 0).

Relevant Modes NF

Examples
```
CORR:UNC:QUES?
```

Return Type Numeric:
0 (False) - The sweep uncertainty values are valid (not questionable)
1 (True) - The sweep uncertainty values are questionable

Default Not Applicable

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:CORRection:WAVeguide:STANdard <char>

(Read-Write) Set and query the waveguide standard to use for the measurement. See also [:SENSe]:CORRection:MEDium.

Relevant Modes CAT

Parameters

<char> Waveguide standard. Choose from:

USER - A predefined user standard.
WR137
WR90
WR42
WR112

Examples `CORR:WAV:STAN WR137`

Query Syntax [:SENSe]:CORRection:WAVeguide:STANdard?

Return Type Character

Default FieldFox model dependent.

Last Modified:

25-Mar-2014 New command

[:SENSe]:CORRection:USER[:STATe] <bool>

(Read-Write) Set and query the User Calibration (correction) ON | OFF state.

N9912A - This includes Preset Cal correction.

All other models - This does NOT include "Cal Ready" correction, which can ONLY be turned OFF using [:SENSe]:CORRection[:STATe].

Relevant Modes CAT, NA

Parameters

<bool> User calibration state. Choose from:
0 or **OFF** - User calibration OFF
1 or **ON -** User calibration ON

Examples `CORR 1`

Query Syntax [:SENSe]:CORRection:USER[:STATe]?

Return Type Boolean

Default On after calibration

Last Modified:

18-Oct-2012 Edited for new models

[:SENSe]:CORRection:WGCutoff <num>

(Read-Write) Set and query the waveguide cutoff frequency. This is the minimum frequency of the waveguide. See also [:SENSe]:CORRection:MEDium

Relevant Modes NA, CAT

Parameters

<num> Waveguide cutoff frequency in Hz. The value is usually on the data sheet of the Waveguide Cal Kit.

Examples `CORR:WGC 100e6`

Query Syntax [:SENSe]:CORRection:WGCutoff?

Return Type Numeric

Default 18 GHz

Last Modified:

1-Nov-2013 New command

[:SENSe]:CORRection:ZERO:REFerence <char>

(Read-Write) Set and query the reference to use when zero is performed.

Relevant Modes VVM

Parameters

<char> VVM Zero reference. Choose from:
OPEN - Display Phase = 0.0 Deg when zeroed.
SHORt - Display Phase = 180.0 Deg when zeroed

Examples `CORR:ZERO:REF SHOR`

Query Syntax [:SENSe]:CORRection:ZERO:REFerence?

Return Type Character

Default OPEN

Last Modified:

22-Sept-2014 New command

[:SENSe]:CORRection:ZERO:STATe <char>

(Read-Write) Set and query the Zero State of a VVM measurement.

Relevant Modes VVM

Parameters

<char> VVM Zero state. Choose from:
OFF - Set Zeroing OFF
ON - Zero the measurement

Examples CORR:ZERO:STAT OFF

Query Syntax [:SENSe]:CORRection:ZERO:STATe?

Return Type Character

Default OFF

[:SENSe]:DIF:BANDwidth <num>

(Read-Write) Set and query the digital IF bandwidth of the instrument. This parameter is closely related to the sample rate.

Relevant Modes IQA

Parameters

<numeric> Minimum: 1
Maximum: 10000000

Examples

```
DIF:BAND 1000
DIF:BAND 5 kHz
DIF:BAND 5e3
```

Query Syntax :DIF:BAND?

Return Type numeric

Default 10000000

Last Modified:

22oct2017 New IQA command (A.10.1x)

[:SENSe]:DENSity:BPLevel

(Read-Write) Set and query the Blue Limit percent of the RTSA Mode Density trace display state.

Relevant Modes RTSA

Parameters

<num> Set the Blue limit percentage to a value between 0.05 and 100.
If you attempt to set the limit below 0.05, the instrument's blue limit will be set to 0.05 percent.

Examples

```
DENS:BPL 10  'Sets the blue limit percent to 10 percent.
DENS:BPL .05  'Sets the blue limit to its minimum (default) percent of 0.05.
```

Query Syntax DENS:BPL?

Return Type num

Default 5.0E-02

Last Modified:

19-sep-2016 Added new cmd for RTSA mode (A.09.50).

[:SENSe]:DENSity:RPLevel

(Read-Write) Set and query the red Limit percent of the RTSA Mode Density trace display state.

Relevant Modes RTSA

Parameters

<num> Set the red limit percentage to a value between 0.05 and 100.

If you attempt to set the limit below 0.05, the instrument's red limit will be set to 0.05 percent.

Examples

```
DENS:RPL 10  'Sets the red limit percent to 10 percent.
DENS:RPL .05  'Sets the red limit to its minimum (default) percent of 0.05.
```

Query Syntax DENS RPL?

Return Type num

Default 1.00E+02

Last Modified:

19-sep-2016 Added new cmd for RTSA mode (A.09.50).

[:SENSe]:DETector:FUNCtion <char>

(Read-Write) Set and query the SA detector function.

Relevant Modes SA

Parameters

<bool> Choose from:

AUTO
NORMal
POSitive
NEGative
SAMPle

AVERage

Examples `DET:FUNC POS`

Query Syntax [:SENSe]:DETector:FUNCtion?

Return Type Character

Default AUTO

[:SENSe]:DETector:TRACe{1:4}:FUNCtion

(Read-Write) Set and query the RTSA detector and trace (1:4) function.

Relevant Modes RTSA

Parameters

<bool> Choose from:
AUTO
NORMal
POSitive
NEGative
SAMPle
AVERage - (RMS Average)

Examples `DET:TRAC2:FUNC POS`

Query Syntax [:SENSe]:DETector:TRACe:FUNCtion?

Return Type Character

Default AUTO

Last Modified:

19-sep-2016 Added new command for RTSA (A.09.50).

[SENSe]:DUT:SIDEband <char>

(Read-Write) Set and query the sideband of the displayed trace.
See DUT setting commands for NF mode.

Relevant Modes NF

Parameters

<char> Choose from:
LSB - lower sideband
USB - upper sideband
DSB - double sideband

Examples

```
DUT:SIDE LSB
DUT:SIDE DSB
```

Query Syntax SENSe:DUT:SIDEband?

Return Type Character

Default DUT Type dependent. See :MODE:DUT.

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:DUT[:TYPe] <char>

(Read-Write) Set and query the DUT mode (i.e., Amplifier, Downconverter, Upconverter, or Multi-Stage Converter).

See DUT setting commands for NF mode.

Relevant Modes NF

Parameters

<char> Choose from:

AMPL - Amplifier

DCON - Downconverter

UCON. - Upconverter

MCON - Multi-Stage Converter

Examples

```
DUT AMP
DUT MCON
```

Query Syntax SENSe:DUT:TYPe?

Return Type Character

Default AMPL

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:FREQuency <num>

(Read-Write) Set and query the frequency of the power meter measurement. This is used to set the proper correction value of the power sensor.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<num> Frequency in Hz. Choose a number between the minimum and maximum frequency of the FieldFox.

This command will accept MIN and MAX as arguments.

Examples

```
FREQ 10E6
FREQ MAX
```

Query Syntax [:SENSe]:FREQuency?

Return Type Numeric

Default Center frequency of the FieldFox

Last Modified:

1-Apr-2014	Added CPM
29-Oct-2013	Added Pulse

[:SENSe]:FREQuency:ANNotation[:SELect] <char>

(Read-Write) Set and query the frequency (X-axis) annotation method.
See frequency setting commands for SA mode.

Relevant Modes SA, ERTA, RTSA

Parameters

<char> Choose from:

AUTO - Annotated the same as the frequencies were set.

SSTop - Start and Stop

CSPan - Center and Span

Examples

```
FREQ:ANN SST
```

Query Syntax [:SENSe]:FREQuency:ANNotation[:SELect]?

Return Type Character

Default AUTO

Last Modified:

10-june-2016	Added RTSA mode(9.50)
20-Jan-2015	New command (8.00)

[:SENSe]:FREQuency:CENTer <num>

(Read-Write) Set and query the center frequency of the trace. This is also used for single frequency (CW) traces, such as the frequency of power meter measurements.

Relevant Modes	CAT, IQA (Spectrum Only), NA, NF, SA, VVM, and RTSA
Parameters	
<numeric>	Center frequency in Hz. Choose a number between the minimum and maximum frequency of the FieldFox. This command will accept MIN and MAX as arguments.
Examples	`FREQ:CENT 10E6` `FREQ:CENT MAX`
Query Syntax	[:SENSe]:FREQuency:CENTer?
Return Type	Numeric
Default	CAT, IQA, NA, NF, SA modes - Center frequency of the FieldFox. VVM mode - 2 MHz

---

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
22oct2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)

[:SENSe]:FREQuency:CENTer:STEP <num>

(Read-Write) Set and query the step size for use with the front panel up/down keys.

Use [SENSe]:FREQuency:CENTer:STEP:AUTO to set step size manually. (Not available with CPM).

Relevant Modes	SA, CPM, RTSA
Parameters	
<num>	Step size in Hz. Choose a number between 1 and maximum frequency of the FieldFox.
Examples	`FREQ:CENT:STEP 10E6`
Query Syntax	[:SENSe]:FREQuency:CENTer:STEP?
Return Type	Numeric
Default	Dependent on frequency span

Last Modified:

10-june-2016	Added RTSA mode (9.50)
1-Apr-2014	Added CPM

[:SENSe]:FREQuency:CENTer:STEP:AUTO <bool>

(Read-Write) Set and query the state of setting center frequency step size. Used with the front panel up/down keys.

Relevant Modes SA, RTSA

Parameters

<bool> Step size state. Choose from:

ON or **1** - Step size is set automatically. Each press of the ▲|▼ arrows increments or decrements the value by 1/10th (one division) of the current frequency span.

OFF or **0** - Step size is set manually with [:SENSe]:FREQuency:CENTer:STEP.

Examples

```
FREQ:CENT:STEP:AUTO 1
sense:frequency:center:step:auto off
```

Query Syntax [:SENSe]:FREQuency:CENTer:STEP:AUTO?

Return Type Boolean

Default ON or 1

Last Modified:

10-june-2016	Added RTSA mode (9.50)

[SENSe]:FREQuency:CONText

(Read-Write) Set and query the current frequency context (RF or IF).

See DUT setting commands for NF mode.

Relevant Modes NF

Parameters

<char> Choose from:

RF - Default when DUT Type = AMPL

IF - Default when DUT Type = DOWN or UPC or MOCN

Examples

```
:FREQ:CONT RF
:FREQ:CONT IF
```

Query Syntax :FREQuency:CONText?

Return Type Character

Default DUT Type dependent.

RF - Default when DUT Type = AMPL

IF - Default when DUT Type = DOWN or UPC or MOCN

See :MODE:DUT.

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)

[:SENSe]:FREQuency:DATA?

(Read-Write) Returns a comma separated array of the current x-axis frequency values. The size of the array equals the number of data points.

Relevant Modes	CAT, NA, and NF
Parameters	None
Examples	`FREQ:DATA?`
Return Type	Comma-separated numeric array
Default	Not Applicable

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
19-Dec-2018	New command

[:SENSe]:FREQuency:IF:STARt?

(Read Only) Query the IF (DUT Out) start frequency.

Relevant Modes	NF
Parameters	
	n/a
Examples	`FREQ:STAR:IF:STAR?`
Query Syntax	:SENSe:FREQuency:IF:STARt?
Return Type	Numeric
Default	n/a

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:FREQuency:LO <num>

(Read-Write) Set and query the DUT LO frequency.

Note: The DUT LO frequency is only relevant for frequency converting DUTs (i.e., downconverter, upconverter, and multi-stage converter).

Relevant Modes NF

Parameters

<numeric> LO frequency in Hz. Choose a number between the minimum and maximum frequency of the FieldFox.

This command will accept MIN and MAX as arguments.

Examples

```
FREQ:LO 10E6
FREQ:LO MAX
```

Query Syntax [:SENSe]:FREQuency:LO?

Return Type Numeric

Default --

Last Modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:FREQuency:RF:STARt?

(Read Only) Query the (DUT In) start frequency.

Relevant Modes NF

Parameters

n/a

Examples

```
FREQ:STAR:RF:STAR?
```

Query Syntax :SENSe:FREQuencyRF:STARt?

Return Type Numeric

Default n/a

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

[:SENSe]:FREQuency:SPAN <num>

(Read-Write) Set and query the frequency span of the trace.

Relevant Modes CAT, NA, NF, SA, CPM, RTSA

CPM Mode: Limited to between 10 Hz and 100 MHz. SPAN is equivalent to

the “channel power integration bandwidth”.

Parameters

<num> Frequency span in Hz. Choose a number between the maximum MINUS the minimum frequency of the FieldFox.

This command will accept MIN and MAX as arguments.

Examples

```
FREQ:SPAN 10E6
FREQ:SPAN MIN
```

Query Syntax [:SENSe]:FREQuency:SPAN?

Return Type Numeric

Default Maximum MINUS minimum frequency range of the FieldFox.

Last Modified:

01-june-2018	Added NF mode (10.30)
10-june-2016	Added RTSA mode (9.50)
1-April-2014	Added CPM

[:SENSe]:FREQuency:SPAN:BANDwidth[:RESolution]:RATio?

(Read-Only) Query the ratio of the span to resolution bandwidth value.

Relevant Modes RTSA

Parameters

Range of returned values: 20 (-2.00E+01) to 280 (-2.800E+02)

Examples

```
FREQ:SPAN:BAND:RAT?
```

Query Syntax FREQ:SPAN:BAND:RAT?

Return Type num

Default -2.800E+02

Last Modified:

19-sep-2016	Added new RTSA SCPI A.09.50.00.

[:SENSe]:FREQuency:SPAN:FULL

(Write-Only) Set the frequency span to the entire span of the FieldFox.

Relevant Modes	SA, RTSA
Parameters	None
Examples	`FREQ:SPAN:FULL`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

[:SENSe]:FREQuency:SPAN:ZERO

(Write-Only) Set the frequency span to 0 Hz. The center frequency is unchanged.

Relevant Modes	SA
Parameters	None
Examples	`FREQ:SPAN:ZERO`
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

[:SENSe]:FREQuency:STARt <num>

(Read-Write) Set and query the start frequency of the trace.

Relevant Modes	CAT, NA, NF, SA, RTSA
Parameters	
<num>	Start frequency in Hz. Choose a number between the minimum and maximum frequency of the FieldFox. This command will accept MIN and MAX as arguments.
Examples	`FREQ:STAR 10E6` `FREQ:STAR MIN`
Query Syntax	[:SENSe]:FREQuency:STARt?
Return Type	Numeric
Default	Start frequency of the FieldFox

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
10-june-2016	Added RTSA mode (9.50)

[:SENSe]:FREQuency:STEP <value>

(Read-Write) Set and query the frequency step size between data points. This is another method to set the number of data points for the measurement.

Relevant Modes	FOPS (Opt 208)
Parameters	
<value>	Frequency step size in Hz.
Examples	**FREQ:STEP 1e6**
Query Syntax	[:SENSe]:FREQuency:STEP?
Return Type	Numeric
Default	50 kHz

Last modified:

19-Mar-2014	New command (A.07.50)

[:SENSe]:FREQuency:STOP <num>

(Read-Write) Set and query the stop frequency of the trace.

Relevant Modes	CAT, NA, NF, RTSA, and SA
Parameters	
<num>	Stop frequency in Hz. Choose a number between the minimum and maximum frequency of the FieldFox. This command will accept MIN and MAX as arguments.
Examples	**FREQ:STOP 10E6** **FREQ:STOP MAX**
Query Syntax	[:SENSe]:FREQuency: STOP?
Return Type	Numeric
Default	Stop frequency of the FieldFox

Last Modified:

01-june-2018	Added Opt. 356 NF(10.3)
10-june-2016	Added RTSA mode (9.50)

[:SENSe]:IFFLatness:ALIGnment[:STATe]

This command has been replaced by [:SENSe]:ALIGnment:CHEQ[:STATe]. Learn about superseded commands.

(Read-Write) Set and query the RTSA mode IF flatness amplitude alignment (InstAlign) state.

Relevant Modes	IQA, RTSA
Parameters	
<char>	InstAlign state. Choose from: **AUTO** - The alignment process is performed every 300 seconds or when the temperature has changed about 1 degree. It occurs only at the beginning of a sweep and takes about 0.5 seconds to complete. **HOLD** - The alignment process is stopped, but the last alignment values are applied to subsequent sweeps. **OFF** - The alignment process is NOT performed. Only factory correction values are used.
Examples	IFFL:ALIG HOLD
Query Syntax	[:SENSe]:IFFLatness:ALIGnment[:STATe]?
Return Type	Character
Default	AUTO

Last Modified:

22nov2017	Updated as a superseded note & added IQA for backwards compatibility.
20-sep-2016	Added RTSA command(A.09.50)

[:SENSe]:IFFLatness:ALIGnment[:OBSOLETE]:NOW

This command has been replaced by [:SENSe]:ALIGnment:CHEQ:NOW. Learn about superseded commands.

(Write-only) A IF Flatness alignment is performed once just before the next sweep and applied to subsequent sweeps. If the FieldFox is not sweeping, a single sweep is triggered and alignment is performed.

Relevant Modes	IQA, RTSA
Parameters	None
Examples	IFFL:ALIG:NOW
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

22nov2017	Updated as a superseded note & added IQA for backwards compatibility.

20-sep-2016	Add new RTSA command(A.09.50)

[:SENSe]:INTegration:JITTer <num>

(Read-Write) Set and query the Integration mode's maximum allowable jitter setting (Jitter Goal) setting.

See also [:SENSe]:INTegration:MODe, [:SENSe]:INTegration:MAXTime, [:SENSe]:INTegration:WARNing, and [:SENSe]:INTegration:TIMe.

Relevant Modes	NF
Parameters	
<numeric>	Jitter goal. Choose from: Minimum -100 dB up to Maximum 100 dB
Examples	`INT:JITT 0.80 dB`
Query Syntax	INTegration:JITTer?
Return Type	Numeric
Default	0.50 dB

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:INTegration:MAXTime <num>

(Read-Write) Set and query the Integration mode's maximum time per point setting (Max Time/Pt) setting.

See also [:SENSe]:INTegration:MODe, [:SENSe]:INTegration:JITTER, [:SENSe]:INTegration:WARNing, and [:SENSe]:INTegration:TIMe.

Relevant Modes	NF
Parameters	
<numeric>	Maximum time per point. Choose from: Varies, because the setting is coupled to other settings
Examples	`INT:MAXT 0.04`
Query Syntax	INTegration:MAXTime?
Return Type	Numeric
Default	2.00 s

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:INTegration:MODe <char>

(Read-Write) Set and query the Integration mode setting.

See also [:SENSe]:INTegration:JITTer, [:SENSe]:INTegration:MAXTime, [:SENSe]:INTegration:WARNing, and [:SENSe]:INTegration:TIMe.

Relevant Modes NF

Parameters

<character> Integration mode. Choose from:

AUTO - The FieldFox Noise Figure application chooses the optimum integration time for each of the noise power measurements needed (i.e., noise source on, noise source off, and receiver reference) to compute the device's noise figure with the selected amount of measurement jitter in the shortest possible time.

FIXED - Time per point can be set, but other integration SCPIs are not settable.

Examples

```
INT:MOD FIXED
```

Query Syntax INTegration:MODe?

Return Type Character

Default AUTO

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:INTegration:TIMe <num>

(Read-Write) Set and query the Integration mode's time per point setting (Time/Pt) setting. Use this command when [:SENSe]:INTegration:MODe = **FIXED**.

See also [:SENSe]:INTegration:MODe, [:SENSe]:INTegration:JITTER, [:SENSe]:INTegration:WARNing, and [:SENSe]:INTegration:MAXTime.

Relevant Modes NF

Parameters

<numeric> Time per point. Choose from:

Varies, because the setting is coupled to other settings

Examples

```
INT:TIM 0.04
```

Query Syntax INTegration:TIMe?

Return Type Numeric

Default 5.0E-01

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:INTegration:WARNing <bool>

(Read-Write) Set and query the Integration mode's jitter warning (Jitter Warning). Enables and disables the jitter warning when [:SENSe]:INTegration:MODe = **AUTO**.

See also [:SENSe]:INTegration:MODe, [:SENSe]:INTegration:JITTER, [:SENSe]:INTegration:MAXTime, and [:SENSe]:INTegration:TIMe.

Relevant Modes NF

Parameters

<boolean> Integration warning per point. Choose from:

ON(1) - Enables the jitter warning.

OFF(0) - Disables the jitter warning.

Examples

```
INT:WARN 1
```

Query Syntax INTegration:WARNing?

Return Type Boolean

Default 1

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

[:SENSe]:LTEFdd:CCARrier:LIST<n>:ADD

(Write) Add the current channel and band to a favorite list setup.

Relevant Modes LTE FDD

Parameters

<*n*> Setup number. If unspecified, value is set to 1.

n = 1 | 2 | 3 | 4 | 5 (Up to five favorites can be stored at one time.)

<numeric>

Examples

```
LTEF:CCAR:LIST3:ADD
LTEF:CCAR:LIST5:ADD
```

Query Syntax n/a

Return Type n/a

Default 1

Last Modified:

19-Dec-2018 New command

[:SENSe]:LTEFdd:CCARrier:LIST<n>.:BAND?

(Read Only) Query the current band in the specified favorites setup.

Relevant Modes LTE FDD

Parameters

<*n*> Setup number. If unspecified, value is set to 1.
n = 1 | 2 | 3 | 4 | 5 (Up to five favorites can be stored at one time.)

<numeric>

Examples

```
no write command
```

Query Syntax LTEF:CCAR:LIST3:BAND?

Return Type numeric

Default 1

Last Modified:

19-Dec-2018 New command

[:SENSe]:LTEFdd:CCARrier:LIST<n>:CHANnel?

(Read Only) Query the current channel in the specified favorites setup.

Relevant Modes LTE FDD

Parameters

<*n*> Setup number. If unspecified, value is set to 1.
n = 1 | 2 | 3 | 4 | 5 (Up to five favorites can be stored at one time.)

<numeric>

Examples

```
no write command
```

Query Syntax LTEF:CCAR:LIST3:CHAN?

Return Type numeric

Default 1

Last Modified:

19-Dec-2018 New command

[:SENSe]:LTEFdd:CCARrier:LIST<n>:REMove

(Write) Disable/clear the current channel and band favorites setup number.

Relevant Modes LTE FDD

Parameters

<*n*> Setup number. If unspecified, value is set to 1.
n = 1 | 2 | 3 | 4 | 5 (Up to five favorites can be stored at one time.)

<numeric>

Examples

```
LTEF:CCAR:LIST3:REM
LTEF:CCAR:LIST5:REM
```

Query Syntax n/a

Return Type n/a

Default 1

Last Modified:

19-Dec-2018 New command

[:SENSe]:LTEFdd:CCARier<n>:BAND <num>

(Read-Write) Set and query the component carrier band (BAND). If Band is changed, Channel is updated also. The rule is defined in 3GPP TS 36.101.

If FreqMode = Channel, center frequency is updated based on band and channel in target carrier.

Relevant Modes LTE FDD

Parameters

<*n*> Component carrier (CC) number. If unspecified, value is set to 1 (CC0).
n = 1 | 2 | 3 | 4 | 5 (Up to five component carriers can be measured at one time.)

<numeric> Choices:

Maximum: 255

Minimum: 1

Note: Not all values between 1 and 255 are valid choices. The rule is defined in 3GPP TS 36.101.

Examples

```
LTEF:CCAR5:BAND 53
LTEF:CCAR3:BAND 235
```

Query Syntax LTEF:CCAR:BAND?

Return Type number

Default 1

Last Modified:

19-Dec-2018	New command

[:SENSe]:LTEFdd:CCARrier[1]|2|3|4|5:CHANnel

(Read-Write) Set and query the component carrier channel (CHAN). If the channel is changed, the band value is updated also. The rule is defined in 3GPP TS 36.101.

If FreqMode = Channel, center frequency is updated based on band and channel in target carrier.

Relevant Modes LTE FDD

Parameters

<*n*> Component carrier (CC) number. If unspecified, value is set to 1 (CC0).

n = 1 | 2 | 3 | 4 | 5 (Up to five component carriers can be measured at one time.)

<numeric>

Examples

```
LTEF:CCAR5:CHAN 3800
LTEF:CCAR3:CHAN 4149
```

Query Syntax LTEF:CCAR:CHAN?

Return Type number

Default 0

Last Modified:

19-Dec-2018	New command

[:SENse]:LTEFdd:CCARier<n>:ENABle <num>

(Read-Write) Set and query the component carrier's enable/disable state.

Relevant Modes LTE FDD

Parameters

<*n*> Component carrier (CC) number. If unspecified, value is set to 1 (CC0).
n = 1 | 2 | 3 | 4 | 5 (Up to five component carriers can be measured at one time.)

<numeric> Choices:
ON (1): Enables the current component carrier.
OFF (0): Disables the current component carrier.

Examples

```
LTEF:CCAR5:ENAB ON
LTEF:CCAR3:ENAB 0
```

Query Syntax LTEF:CCAR:ENAB?

Return Type number

Default 1000000000

Last Modified:

19-Dec-2018 New command

[:SENse]:LTEFdd:CCARier<n>:FREQuency:CENTer <num>

(Read-Write) Set and query the component carrier center frequency.

Relevant Modes LTE FDD

Parameters

<*n*> Component carrier (CC) number. If unspecified, value is set to 1 (CC0).
n = 1 | 2 | 3 | 4 | 5 (Up to five component carriers can be measured at one time.)

<numeric> Choices:
Maximum (Hz): Dynamic. Varies with the FieldFox model.
Minimum: 0 Hz

Examples

```
LTEF:CCAR5:FREQ:CENT 2e9
LTEF:CCAR3:FREQ:CENT 10000
```

Query Syntax LTEF:CCAR:FREQ:CENT?

Return Type number

Default 1000000000

Last Modified:

19-Dec-2018 New command

[:SENSe]:LTEFdd:CCARrier<n>:LIST<x>:APPLy

(Write) Apply a saved favorite setup channel and band to the FieldFox.

Relevant Modes LTE FDD

Parameters

<*n*> Component carrier (CC) number. If unspecified, value is set to 1 (CC0).

n = 1 | 2 | 3 | 4 | 5 (Up to five component carriers can be measured at one time.)

<*x*> Setup number. If unspecified, value is set to 1.

x = 1 | 2 | 3 | 4 | 5 (Up to five favorites can be available.)

<numeric>

Examples

```
LTEF:CCAR2:LIST3:APP
LTEF:CCAR4:LIST5:APP
```

Query Syntax n/a

Return Type n/a

Default *n*=1, *x*=1

Last Modified:

19-Dec-2018 New command

[:SENSe]:LTEFdd:CCARrier<n>:MODE <string>

(Read-Write) Set and query the LTE FDD frequency mode (CHANnel | FREQuency).

Relevant Modes LTE FDD

Parameters

<string> Choices:

CHANnel: Channel and Band are based on the component carrier in the FieldFox. Center frequency is coupled to the channel and band choices.

FREQuency: Center frequency is entered independently.

If FreqMode = Channel, center frequency value is based on band and channel in target carrier.

Examples

```
LTEF:CCAR2:MODE CHAN
LTEF:CCAR2:MODE FREQ
```

Query Syntax	LTEF:CCAR5:MODE?
Return Type	string
Default	FREQ

Last Modified:

19-Dec-2018	New command

[:SENSe]:LTEFdd:FERRor:THReshold <num>

(Read-Write) Set and query frequency error threshold value.

Relevant Modes	LTE FDD
Parameters	
<numeric>	Frequency error value in Hz.
Examples	**LTEF:FERR:THR 3000**
Query Syntax	:LTEF:FERR:THR?
Return Type	Numeric
Default	900 Hz

Last Modified:

19-Dec-2018	New command

[:SENSe]:LTEFdd:FLRange:EXTended <bool>

(Read-Write) Set and query the extended frequency range.

Relevant Modes	LTE FDD
Parameters	
<booleon>	ON (1): Enable the extended frequency range. OFF (2): Disable the extended frequency range.
Examples	**LTEF:FLR:EXT ON**
Query Syntax	:LTEF:FLR:EXT?
Return Type	numeric
Default	OFF (0)

Last Modified:

19-Dec-2018 New command

[:SENSe]:MEASure

(Read-Write) Selects between Density, Spectrogram, and Real-Time traces.

Relevant Modes RTSA

Parameters

<char> Select the type of Real-Time measurement to be displayed:

DENSity - Signal is displayed is a real-time spectrum with a histogram bitmap.

SPECtrogram - The signal is displayed is a real-time spectrum with a spectrogram bitmap. Spectrogram views are valuable in capturing signals that include both time and frequency variations.

NORMal - The signal is displayed as a real-time spectrum. Use real-time spectrogram to quickly display measurements.

Examples

```
MEAS DENS
```

Query Syntax [:SENSe]:MEASure?

Return Type Character

Default DENS

Last Modified:

19-sep-2016 Added new RTSA command (A.09.50).

[:SENSe]:MEASure:SPERiod <num>

(Read-Write) Set and query the sample period.

Relevant Modes IQA

Parameters

<numeric> Minimum: 80 ns

Maximum: 80 ms

Couplings: Sample Period = (1 / Sample Rate)

Examples

```
MEAS:SPER 300e-9
```

Query Syntax MEAS:SPER?

Return Type Numeric

Default 8.0000000E-08

Last Modified:

22sep2017	Added IQA mode (10.00)

[:SENSe]:MEASure:SRATe <num>

(Read-Write) Set and query the IQA sample rate. The “Digital IF Bandwidth” parameter controls the resampler section of the hardware. It is directly coupled to the sample rate.

Sample Rate = (Digital IF Bandwidth) * (Over Sample Ratio)

= (Digital IF Bandwidth) * 1.25

Relevant Modes IQA

Parameters

<numeric> Minimum: 12.5 Hz

Maximum: 12.5 MHz

Couplings: (1.25 * IF Bandwidth)

Examples

```
MEAS:SRAT 1 MHz
MEAS:SRAT 10000
```

Query Syntax MEAS:SRAT?

Return Type Numeric

Default 1.250000000E+07

Last Modified:

22-Oct-2017	Added IQA mode (10.1x)

[:SENSe]:MEASurement:ADEMod

(Read-Write) Set the AM/FM Metrics measurement type (Select 1 of *n* measurement choices)

Relevant Modes SA

Parameters

NONE - Turns off the AM/FM functionality.

LAM - Tune & Listen AM

LFMN - Tune & Listen narrow band FM

LFMW - Tune & Listen wide band FM

MAM - AM Metrics

MFM - FM Metrics

<string>

Examples

```
:MEAS:ADEM NONE
```

Query Syntax :MEAS:ADEM?

Return Type String

Default MAM

Last Modified:

16-Dec-2015	Added AM/FM Metrics (8.15 & 9.15)

[:SENSe]:MEASurement:AOFF

(Write-Only) Turns OFF the currently-displayed Channel or Interference Analysis measurements. Reverts to standard SA display.

Relevant Modes	SA
Parameters	None
Examples	`MEAS:AOFF`
Query Syntax	Not Applicable
Default	Not Applicable

[:SENSe]:MEASure:CAPTure:LENGth

(Read-Write) Set and query the IQA data capture length via the sample number.

Note: This capture length sample value is only used with a captured IQ data file.

Use SENS:MEAS:CAPT:TIME to set the data capture time for the IQA data.

Relevant Modes	IQA
Parameters	
<captureLength>	Data IQA capture capture. **Minimum**:1 **Maximum**:4194304 **Couplings:** Capture Time. Changes will effect Capture Time (`Capture Samples = Capture Time * Sample Rate + 1`).
Examples	`MEAS:IQC:CAPT:TIME 6e-6`
Query Syntax	MEAS:IQC:CAPT:TIME?
Return Type	integer
Default	1251

Last Modified:

22-oct-2017	Added new IQA mode content (10.1x).

[:SENSe]:MEASure:CAPTure:TIME

(Read-Write) Set and query the filename for I/Q data capture time.

Note: The Maximum value of this parameter is limited by the maximum capture samples that is available for the different platforms and determined by the current sample rate.

Use MMEM:STOR:IQC:FTYP to set the data capture file type.

Relevant Modes	IQA
Parameters	
<time>	Data IQA capture time. **Minimum**:1 ps **Maximum:** Dynamic change. In the default setting, Sample Rate = 12.5 MHz, the max value is 335.544ms.
Examples	`MEAS:IQC:CAPT:TIME 6e-6`
Query Syntax	MEAS:IQC:CAPT:TIME?
Return Type	numeric
Default	100 s

Last Modified:

22-oct-2017	Added new IQA mode content (10.1x).

[:SENSe]:MEASurement:CHANnel <char>

(Read-Write) Set and query the current SA mode channel measurement.

Relevant Modes	SA
Parameters	
<char>	Channel measurement. Choose from: **CHP** - Channel Power **OBW** - Occupied Bandwidth **ACPR** - Adjacent Channel Power **NONE** - No current channel measurement.
Examples	`MEAS:CHAN ACPR`
Query Syntax	[:SENSe]:MEASurement:CHANnel?
Return Type	Character
Default	NONE

SENSe:MEASurement:ERTA:PNID

(Read-Write) Set and query the partner IP address.

Relevant Modes ERTA

Parameters

<string> Network identity of the partner (source) FieldFox, enclosed in quotes. Currently we recommend using the IP address. But in the future, we may accept a hostname string.

Examples

```
MEAS:ERTA:PNID "192.168.0.0"
```

Query Syntax [:SENSe]:MEASurement:ERTA:PNID?

Return Type String

Default Not applicable

Last Modified:

4-May-2015	New command (8.04)

[:SENSe]:MEASurement:ERTA:PSTatus

(Read-Write) Set and read Partnership status. Can only set Master (Receiver).

Relevant Modes ERTA

Parameters

<char> Receiver status. Choose from:
OFF - No partnership exists.
MAST - Master status

Examples

```
MEAS:ERTA:PST OFF
```

Query Syntax [:SENSe]:MEASurement:ERTA:PSTatus?

Return Type Character

Default OFF

Last Modified:

20-Jan-2015	New command (8.00)

[:SENSe]:MEASurement:ERTA:PVERify?

(Read-only) Returns whether or not the partner (source) FieldFox is ERTA network capable.

Relevant Modes ERTA

Parameters None

Return Type Boolean
1 - Partner is ERTA capable.
0 - Parner is NOT ERTA capable

Default Not applicable

Last Modified:

4-May-2015 New command (8.04)

[:SENSe]:MEASurement:ERTA:ROLE?

(Read-only) Read the ERTA stimulus-response role.

Relevant Modes ERTA

Parameters None

Return Type Character
NONE - No partnership exists.
SRC - FieldFox is a Source (follower).
RCVR - FieldFox is a Receiver (master)

Default None

Last Modified:

20-Jan-2015 New command (8.00)

[:SENSe]:MEASurement:INTerference <char>

(Read-Write) Set and query the current SA mode Interference Analysis (Opt 236) display.

Relevant Modes SA

Parameters

<char> Interference Analysis display. Choose from:
SPECtrogram
WATerfall
NONE - no Interference Analysis measurement displayed.

Examples

```
MEAS:INT SPEC
```

Query Syntax [:SENSe]:MEASurement:INTerference?

Return Type Character

Default NONE

[:SENSe]:MEASurement:PRESet

(Write-Only) Resets the currently-displayed channel measurement to its default settings. The Center Frequency, Preamp ON|OFF, RF Attenuation, Markers, Limits, and Radio Standard settings are NOT reset.

Relevant Modes SA

Parameters None

Examples
```
MEAS:PRES
```

Query Syntax Not Applicable

Default Not Applicable

[:SENSe]:MEAS:TAListen <char>

(Read-Write) Set and query the Tune and Listen demodulation type for SA Mode.

Relevant Modes SA

Parameters

<char> Tune and Listen demodulation type. Choose from:
AM - AM
FMN - FM Narrow
FMW - FM Wide
NONE - Tune and Listen OFF.

Examples
```
MEAS:TAL FMW
```

Query Syntax [:SENSe]:MEAS:TAListen?

Return Type Character

Default NONE

[:SENSe]:NBANdwidth <num> or <char>

(Read-Write) Set and query the NF resolution bandwidth for the measurement.

Relevant Modes NF

Parameters

<num> or character Resolution bandwidth in Hz.
Choose between 300 kHz and 5 MHz

Examples
```
NBAN 1e3
NBAN MAX
NBAN MIN
```

Query Syntax SENSe:NBANdwidth?

Return Type Numeric

Default 5 MHz for NF

Last modified:

01-june-2018 Added Opt. 356 NF(10.3)

[:SENSe]:OBW:PPOW <num>

(Read-Write) Set and query the Power Percent for an Occupied Bandwidth measurement.

Relevant Modes SA

Parameters

<num> Power Percent. Choose a number from 10 to 99.99.

Examples

```
OBW:PPOW 20
```

Query Syntax [:SENSe]:OBW:PPOW?

Return Type Numeric

Default 10

[:SENSe]:POINt:DWELl <value>

(Read-Write) Set and query the settling time after the internal source steps to the next frequency and before the power sensor makes a measurement.

Relevant Modes FOPS (Opt 208)

Parameters

<value> Dwell time in seconds.

Examples

```
POIN:DWEL .01
```

Query Syntax [:SENSe]:POINt:DWELl?

Return Type Numeric

Default 0

Last modified:

19-Mar-2014 New command (A.07.50)

[:SENSe]:POINt:READ:MAX <value>

(Read-Write) Set and query the maximum number of readings the power sensor will make to achieve settling.

Each power sensor reading is "settled" when either:

- two consecutive readings are within the Tolerance value (see [:SENSe]:TOL) or
- when the Max Number of Readings has been met.

The readings that were taken are averaged together to become the "settled" reading.

Relevant Modes FOPS (Opt 208)

Parameters

<value> Max number of readings. Choose a value between 1 and 20

Examples

```
POIN:READ:MAX 5
```

Query Syntax [:SENSe]:POINt:READ:MAX?

Return Type Numeric

Default 4

Last modified:

19-Mar-2014 New command (A.07.50)

[:SENSe]:POWer[:RF]:ATTenuation <num>

(Read-Write) Set and query RF attenuation value. Also set POW:ATT:AUTO OFF.

Relevant Modes 5GTF, SA, LTE FDD, CPM, RTSA, IQA

Parameters

<numeric> Attenuation value in dB. Choose a number between the minimum and maximum attenuation of the FieldFox.

This command will accept MIN and MAX as arguments.

The RF Attenuation value is never automatically lowerd below 5 dB.

CPM mode only accepts two values: 10 dB or 30 dB

Examples

```
POW:ATT 30
```

Query Syntax :POWer:ATTenuation?

Return Type Numeric

Default 10

Last Modified:

03dec2018 Added LTE FDD & 5GTF (A.11.0)

22oct2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)
1-April-2014	Added CPM

[:SENSe]:POWer[:RF]:ATTenuation:AUTO <bool>

(Read-Write) Set and query the Auto RF Attenuation state. See also :POW:ATT.

Relevant Modes 5GTF, SA, LTE FDD, RTSA, IQA

Parameters

<boolean> Auto RF Attenuation state. Choose from:
O or **OFF** - RF Attenuation is set manually
1 or **ON** - RF Attenuation is set automatically

Examples
```
POW:ATT:AUTO 1
```

Query Syntax [:SENSe]:POWer[:RF]:ATTenuation:AUTO?

Return Type Boolean

Default ON

Last Modified:

03dec2018	Added LTE FDD & 5GTF (A.11.0)
22oct2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)

[:SENSe]:POWer:BPLevel <num>

(Read-Write) Set and query the Blue power level limit used with Bar Chart displays (Option LTE FDD & 5GTF only).

See also: [:SENSe]:POWer:RPLevel (Red power level)

Relevant Modes LTE FDD, 5GTF

Parameters

<num> Select the LOWEST power levels (in dB) that you expect to measure. This power level, and those measured lower than this level, appear Blue.

Enter a value between the 0 and the current Red (Highest) limit. (Default Red is -50)

Couplings: If it's over range with max value, Blue limit = Red limit -1

Examples
```
POW:BPL -80
```

Query Syntax [:SENSe]:POWer:BPLevel?

Return Type Numeric

Default -90

Last Modified:

19-Dec-2018 Adding new command for LTE FDD & 5GTF (A.11.0)

[:SENSe]:POWer[:RF]:EXTGain <num>

(Read-Write) Set and query external gain value. Use to compensate the trace and scale when using an external amp or attenuator. May automatically increase the amount of attenuation.

Relevant Modes 5GTF, SA, LTE FDD, RTSA, IQA

Parameters

<numeric> Amount of gain (positive value) or loss (negative value) in dB.
This command will accept MIN and MAX as arguments.
Minimum: -100 dB
Maximum: 100 dB

Examples

```
POW:EXTG 10
```

Query Syntax [:SENSe]:POWer[:RF]:EXTGain?

Return Type Numeric

Default 0

Last Modified:

03dec2018 Added LTE FDD & 5GTF (A.11.0)

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

[:SENSe]:POWer[:RF]:GAIN:AUTO <bool>

(Read-Write) Set and query preamplifier state. Available with Option 235.

Relevant Modes IQA

Parameters

<boolean> Preamp AUTO ON | OFF state. Choose from:
O or **OFF** - AUTO Preamp OFF
1 or **ON** - AUTO Preamp ON
When Auto is enabled, the preamp setting is coupled to the RF attenuation

and to the reference level. When the reference level reaches a certain value, the preamp is turned on and **PA** is shown to the left of the graticules on the display.

Examples

```
POW:GAIN:AUTO 0
POW:GAIN:AUTO OFF
```

Query Syntax :POW:GAIN:AUTO?

Return Type Boolean

Default OFF (0)

Last Modified:

22oct2017	Added IQA mode (10.1x)

[:SENSe]:POWer[:RF]:GAIN[:STATe] <bool>

(Read-Write) Set and query preamplifier state. Available with Option 235.

Relevant Modes 5GTF, SA, LTE FDD, RTSA, IQA

Parameters

<boolean> Preamp ON | OFF state. Choose from:

O or **OFF** - (*For 5GTF and LTE FDD only OFF is valid*) Preamp OFF

1 or **ON** - (*For 5GTF and LTE FDD only ON is valid*) Preamp ON

AUTO - (5GTF, LTE FDD, and *RTSA Only*) When Auto is selected, the preamp setting is coupled to the RF attenuation and to the reference level. When the reference level reaches a certain value, the preamp is turned on and **PA** is shown to the left of the graticules on the display.

For IQA, see also POW:GAIN:AUTO.

Examples

```
POW:GAIN 0          '0 and 1 are invalid choices for 5GTF and LTE FDD
POW:GAIN AUTO       '5GTF, LTE FDD, and RTSA Only
```

Query Syntax [:SENSe]:POWer[:RF]:GAIN[:STATe]?

Return Type Boolean

Default OFF

Last Modified:

03dec2018	Added LTE FDD & 5GTF (A.11.0)
22oct2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)

[:SENSe]:POWer[:RF]:RLEVel <num>

(Read-Write) Sets the absolute power reference level.

Relevant Modes LTE FDD, 5GTF

Parameters

<num> Absolute power reference level in dBm
Preset: -10 dBm
Minimum: -210 dBm
Maximum: 30 dBm

Couplings N/A

Examples

```
POW:RLEV 10
POW:RLEV -23
```

Query Syntax POWer:RLEVel?

Default -10 dBm

Last Modified:

03dec2018	Added LTE FDD & 5GTF (A.11.0)
19-Dec-2018	New command

[:SENSe]:POWer:RPLevel <num>

(Read-Write) Set and query the Red power level limit used with Bar Chart displays (LTE FDD and 5GTF only).

See also: [:SENSe]:SPECtrogram:BPLevel (Blue power level)

Relevant Modes LTE FDD, 5GTF

Parameters

<num> Select the HIGHEST power levels (in dB) that you expect to measure. This power level, and those measured higher than this level, appear Red.
Enter a value between 0 and the current Blue (Lowest) limit. (Default Blue is -90).
Couplings: If it's over range with min value, Red limit = blue limit + 1

Examples

```
POW:RPL -10
```

Query Syntax [:SENSe]:POWer:RPLevel?

Return Type Numeric

Default -50

Last Modified:

03dec2018	Adding new command for LTE FDD & 5GTF (A.11.0)

[:SENSe]:QUANtity:TACTive?

(Read-only) Returns the number of active traces and the number of traces that are currently allowed.

Some SA measurements allow only one measurement trace, such as Channel Mode measurements. In this case, 1,1 would be returned.

Use TRACe<n>:DATA? to read SA trace data.

Use TRACe<n>:TYPE to set the trace type.

Relevant Modes SA

Parameters

Examples

```
QUAN:TACT?
'With a general SA measurement active, returns 1,4
'With a Channel power measurement active, returns 1,1
```

Return Type Numeric, Numeric

Default 1,4

Last Modified:

20-Oct-2010	New command (5.30)

[:SENSe]:RADio:CHANnel:CENTer <num>

(Read-Write) Set and query the channel number that appears in the center of the current channel measurement. First select a Radio Standard [:SENSe]:RADio:STANdard then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit to **CHAN.**

Relevant Modes SA, CPM

Parameters

<num> Channel number. The range of valid channel numbers depends on the current radio standard. If a channel number outside the acceptable range is entered, the channel will be set to the closest valid channel number.

Examples

```
RAD:CHAN:CENT 10
```

Query Syntax [:SENSe]:RADio:CHANnel:CENTer?

Return Type Numeric

Default Center channel of the radio standard.

Last Modified:

1-Apr-2014	Added CPM

[:SENSe]:RADio:CHANnel:DIRection <char>

(Read-Write) Set and query the frequency Uplink or Downlink direction. First select a Radio Standard [:SENSe]:RADio:STANdard then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit to **CHAN.**

NOT all Radio Standards contain Uplink and Downlink frequencies.

Relevant Modes	SA, CPM
Parameters	
<char>	Choose from: **UP** - Uplink **DOWN** - Downlink
Examples	RAD:CHAN:DIR UP
Query Syntax	[:SENSe]:RADio:CHANnel:DIRection?
Return Type	Character
Default	DOWN

Last Modified:

1-Apr-2014	Added CPM

[:SENSe]:RADio:CHANnel:STARt <num>

(Read-Write) Set and query the channel number that appears at the start (left edge) of the current channel measurement. First select a Radio Standard [:SENSe]:RADio:STANdard then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit to **CHAN.**

Relevant Modes	SA
Parameters	
<num>	Channel number. The range of valid channel numbers depends on the current radio standard. If a channel number outside the acceptable range is entered, the channel will be set to the closest valid channel number.
Examples	RAD:CHAN:STAR 10
Query Syntax	[:SENSe]:RADio:CHANnel:STARt?
Return Type	Numeric
Default	-1 (Start and Stop channels not activated)

[:SENSe]:RADio:CHANnel:STEP <num>

(Read-Write) Set and query the channel number step size which determines the number of channels that are incremented and decremented each time the Up/Down arrows are pressed on the FieldFox front-panel.

First select a Radio Standard [:SENSe]:RADio:STANdard then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit to **CHAN.**

Relevant Modes	SA, CPM
Parameters	
<num>	Channel number step size. Choose a value between 1 and 100.
Examples	RAD:CHAN:STEP 10
Query Syntax	[:SENSe]:RADio:CHANnel:STEP?
Return Type	Numeric
Default	1

Last Modified:

1-Apr-2014	Added CPM

[:SENSe]:RADio:CHANnel:STOP <num>

(Read-Write) Set and query the channel number that appears at the stop (right edge) of the current channel measurement. First select a Radio Standard [:SENSe]:RADio:STANdard then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit to **CHAN.**

Relevant Modes	SA
Parameters	
<num>	Stop channel number. The range of valid channel numbers depends on the current radio standard. If a channel number outside the acceptable range is entered, the channel will be set to the closest valid channel number.
Examples	RAD:CHAN:STOP 10
Query Syntax	[:SENSe]:RADio:CHANnel:STOP?
Return Type	Numeric
Default	-1 (Start and Stop channels not activated)

[:SENSe]:RADio[:SELect]:STANdard <char> - Obsolete

The command is replaced with [:SENSe]:RADio:STANdard[:SELect] which uses a string argument.

(Read-Write) Set and query the Radio Standard for use in channel measurements.

Relevant Modes	SA

Parameters

<char> Radio Standard. Not case-sensitive. Choose from:

NONE
GSM450
GSM480
GSM850
GSM900
EGSM900
RGSM900 // more band extension beyond E-GSM 900
GSM1800
GSM1900
IDEN800
IDEN900
WCDMA850
WCDMA1900
WCDMA2100
WCDMAAWS
TDSCDMACHINA
CDMA2K850
CDMA2K1900
CDMA2KJAPAN
CDMA2KKOREA
LTE700US // E-UTRA band 13 for 700M US LTE
LTE2600 // E-UTRA band 7 for 2600M International LTE
WIMAXMOBILE
DVBTVHF
DVBTUHF

Examples radio:standard gsm1800

Query Syntax [:SENSe]:RADio[:SELect]:STANdard?

Return Type Character

Default None

[:SENSe]:RADio:STANdard[:SELect] <string>

This command replaces [:SENSe]:RADio:STANdard.

(Read-Write) Set and query the Radio Standard for use in channel measurements.

Relevant Modes SA, CPM

Parameters

<string>	Radio Standard. Choose from those listed in the User Interface when the Radio Standard softkey is pressed, including custom radio standards. **Case-sensitive**. Include spaces and enclose in double-quotes. Select **"None"** to turn radio standards OFF.
Examples	radio:standard "GSM 1800"
Query Syntax	[:SENSe]:RADio:STANdard[:SELect]?
Return Type	String
Default	None

Last Modified:

1-Apr-2014	Added CPM
11-Aug-2011	New command

[:SENSe]:RADio:TEUNit <char>

(Read-Write) Set and query the whether channel measurements are tuned using frequency or channel numbers.

Relevant Modes	SA, CPM
Parameters	
<num>	Tune entry units. Choose from: **FREQ** - Channel measurement tuning is accomplished using Frequency (**Sens:Freq**:Start, Stop ,Center, Span) **CHAN** - Channel measurement tuning is accomplished using Channel numbers (**Sens:Rad**:Chan:Start, Stop ,Center). Must also select a Radio Standard [:SENSe]:RADio:STANdard.
Examples	RAD:TEUN CHAN
Query Syntax	[:SENSe]:RADio:TEUNit?
Return Type	Character
Default	FREQ

Last Modified:

1-Apr-2014	Added CPM

[:SENSe]:RESolution <char>

(Read-Write) Set and query the number of data points for the Pulse measurement.

Relevant Modes	Pulse Measurements

Parameters

<char> Resolution setting. Choose from the following:
LOW - 240 data points.
MED - 1000 data points.
HIGH - Calculated value - approximately 8000 data points.

Examples `RES LOW`

Query Syntax [:SENSe]:RESolution?

Return Type Character

Default LOW

Last Modified:

29-Oct-2013 New command

[:SENSe]:ROSCillator:SOURce <char>

(Read-Write) Set and query the source of the 10 MHz reference oscillator.

Relevant Modes ALL

Parameters

<num> Choose from:
INTernal - Internal FieldFox reference.
EXTernal -An external reference.

Examples `ROSC:SOUR INT`

Query Syntax [:SENSe]:ROSCillator:SOURce?

Return Type Character

Default INTernal

[:SENSe]:ROSCillator:STATus?

(Read-Only) Returns the status of the reference loop.
-1 External Reference Unlocked
0 Internal Reference
+1 External Reference Locked

Relevant Modes ALL

Examples `ROSC:STAT?`

Return Type Numeric

Default Not Applicable

[:SENSe]:SPECtrogram:BPLevel <num>

(Read-Write) Set and query the Blue power level limit used with Waterfall (SA Only) and Spectrogram displays (For SA mode, refer to Interference Analyzer 0pt 236).

See also: [:SENSe]:SPECtrogram:RPLevel (Red power level)

Relevant Modes SA, RTSA

Parameters

<num> Select the LOWEST power levels (in dB) that you expect to measure. This power level, and those measured lower than this level, appear Blue.

Enter a value between the 0 and the current Red (Highest) limit. (Default Red is -50)

Examples

```
SPEC:BPL -80
```

Query Syntax [:SENSe]:SPECtrogram:BPLevel?

Return Type Numeric

Default -90

Last Modified:

19-sep-2016 Added RTSA as a relevant mode (A.09.50).

[:SENSe]:SPECtrogram:RPLevel <num>

(Read-Write) Set and query the Red power level limit used with Waterfall (SA Only) and Spectrogram displays (For SA mode, refer to Interference Analyzer 0pt 236).

See also: [:SENSe]:SPECtrogram:BPLevel (Blue power level)

Relevant Modes SA, RTSA

Parameters

<num> Select the HIGHEST power levels (in dB) that you expect to measure. This power level, and those measured higher than this level, appear Red.

Enter a value between 0 and the current Blue (Lowest) limit. (Default Blue is -90)

Examples

```
SPEC:BPL -10
```

Query Syntax [:SENSe]:SPECtrogram:RPLevel?

Return Type Numeric

Default -50

Last Modified:

19-sep-2016 Added RTSA as a relevant mode (A.09.50).

[:SENSe]:SPECtrogram:TMARker:STATe <char>

(Read-Write) Set and query the state of the time and delta markers used with Waterfall and Spectrogram displays (Interference Analyzer 0pt 236).

A Time marker alone displays the time from the first record to the location of the time marker.

A Delta marker display the difference between the time marker and the delta marker.

Spectrogram displays the most recent record at the top of the screen. Waterfall displays the most recent record at the bottom.

Use [:SENSe]:SPECtrogram:TMARker:VALue to move the Time and Delta markers.

Relevant Modes	SA
Parameters	
<num>	Marker state. Choose from: **OFF** - Time and Delta markers OFF **DELT** - Delta markers enabled. **TIME** - Time marker enabled.
Examples	SPEC:TMAR:STAT DELT
Query Syntax	[:SENSe]:SPECtrogram:TMARker:STATe?
Return Type	Character
Default	OFF

Last Modified:

24-Jan-2012	New command

[:SENSe]:SPECtrogram:TMARker:VALue <num>

(Read-Write) Set and query the location of the Time or Delta marker, used with Waterfall and Spectrogram displays (Interference Analyzer 0pt 236).

Use [:SENSe]:SPECtrogram:TMARker:STATe to enable the Time or Delta marker.

Spectrogram displays the most recent record at the top of the screen. Waterfall displays the most recent record at the bottom.

There is currently no command to read the Time that is displayed on the screen.

Relevant Modes	SA
Parameters	
<num>	Time or Delta marker location. Enter a value between 0 (bottom of screen) and the maximum number of records visible on the screen. The max number depends on the Waterfall view and Spectrogram Angle settings.
Examples	SPEC:TMAR:VAL 10
Query Syntax	[:SENSe]:SPECtrogram:TMARker:VALue?
Return Type	Numeric

Default 0

Last Modified:

17-Aug-2012 Edited for both marker types

[:SENSe]:SPECtrogram:TPDivision

(Read-Write) Set and query the Time per division of the Spectrogram trace graph window.

Relevant Modes RTSA

Parameters

<num> Per division time in seconds (0.0005 seconds to 10 seconds. Default = 100 ms).

Examples

```
SPEC:TPD 1e-3
SPEC:TPD 5
```

Query Syntax [:SENSe]:TIME:PDIVision?

Return Type Numeric

Default 1.000E-01

Last Modified:

19-sep-2016 New RTSA mode command (A.09.50)

[:SENSe]:SPECtrogram:VIEW <char>

(Read-Write) Set and query the Spectrogram View setting, which changes how the spectrogram is displayed relative to the data trace. This setting affects the total number of trace records that can be displayed.(Interference Analyzer 0pt 236).

Relevant Modes SA, RTSA

Parameters

<num> Spectrogram view. Choose from:

OVERlay - Displays the data trace over the spectrogram with NO graticules. Total trace records: 340.

FULL - Displays the spectrogram with NO data trace. Total trace records: 340.

TOP - Displays the data trace above the spectrogram. Total trace records: 130.

BOTTom - Displays the data trace below the spectrogram. Total trace records: 130.

Examples	SPEC:VIEW TOP
Query Syntax	[:SENSe]:SPECtrogram:VIEW?
Return Type	Character
Default	OVERlay

Last Modified:

19-sep-2016 Added RTSA as a relevant mode (A.09.50).

[:SENSe]:SPECtrogram:WANGle <char>

(Read-Write) Set and query the Waterfall Angle setting, which allows you to show more or less detail. More detail provides fewer (time) records.(Interference Analyzer 0pt 236).

Relevant Modes	SA
Parameters	
<char>	Choose from: **MOD** - (Moderate) Compromise between detail and number of records. **STEep** Least detail with highest number of records. **GRAD** - (Gradual) Most detail with lowest number of records. **WIDE** - (Wide Angle) Moderate angle with increased space between records.
Examples	SPEC:WANG WIDE
Query Syntax	[:SENSe]:SPECtrogram:WANGle?
Return Type	Character
Default	MOD

[:SENSe]:SPECtrum:BANDwidth[:RESolution] <num>

(Read-Write) Set and query the Resolution Bandwidth setting. Changing this value changes the FFT Window size, Analysis length and the sweep time (measurement capture length).

Relevant Modes	IQA
Parameters	
<numeric>	Minimum: 0.1 Hz Maximum: 3 MHz
Examples	**SPEC:BAND 100**
Query Syntax	:SPEC:BAND?
Return Type	Character
Default	2.00000000E+05

Last Modified:

12oct2017 New IQA command (A.10.1x)

[:SENSe]:SPECtrum:BANDwidth[:RESolution]:AUTO <bool>

(Read-Write) Set and query the Resolution Bandwidth setting. This is the resolution bandwidth of the FFT analysis. Enables or disables the FieldFox's automatic resolution bandwidth setting.

See also, If the SPEC:BAND.

Relevant Modes IQA

Parameters

<boolean> ON (1): Enables the automatic resolution bandwidth setting.
OFF (0): Disables the automatic resolution bandwidth.

Examples

```
SPEC:BAND:AUTO 0
SPEC:BAND:AUTO ON
```

Query Syntax :SPEC:BAND:AUTO?

Return Type numeric

Default ON (1)

Last Modified:

22oct2017 New IQA command (A.10.1x)

[:SENSe]:SPECtrum:FFT:ANALysis:LENGth <num>

See also, If the SPEC:FFT:WIND and SPEC:FFT:LENG:AUTO.

(Read-Write) Set and query the FFT analysis length.

The “points” is the number of points for I/Q pairs. For example, if the Window Length is set to 10, it means the window length is for 10 I and 10 Q points. Not 5 I and 5 Q points.

See also SPEC:FFT:LENG.

Relevant Modes IQA

Parameters

<numeric> Minimum: 8
Maximum: 542288

Examples

```
SPEC:FFT:ANAL:LENG 500
```

Query Syntax :SPEC:FFT:ANAL:LENG?

Return Type numeric

Default 237

Last Modified:

22-Oct-2017 New IQA command (A.10.1x)

[:SENSe]:SPECtrum:FFT:LENGth:AUTO <bool>

(Read-Write) Set and query the FFT analysis length control. This setting is directly coupled to the resolution bandwidth as follows: Enabling Length Control (AUTO) enables the automatic resolution bandwidth setting. Disabling automatic Length Control (AUTO) to MANual, disables automatic Resolution bandwidth (i.e., Analysis length and resolution BW can be set manually).

See also, If the SPEC:FFT:WIND and SPEC:FFT:ANAL:LENG.

Relevant Modes IQA

Parameters

<boolean> ON (1): Enables the automatic length control setting. The FFT analysis length control is set by the FieldFox. Resolution bandwidth is set to AUTO (i.e., the automatic resolution bandwidth by the FieldFox is enabled).

OFF (0): Disables the automatic length and FFT length settings. Analysis Length and resolution BW values can be set manually.

Examples

```
SPEC:FFT:LENG:AUTO 0
SPEC:FFT:LENG:AUTO ON
```

Query Syntax :SPEC:FFT:LENG:AUTO?

Return Type numeric

Default ON (1)

Last Modified:

22-Oct-2017 New IQA command (A.10.1x)

[:SENSe]:SPECtrum:FFT:WINDow <char>

See also, If the SPEC:FFT:LENG:AUTO and SPEC:FFT:ANAL:LENG.

(Read-Write) Set and query the FFT filtering Window setting (spectrum analysis window).

Relevant Modes IQA

Parameters

<character> UNIForm, TRIangular,HANNing, HAMMing, BLACkman, BH4Tap, FLAT, |FLATtop, FLAT6, FLAT7, P501, P601, KB70, KB90, KB110, GAUSsian60, GAUSsian70, GAUSsian80, SINC, TUKey25, BH3Tap, GUTop, KB80, KB100, KB120

Examples	**SPEC:FFT:WIND HANN** **SPEC:FFT:WIND KB70**
Query Syntax	:SPEC:FFT:WIND?
Return Type	character
Default	FLATtop

Last Modified:

22-Oct-2017 New IQA command (A.10.1x)

[:SENSe]:SPECtrum:FREQuency:SPAN <freq>

(Read-Write) Set and query the frequency span in IQA (spectrum only). This is translated to the required Digital IF bandwidth for the FFT analysis. The analyzer's Digital IF bandwidth is always equal to this value. The maximum span is equal to the maximum bandwidths of the IF Paths.

Relevant Modes	FOPS (Opt 208), IQA (Opt.351) - (Spectrum Only)
Parameters	
<frequency>	Span Frequency in Hz. Minimum: 10 Hz Maximum: 10 MHz
Couplings	Changing the span causes the IFBW and SampleRate change automatically, Span = IFBW, Sample Rate = 1.25 * IFBW Res BW = Span /50, if Resolution Bandwidth = Auto.
Examples	**SPEC:FREQ:SPAN 1e6**
Query Syntax	SOURce:FREQuency:CENTer?
Return Type	Numeric
Default	10000000

Last modified:

22oct2017 New IQA mode (A.10.1x)

[:SENSe]:SWEep:ACQuisition <num>

(Read-Write) Set and query the sweep acquisition parameter. This effectively sets the sweep time in SA mode. Adjust this setting in order to increase the probability of intercepting and viewing pulsed RF signals.

Also set [:SENSe]:SWEep:ACQuisition:AUTO to 0 (OFF).

Relevant Modes	SA, RTSA
Parameters	
<num>	Choose a relative acquisition value between 1 and 5000, where: 1 = Fastest sweep possible 5,000 = Slowest sweep possible.
Examples	`SWE:ACQ 25`
Query Syntax	[:SENSe]:SWEep:ACQuisition?
Return Type	Numeric
Default	1

Last Modified:

10-june-2016	Added RTSA mode (9.50)

[:SENSe]:SWEep:ACQuisition:AUTO <bool>

(Read-Write) Set and query sweep acquisition state.

Relevant Modes	SA, RTSA
Parameters	
<bool>	Choose from: ON or 1 - Automatically set to the fastest sweep possible with the current settings. OFF or 0 - Manually set the acquisition parameter using [:SENSe]:SWEep:ACQuisition
Examples	`SWE:ACQ:AUTO 1`
Query Syntax	[:SENSe]:SWEep:ACQuisition:AUTO?
Return Type	Boolean
Default	ON or 1

Last Modified:

10-june-2016	Added RTSA mode (9.50)

[:SENSe]:SWEep:MTIMe?

(Read-only) Query the measurement sweep time. This is the time reported on screen after a measurement completes.

Use with INIT:IMM ; OPC? in order to guarantee the most recently updated sweep time result.

Relevant Modes	SA, NA, CAT, RTSA

Parameters None

Examples `SWE:MTIM?`

Return Type Numeric

Default Not Applicable

Last Modified:

10-june-2016	Added RTSA mode (9.50)
18-Mar-2014	New command (7.50)

[:SENSe]:SWEep:POINts <num>

(Read-Write) Set and query the number of data points in the trace.

Relevant Modes CAT, LTE FDD, 5GTF, NA, NF, SA, RTSA, FOPS
VVM - Query only

Parameters

<num> Number of data points. Choose a number from 2 to 10001.

Examples `SWE:POIN 250`

Query Syntax [:SENSe]:SWEep:POINts?

Return Type Numeric

Default 401 - SA mode
201 - CAT, NA, FOPS
2 - VVM mode

Last Modified:

27nov2018	Added LTE FDD and 5GTF (11.0)
01-june-2018	Added Opt. 356 NF(10.3)
10-june-2016	Added RTSA mode (9.50)
20-Mar-2014	Added FOPS

[:SENSe]:SWEep:RX <value>

(Read-Write) Set and query the direction in which the receivers are swept.

Relevant Modes FOPS

Parameters

<value> Choose from the following:

FORWard - Used for systems for which the output frequency is Offs + Src. The output frequency of the DUT and the receiver sweeps in the same direction as the source.

REVerse - Used for systems for which the output frequency is Offs - Src. The output frequency of the DUT and the receiver sweeps in reverse direction as compared to the source.

Examples
```
SWE:RX REV
```

Query Syntax [:SENSe]:SWEep:RX?

Return Type Character

Default FORWard

Last modified:

19-Mar-2014 New command (A.07.50)

[:SENSe]:SWEep:TIME <num>

(Read-Write) Set and query the sweep time of the measurement. The actual sweep time that is displayed on the screen will usually be higher than this value due to the overhead sweep time.

In SA mode, use this command for Zerospan measurements.

To set and read sweep time for Non-zerospan measurements in SA mode, use [:SENSe]:SWEep:ACQuisition.

Relevant Modes CAT, NA, SA, RTSA

Parameters

<num> Sweep time in seconds.

Examples
```
SWE:TIME .250
```

Query Syntax [:SENSe]:SWEep:TIME?

Return Type Numeric

Default 0

Last Modified:

10-june-2016 Added RTSA mode

17-Aug-2012 Added SA mode

[:SENSe]:SWEep:TYPE <char>

(Read-Write) Set and query the sweep type.

Relevant Modes SA, RTSA

Parameters

<char> Choose from:

AUTO - FieldFox chooses the sweep type that yields the most accurate data most efficiently. When ResBW is set to 200 kHz and below, FFT is selected. Above 200 kHz, STEP is selected.

FFT - Use FFT sweep.

STEP - Use STEP sweep.

Examples

```
SWE:TYPE STEP
```

Query Syntax [:SENSe]:SWEep:TYPE?

Return Type Character

Default AUTO

Last Modified:

10-june-2016 Added RTSA mode (9.50)

1-Feb-2011 New command

[:SENSe]:SWEep:TYPE <value>

(Read-Write) Set and query the sweep type.

Relevant Modes FOPS (Opt 208)

Parameters

<value> Choose from the following:

CW - Used to make standard (non-offset) power meter measurements at a single frequency.

SWEPt - Used to make swept FOPS measurements.

Examples

```
SWE:TYPE SWEPt
```

Query Syntax [:SENSe]:SWEep:TYPE?

Return Type Character

Default CW

Last modified:

19-Mar-2014 New command (A.07.50)

[:SENSe]:TAListen:AVOLume <num> - Obsolete

This command is replaced with SYSTem:AUDio:VOLume

(Read-Write) Set and query the Tune and Listen volume.

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen

Relevant Modes SA

Parameters

<char> Tune and Listen volume. Choose a value in percent between 0 and 100 (loudest).

Examples

```
TAL:AVOL 50
```

Query Syntax [:SENSe]:TAListen:AVOLume?

Return Type Numeric

Default 60

[:SENSe]:TAListen:DSTate <bool>

(Read-Write) Set and query the Tune and Listen demodulation state.

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen

Relevant Modes SA

Parameters

<bool> Tune and Listen demod state. Choose from:

OFF or **0** - Do not demodulate. Stops the audio demodulation and performs only the normal SA sweeps

ON or **1** - Demodulate

Examples

```
TAL:DST 0
```

Query Syntax [:SENSe]:TAListen:DSTate?

Return Type Boolean

Default ON

[:SENSe]:TAListen:DTYPe <char>

(Read-Write) Set and query the Tune and Listen demodulation type. This command allows you to change the demod type without enabling Tune and Listen.

To enable TuneListen mode and set the demod type, use [:SENSe]:MEASurement:TAListen

Relevant Modes SA

Parameters

<char> Tune and Listen demodulation type. Choose from:

AM - Amplitude Modulation.

FMN - FM Narrow

FMW - FM Wide

Examples	`TAL:DTYP AM`
Query Syntax	[:SENSe]:TAListen:DTYPe?
Return Type	Character
Default	AM

[:SENSe]:TAListen:LTIMe <num>

(Read-Write) Set and query the Listen time for Tune & Listen.

While Tune & Listen is actively demodulating a signal, the SA does not sweep and update the display. Listen Time sets the amount of time that the FieldFox demodulates. It then stops to perform a single sweep and update the display, then again demodulates for this amount of time.

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen

Relevant Modes	SA
Parameters	
<char>	Listen time in seconds. Choose a value between 0.1 and 100.
Examples	`TAL:LTIM 20`
Query Syntax	[:SENSe]:TAListen:LTIMe?
Return Type	Numeric
Default	2.5

[:SENSe]:TAListen:TFReq <num>

(Read-Write) Set and query the tune frequency for Tune & Listen. First set [:SENSe]:MEASurement:TAListen.

The Tune & Listen tuner is separate from the SA display. This allows you to listen to one frequency while displaying a different range of frequencies.

See Also: CALCulate:MARKer:SET

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen

Relevant Modes	SA
Parameters	
<char>	Tune frequency in Hz. Choose a value between the FieldFox MIN and MAX frequency.
Examples	`TAL:TFR 101.7e6`
Query Syntax	[:SENSe]:TAListen:TFReq?
Return Type	Numeric
Default	3.0 GHz

[:SENSe]:TOL <value>

(Read-Write) Set and query the power sensor measurement tolerance.

Each power sensor reading is "settled" when either:

- two consecutive readings are within this Tolerance value or
- when the Max Number of Readings ([:SENSe]:POINt:READ:MAX) has been met.

The readings that were taken are averaged together to become the "settled" reading.

Relevant Modes FOPS (Opt 208)

Parameters

<value> Tolerance in dB. Choose a value between 0.0 and 10.0

When consecutive power meter readings are within this value of each other, then the reading is considered settled.

Examples

```
TOL .05
```

Query Syntax [:SENSe]:TOL?

Return Type Numeric

Default .1

Last modified:

19-Mar-2014 New command (A.07.50)

[:SENSe]:TRACe[:DATA]?

(Read-only) Read the data from a Power Meter measurement.

For Pulse Measurements ONLY: This command returns a single 'Meter-style' value. To read data for a trace graph, use CALCulate[:SELected]:TRACe:DATA

Relevant Modes Power Meter, Pulse Measurements, CPM

Examples

```
TRAC?
```

Query Syntax [:SENSe]:TRACe[:DATA]?

Return Type Numeric

Default Not Applicable

Last Modified:

1-Apr-2014 Added CPM

29-Oct-2013 Added Pulse

[:SENSe]:TRACe:LIMit:LOWer <num>

(Read-Write) Set and query the minimum (lower) limit value. Also set :SENSe]:TRACe:LIMit:LOWer:STATe ON.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<num> Minimum (lower) limit value.

Examples

```
TRAC:LIM:LOW -50
```

Query Syntax [:SENSe]:TRACe:LIMit:LOWer?

Return Type Numeric

Default -80

Last modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

[:SENSe]:TRACe:LIMit:LOWer:STATe <bool>

(Read-Write) Set and query the ON|OFF state for minimum (lower) limit testing.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<bool> Minimum limit state. Choose from:

0 or **OFF -** Minimum limit OFF

1 or **ON -** Minimum limit ON

Examples

```
TRAC:LIM:LOW:STATe 0
```

Query Syntax [:SENSe]:TRACe:LIMit:LOWer:STATe?

Return Type Boolean

Default 0FF

Last modified:

1-Apr-2014	Added CPM
31-Oct-2013	Added Pulse

[:SENSe]:TRACe:LIMit:UPPer <num>

(Read-Write) Set and query the maximum (upper) limit value. Also set :SENSe]:TRACe:LIMit:UPPer:STATe ON.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<num> Maximum (upper) limit value.

Examples

```
TRAC:LIM:UPP 0
```

Query Syntax [:SENSe]:TRACe:LIMit:UPPer?

Return Type Numeric

Default -20

Last modified:

1-Apr-2014 Added CPM

31-Oct-2013 Added Pulse

[:SENSe]:TRACe:LIMit:UPPer:STATe <bool>

(Read-Write) Set and query the ON|Off state for maximum (upper) limit testing.

Relevant Modes Power Meter, Pulse Measurements, CPM

Parameters

<bool> Maximum limit state. Choose from:
0 or **OFF** - Maximum limit OFF
1 or **ON -** Maximum limit ON

Examples

```
TRAC:LIM:UPP:STATe 0
```

Query Syntax [:SENSe]:TRACe:LIMit:UPPer:STATe?

Return Type Boolean

Default 0FF

Last modified:

1-Apr-2014 Added CPM

31-Oct-2013 Added Pulse

[:SENSe]:TRACe:MEASurement:REFerence <num>

(Read-Write) Set and query the Pulse Top setting which adjusts the measurement reference.

Relevant Modes Pulse Measurements

Parameters

<num> Pulse Top in percent. Choose a value between 0 and 100.

Examples	TRAC:MEAS:REF 90
Query Syntax	[SENSe]:TRACe:MEASurement:REFerence?
Return Type	Numeric
Default	100

Last Modified:

29-Oct-2013 New command

[:SENSe]:TRACe:MEASurement <value>

(Read-Write) Set and query the measurement to display.

Relevant Modes	FOPS
Parameters	
<value>	Choose from the following: **SPOWer** - Not available until source data is stored into memory. Displays only the source power memory trace. **OUTPower** - Displays the raw output power at the USB power sensor. **GAIN** - Not available until source data is stored into memory. Displays the Output power / Source power (memory trace).
Examples	**TRAC:MEAS GAIN**
Query Syntax	[:SENSe]:TRACe:MEASurement?
Return Type	Character
Default	OUTPower

Last modified:

19-Mar-2014 New command (A.07.50)

[:SENSe]:V5G:CCARrier<n>:ENABle

(Read-Write) Set and query the component carrier center frequency.

Relevant Modes	5GTF
Parameters	
<*n*>	Component carrier (CC) number. If unspecified, value is set to 1 (CC0). n = 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 (Up to eight component carriers can be measured at one time.)

<numeric> Choices:

ON (1): Enable the target carrier.

OFF (0): Disable the target carrier.

Examples

```
V5G:CCAR3:ENAB ON
V5G:CCAR5:ENAB 0
```

Query Syntax V5G:CCAR:CENT?

Return Type number

Default ON|OFF|OFF|OFF|OFF|OFF|OFF|OFF

Last Modified:

19-Dec-2018 New command

[:SENSe]:V5G:CCARrier<n>:FREQuency:CENTer

(Read-Write) Set and query the component carrier center frequency.

Relevant Modes 5GTF

Parameters

<*n*> Component carrier (CC) number. If unspecified, value is set to 1 (CC0).

n = 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 (Up to eight component carriers can be measured at one time.)

<numeric> Choices:

Maximum (Hz): Dynamic. Varies with the FieldFox model.

Minimum: 0 Hz

Examples

```
V5G:CCAR5:FREQ:CENT 28e9
V5G:CCAR3:FREQ:CENT 28200000000
```

Query Syntax V5G:CCAR:FREQ:CENT?

Return Type number

Default 1000000000

Last Modified:

19-Dec-2018 New command

[:SENSe]:V5G:SCORr:THReshold <num>

(Read-Write) Set and query the sync correlation threshold value (%).

Relevant Modes	5GTF
Parameters	
<number>	Value of the sy Minimum: 0 Maximum: 100
Examples	**V5G:SCOR:THR**
Query Syntax	V5G:SCOR:THR
Default	1%

Last Modified:

27nov2018	Added 5GTF mode (11.0)

[:SENSe]:WAVeform:STARt <num>

(Read-Write) Sets the start time of the waveform measurement.

Relevant Modes	IQA
Parameters	n/a
<numeric>	Minimum: 0s Maximum: Dynamic. Varies with other setting couplings. Note: The TimeDomainDisplayLength is derived by the following formula. TimeDomainDisplayLength [pts] = SampleRate[pts/sec] x (StopTime[sec] – StartTime[sec]) + 1 The maximum value of TimeDomainDisplayLength is set to 524288 by considering the memory constraint and cpu pressure. When the change of Start Time makes TimeDomainDisplayLength exceed the limitation, the Stop Time Time will change to satisfy TimeDomainDisplayLength limitation. The Maximum value is determined by current sample Rate and max capture samples. Start time is adjusted to the nearest sample point based on sample period. The max TimeDomainDisplayLength is 524288.
Examples	**:WAV:STAR 3e-6** **:WAV:STAR .003**
Query Syntax	:WAV:STAR?
Return Type	Numeric
Default	0.00000E+00

Last Modified:

22-Oct-2017	Added IQA mode (10.1x)

[:SENSe]:WAVeform:STOP <num>

(Read-Write) Sets the stop time of the waveform measurement.

Relevant Modes IQA

Parameters n/a

<numeric> Minimum: 0s

Maximum: Dynamic. Varies with other setting couplings.

Note: The TimeDomainDisplayLength is derived by the following formula.

TimeDomainDisplayLength [pts] = SampleRate[pts/sec] x (StopTime[sec] – StartTime[sec]) + 1

The maximum value of TimeDomainDisplayLength is set to 524288 by considering the memory constraint and cpu pressure.

When the change of Stop Time makes TimeDomainDisplayLength exceed the limitation, the Start Time Time will change to satisfy TimeDomainDisplayLength limitation.

The Maximum value is determined by current sample Rate and max capture samples.

Start time is adjusted to the nearest sample point based on sample period.

The max TimeDomainDisplayLength is 524288.

Examples

```
:WAV:STOP 6e-6
:WAV:STOP .003
```

Query Syntax :WAV:STOP?

Return Type Numeric

Default 0.00000E+00

Last Modified:

22-Oct-2017	Added IQA mode (10.1x)

SOURce:ENABle <bool>

(Read-Write) Set and query the Source Enable ON|OFF setting. Set the power level using SOURce:POWer.

Relevant Modes Power Meter and SA

Parameters

<boolean> Choose from:
OFF - Source OFF
ON - Source ON

Examples
```
SOUR:ENAB ON
```

Query Syntax SOURce:ENABle?

Return Type Boolean

Default OFF

Last Modified:

1-Nov-2013	New command

SOURce:ENABle <bool>

Note: This command was previously named [:SENSe]:ISOurce:ENABle. That syntax still work, but the new syntax should be used for new development.

(Read-Write) Set and query the Independent source state.

Relevant Modes SA

Parameters

<boolean> Independent source state. Choose from:
ON (1) - Independent source ON
OFF (0) - Independent source OFF

Examples
```
SOUR:ENAB 1
```

Query Syntax SOURce:ENABle?

Return Type Boolean

Default OFF

Last Modified:

25-Mar-2014	Changed name
20-Oct-2010	New command (5.30)

SOURce:FREQuency:CENTer <value>

(Read-Write) Set and query the center frequency. Also send SOURce:FREQuency:SPAN

Relevant Modes FOPS (Opt 208)

Parameters

<value> Center Frequency in Hz. The frequency limits for the measurement are determined by the limits of both the FieldFox and the power sensor.

- The LOW frequency is limited by the higher of either the FieldFox or the power sensor minimum frequencies.
- The HIGH frequency is limited by the lower of either the FieldFox or the power sensor maximum frequencies.

Examples

```
SOUR:FREQ:CENT 1e9
```

Query Syntax SOURce:FREQuency:CENTer?

Return Type Numeric

Default 50 MHz

Last modified:

19-Mar-2014 New command (A.07.50)

SOURce:FREQuency[:CW] <num>

Note: This command was previously named [:SENSe]:ISOurce:FREQuency[:CW]. That syntax will still work, but the new syntax should be used for new development.

(Read-Write) Set and query the Independent Source CW frequency.

Use SOURce:MODE to set Independent Source to CW mode.

Use SOURce:ENABle to enable Independent Source.

Relevant Modes SA

Parameters

<num> CW frequency. Choose a value within the IQA and SA mode frequency range.

Examples

```
SOUR:FREQ 1e9
```

Query Syntax SOURce:FREQuency[:CW]?

Return Type Numeric

Default IQA, SA mode center frequency

Last Modified:

25-Mar-2014 Name change

10-Oct-2010 New command (5.30)

SOURce:FREQuency:SPAN <value>

(Read-Write) Set and query the frequency span of the measurement. Also send SOURce:FREQuency:CENTer

Relevant Modes FOPS (Opt 208)

Parameters

<value> Frequency span in Hz. The frequency limits for the measurement are determined by the limits of both the FieldFox and the power sensor.

- The LOW frequency is limited by the higher of either the FieldFox or the power sensor minimum frequencies.
- The HIGH frequency is limited by the lower of either the FieldFox or the power sensor maximum frequencies.

Examples

```
SOUR:FREQ:SPAN .5e9
```

Query Syntax SOURce:FREQuency:SPAN?

Return Type Numeric

Default 10 MHz

Last modified:

19-Mar-2014 New command (A.07.50)

SOURce:FREQuency:STARt <value>

(Read-Write) Set and query the start frequency of the measurement. Also send SOURce:FREQuency:STOP

Relevant Modes FOPS (Opt 208)

Parameters

<value> Start frequency in Hz. The frequency limits for the measurement are determined by the limits of both the FieldFox and the power sensor.

- The LOW frequency is limited by the higher of either the FieldFox or the power sensor minimum frequencies.
- The HIGH frequency is limited by the lower of either the FieldFox or the power sensor maximum frequencies.

Examples

```
SOUR:FREQ:STAR .5e9
```

Query Syntax SOURce:FREQuency:STARt?

Return Type Numeric

Default 45 MHz

Last modified:

19-Mar-2014 New command (A.07.50)

SOURce:FREQuency:STOP <value>

(Read-Write) Set and query the stop frequency of the measurement. Also send SOURce:FREQuency:STARt

Relevant Modes FOPS (Opt 208)

Parameters

<value> Stop frequency in Hz. The frequency limits for the measurement are determined by the limits of both the FieldFox and the power sensor.

- The LOW frequency is limited by the higher of either the FieldFox or the power sensor minimum frequencies.
- The HIGH frequency is limited by the lower of either the FieldFox or the power sensor maximum frequencies.

Examples

```
SOUR:FREQ:STOP 1.5e9
```

Query Syntax SOURce:FREQuency:STOP?

Return Type Numeric

Default 55 MHz

Last modified:

19-Mar-2014 New command (A.07.50)

SOURce:MODE <char>

Note:

IMPORTANT! This command syntax still works, but it is recommended that you use: SOUR:TRAC for new development.

This command was previously named [:SENSe]:ISOurce:MODE. That syntax will still work, but this new syntax should be used for new development.

(Read-Write) Set and query the Independent Source mode setting.

Use SOURce:ENABle to enable Independent Source.

Relevant Modes SA

Parameters

<character> Independent source mode. Choose from:

CW - The internal source is set to CW. Use SOURce:FREQuency[:CW] to set the frequency.

TCW - The internal source is set to tracking CW.

SRTS - “Stimulus Response Tracking Sweep". The internal source tracks with

the SA receiver. Use SOURce:NORMalize to normalize the trace.

Examples `SOUR:MODE CW`

Query Syntax SOURce:MODE?

Return Type Character

Default CW

Last Modified:

25-Mar-2014	Name change
10-Oct-2010	New command (5.30)

SOURce:NORMalize <bool>

Note: This command was previously named [:SENSe]:ISOurce:NORMalize. That syntax will still work, but the new syntax should be used for new development.

(Read-Write) Set and query the state of Independent source normalization.

Independent source must be ON (SOURce:ENABle) and in tracking mode SOurce:TRACking.

Relevant Modes SA

Parameters

<bool> Normalization state. Choose from:
ON (1) - Normalization ON
OFF (0) - Normalization OFF

Examples `SOUR:NORM 1`

Query Syntax SOURce:NORMalization?

Return Type Boolean

Default OFF

Last Modified:

25-Mar-2014	Name change
10-Oct-2010	New command (5.30)

SOURce:POWer <num>

(Read-Write) Set and query the source power level. This command sets SOURce:POWer:ALC[:MODE] to MANual.

- For N9912A and N9923A models: This command changes the source attenuation (dB) to effectively set the power level at the test port.
- All other models: This command directly changes the power level in dBm.

Relevant Modes CAT, NA, VVM, Power Meter

Parameters

<num> Source power/attenuator level.

- **N9912A:** 0 to -31 dB in 1 dB steps
- **N9923A:** 0 to -47 dB in .5 dB steps
- **All other models:** Set power level from +3 to -45 dBm in .1 dB steps.

This command also supports sending MIN and MAX power levels as arguments:

- For N9912A and N9923A, MAX is equivalent to the HIGH setting. See the User's Guide for your FieldFox model.
- For all other models, MAX is equivalent to the maximum leveled setting (+3)

Examples

```
SOUR:POW -10
Source:power max
```

Query Syntax :SOURce:POWer?

Return Type Numeric

Default 0

Last modified:

1-Nov-2013	Added Power Meter
3-Apr-2013	Major edits (LH)
15-Aug-2012	Added link to ALC mode
17-Jul-2012	Added all other models (A.06.00)
1-Feb-2011	Fixed and reworded to emphasize negative power levels.

SOURce:POWer <num>

Note: This command was previously named [:SENSe]:SOurce:POWer. That syntax will still work, but the new syntax should be used for new development.

(Read-Write) Set and query the Independent Source power level. This command automatically sets SOURce:POWer:MAXimum to OFF.

Use SOURce:ENABle to enable Independent Source.

Relevant Modes RTSA, SA (All models EXCEPT N9912A - See [:SENSe]:ISOurce:POWer:ATTenuation for this model).

Parameters

<num> Power level in dBm. Choose a value between -45 and 0.

This command will accept MIN and MAX as arguments.

Examples	`SOUR:POW -20` `source:power min`
Query Syntax	SOURce:POWer?
Return Type	Numeric
Default	-15 dBm

Last Modified:

25-Mar-2014	Name change
10-Oct-2010	New command (6.00)

SOURce:POWer:ALC[:MODE] <char>

(Read-Write) Set and query the source power ALC (automatic leveling control) setting.

To set source power to a specific level, use SOURce:POWer. (Automatically sets SOUR:POW:ALC MAN.)

Relevant Modes	CAT, NA, VVM
Parameters	
<char>	Source power. Choose from: • **HIGH** - highest power level at each frequency (NOT flat) • **LOW** - low power level (same as SOUR:POW MIN setting). For FieldFox models other than N9912A and N9923A, power is flat over the selected frequency range. • **MAN** - Manual setting (Automatically set when SOURce:POWer is set.)
Examples	`SOUR:POW:ALC HIGH`
Query Syntax	SOURce:POWer:ALC[:MODE]?
Return Type	Character
Default	HIGH

Last Modified:

3-Apr-2013	Edited leveling settings
15-Aug-2012	New command

SOURce:POWer:ATTenuation <num>

Note: This command was previously named [:SENSe]:ISOurce:POWer:ATTenuation. That syntax will still

work, but the new syntax should be used for new development.

(Read-Write) Set and query the Independent Source attenuation level.

Use SOURce:ENABle to enable Independent Source.

Relevant Modes SA (N9912A ONLY - See SOURce:POWer:MAXimum and SOURce:POWer for all other models).

Parameters

<num> Independent source attenuation in dB. Choose a value between 31 and 0.

This command will accept MIN and MAX as arguments.

Examples

```
SOUR:POW:ATT 20
source:power:att min
```

Query Syntax SOURce:POWer:ATTenuation?

Return Type Numeric

Default 10

Last Modified:

7-Apr-2014	Name change
10-Oct-2010	New command (5.30)

SOURce:POWer:MAXimum <bool>

Note: This command was previously named [:SENSe]:ISOurce:POWer:MAXimum. That syntax will still work, but the new syntax should be used for new development.

(Read-Write) Set and query the state of maximum Independent Source Power.

Use SOURce:ENABle to enable Independent Source.

Relevant Modes SA (All models EXCEPT N9912A - See SOURce:POWer:ATTenuation for this model).

Parameters

<bool> Max Independent Source Power state. Choose from:

ON (or 1) - Independent Source Power level is set to the maximum achievable power at all frequencies.

OFF (or 0) - Independent Source Power level is set using SOURce:POWer.

Examples

```
SOUR:POW:MAX 1
source:power:maximum off
```

Query Syntax SOURce:POWer:MAXimum?

Return Type Boolean

Default OFF

Last Modified:

25-Mar-2014	Name change
10-Oct-2010	New command (6.00)

SOURce:POWer:MEMorize

(Write-Only) Stores the current data trace into memory.

Relevant Modes FOPS

Examples

```
SOUR:POW:MEM
```

Query Syntax Not Applicable

Default Not Applicable

Last modified:

19-Mar-2014	New command

SOURce:POWer <num>

(Read-Write) Set and query the source power level. This command sets SOURce:POWer:ALC[:MODE] to MANual.

- For N9912A and N9923A models: This command changes the source attenuation (dB) to effectively set the power level at the test port.
- All other models: This command directly changes the power level in dBm.

Relevant Modes CAT, NA, VVM, Power Meter

Parameters

<num> Source power/attenuator level.

- **N9912A:** 0 to -31 dB in 1 dB steps
- **N9923A:** 0 to -47 dB in .5 dB steps
- **All other models:** Set power level from +3 to -45 dBm in .1 dB steps.

This command also supports sending MIN and MAX power levels as arguments:

- For N9912A and N9923A, MAX is equivalent to the HIGH setting. See the User's Guide for your FieldFox model.
- For all other models, MAX is equivalent to the maximum leveled setting (+3)

Examples

```
SOUR:POW -10
Source:power max
```

Query Syntax :SOURce:POWer?

Return Type Numeric

Default 0

Last modified:

1-Nov-2013	Added Power Meter
3-Apr-2013	Major edits (LH)
15-Aug-2012	Added link to ALC mode
17-Jul-2012	Added all other models (A.06.00)
1-Feb-2011	Fixed and reworded to emphasize negative power levels.

SOURce:POWer <num>

Note: This command was previously named [:SENSe]:SOurce:POWer. That syntax will still work, but the new syntax should be used for new development.

(Read-Write) Set and query the Independent Source power level. This command automatically sets SOURce:POWer:MAXimum to OFF.

Use SOURce:ENABle to enable Independent Source.

Relevant Modes RTSA, SA (All models EXCEPT N9912A - See [:SENSe]:ISOurce:POWer:ATTenuation for this model).

Parameters

<num> Power level in dBm. Choose a value between -45 and 0.
This command will accept MIN and MAX as arguments.

Examples

```
SOUR:POW -20
source:power min
```

Query Syntax SOURce:POWer?

Return Type Numeric

Default -15 dBm

Last Modified:

25-Mar-2014	Name change
10-Oct-2010	New command (6.00)

SOURce:RECeiver:OFFSet <value>

(Read-Write) Set and query the receiver offset frequency of the measurement. Also send SOURce:FREQuency:STARt

Relevant Modes FOPS (Opt 208)

Parameters

<value> Offset frequency in Hz. (The frequency that the receiver is offset from the source.) This is typically the frequency of the LO that is used with the frequency converter. The frequency offset may be positive, negative, or zero.

Examples

```
SOUR:REC:OFFS .5e9
```

Query Syntax SOURce:RECeiver:OFFSet?

Return Type Numeric

Default 0 Hz

Last modified:

19-Mar-2014 New command (A.07.50)

:STATus:OPERation:SAMode:CONDition?

(Read-Only) Reads the status of a RecordPlayback session.

Relevant Modes SA, RTSA

Examples

```
STAT:OPER:SAM:COND?
```

Return Type Numeric:

0 - Record Playback session is NOT OPEN

64 - Record Playback session is OPEN

Default Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

:STATus:QUEStionable:FREQuency:CONDition?

(Read-Only) Reads the status of External Reference unlock errors.

Relevant Modes ALL

Examples

```
STAT:QUES:FREQ:COND?
```

Return Type Numeric:

0 - External reference NOT unlocked.

2 - External reference unlocked.

Default Not Applicable

:STATus:QUEStionable:INTegrity:CONDition?

(Read-Only) Reads the status of ADC Overrange errors.

Relevant Modes ALL - However, SA is the only mode that reports ADC overrange.

Examples

```
STAT:QUES:FREQ:COND?
```

Return Type Numeric:

0 - ADC is NOT Overrange

2 - ADC Overrange occurs.

Default Not Applicable

:STATus:QUEStionable:LIMit:CONDition?

(Read-Only) Reads the status of limit line failures.

Relevant Modes ALL - Limit lines are allowed in CAT, NA, NF, SA

Examples

```
STAT:QUES:LIM:COND?
The following C# excerpt assumes 4 traces, and uses a
“bitwise and” of the return value:
   for (int i = 1; i < 5; ++i)
   {
     if ((returnValueFromScpiCommandAsInt &
((int)(Math.Pow(2, i)))) > 0)
     {
        tracePassFail[i] = "Fail";
     }
     else
     {
        tracePassFail[i] = "Pass";
     }
   }
```

Return Type Numeric:

0 - All limit lines pass

2 - Any limit on trace#1 failed

4 - Any limit on trace #2 failed

8 - Any limit on trace #3 failed

16 - Any limit on trace #4 failed

The returned values are added together. For example, 6 would mean traces #1 and #2 failed, 12 would mean #2 and #3 failed, 30 would mean all 4 traces failed and so forth.

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)
17-Jul-2012	Updated for A.06.00)

SYSTem:AUDio:MUTe <bool>

(Read-Write) Set and query the system volume MUTE state.

Relevant Modes ALL Modes.

Parameters

<char> Choose from:

ON (or 1) - Volume muted.

OFF (or 0) - Volume NOT muted.

Examples

```
SYST:AUD:MUTE 0
```

Query Syntax SYSTem:AUDio:MUTe?

Return Type Boolean

Default OFF (or 0)

Last Modified:

4-Aug-2011	New command

SYSTem:AUDio:VOLume <num>

(Read-Write) Set and query the system volume level.

Relevant Modes ALL Modes.

Parameters

<num> Volume level. Choose a value between 0 (lowest volume) and 100 (highest volume).

Examples

```
SYST:AUD:VOL 93
```

Query Syntax SYSTem:AUDio:VOLume?

Return Type Numeric

Default 75

Last Modified:

4-Aug-2011	New command

SYSTem:BATTery?

(Read-Only) Reads whether or not a battery is present in the FieldFox.

Relevant Modes ALL

Examples `SYST:BATT?`

Return Type Boolean
1- Battery is present
0 - Battery is not present

Default Not Applicable

Last Modified:

18-Oct-2012	New command

SYSTem:BATTery:ABSCharge?

(Read-Only) Reads the absolute charge on the battery in percent.

Relevant Modes ALL

Examples `SYST:BATT:ABSC?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:ACURrent?

(Read-Only) Reads the average current flowing from the battery in amperes.

Relevant Modes ALL

Examples `SYST:BATT:ACUR?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:ARTTe?

(Read-Only) Returns the minutes of run time remaining based on running average of current being used.

Relevant Modes ALL

Examples `SYST:BATT:ARTT?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:CHEMistry?

(Read-Only) Reads the chemistry type of the battery.

Relevant Modes ALL

Examples `SYST:BATT:CHEM?`

Return Type String

Default LION (Lithium Ion)

SYSTem:BATTery:CURRent?

(Read-Only) Reads amount of current being consumed when operating from internal battery. If battery is charging, indicates amount of charging current.

Relevant Modes ALL

Examples `SYST:BATT:CURR?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:CYCLes?

(Read-Only) Reads the number of charge cycles battery has experienced. Charge cycle defined as ≥80% change in relative state of charge.

Relevant Modes ALL

Examples `SYST:BATT:CYCLes?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:DATE?

(Read-Only) Reads the date of manufacture of the battery.

Relevant Modes ALL

Examples `SYST:BATT:DATE?`

Return Type String

Default Not Applicable

SYSTem:BATTery:FCAPacity?

(Read-Only) Reads the capacity of a full battery in milli-amp Hours.Theoretically, how long a full battery of this type should continue to provide energy.

Relevant Modes ALL

Examples `SYST:BATT:FCAP?`

Return Type String

Default Not Applicable

SYSTem:BATTery:MAXError?

(Read-Only) Reads Reads the present accuracy of the battery gauge in percent. If the error exceeds 10%, you should recondition the battery.

Relevant Modes ALL

Examples `SYST:BATT:MAXE?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:MFGname?

(Read-Only) Reads the name of the manufacturer of the battery.

Relevant Modes ALL

Examples `SYST:BATT:MFGname?`

Return Type String

Default Keysight

SYSTem:BATTery:RCAPacity?

(Read-Only) Reads the remaining battery capacity in hours..

Relevant Modes ALL

Examples `SYST:BATT:RCAP?`

Return Type String

Default Not Applicable

SYSTem:BATTery:RELCharge?

(Read-Only) Reads the current charge compared to actual full capacity in percent. This number lowers with age and number of battery cycles.

Relevant Modes ALL

Examples `SYST:BATT:RELC?`

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:RTTE?

(Read-Only) Reads the minutes of run time remaining based on amount of current being used now.

Relevant Modes ALL

Examples
```
SYST:BATT:RTTE?
```

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:SAVer <bool>

(Read-Write) Set and query the battery saver state.

Relevant Modes ALL

Parameters

<bool> Choose from:
OFF or **0** - Battery saver OFF. This leaves the source ON between sweeps.
ON or **1** - Battery saver ON

Examples
```
SYST:BATT:SAV OFF
```

Query Syntax SYSTem:BATTery:SAVer?

Return Type Boolean

Default ON

SYSTem:BATTery:SN?

(Read-Only) Reads the serial number of the battery.

Relevant Modes ALL

Examples
```
SYST:BATT:SN?
```

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:STATus?

(Read-Only) Reads the use status of the FieldFox battery.

Relevant Modes ALL

Examples
```
SYST:BATT:STAT?
```

Return Type Character
FULL - Battery is fully charged
CHAR - Battery is charging
NOB - No battery present
DISC - Battery is discharging; no AC Adaptor is present.

Default Not Applicable

Last Modified:

18-Oct-2012 New command

SYSTem:BATTery:TEMPerature?

(Read-Only) Reads the current battery temperature in degrees Celsius.

Relevant Modes ALL

Examples
```
SYST:BATT:TEMP?
```

Return Type Numeric

Default Not Applicable

SYSTem:BATTery:VENDor?

(Read-Only) Reads the vendor / distributor of the battery.

Relevant Modes ALL

Examples
```
SYST:BATT:VEND?
```

Return Type String

Default Not Applicable

SYSTem:BATTery:VOLTage?

(Read-Only) Reads the current battery voltage in volts.

Relevant Modes ALL

Examples
```
SYST:BATT:VOLT?
```

Return Type Numeric

Default Not Applicable

SYSTem:DATE <year,mo,dy>

(Read-Write) Set and query the system date.

Relevant Modes ALL

Parameters

<yr,mo,dy> Year, month, and day.

Examples

```
SYST:DATE 2008,10,16
```

Query Syntax SYSTem:DATE?

Return Type Comma-separated numeric

Default Not Applicable

SYSTem:DCSupply?

(Read-Only) Reads whether the DC Supply is connected to the FieldFox.

Relevant Modes ALL

Examples

```
SYST:DCS?
```

Return Type Boolean
1 - DC Supply is connected
0 - DC Supply is NOT connected

Default Not Applicable

Last modified:

17-Jul-2012 New command (A.06.00)

SYSTem:ERASe <value>

(Write-Read) Immediately erases all user data from the FieldFox.
Warning: there is no confirmation message.

Relevant Modes ALL

Parameters None

<value> (String) Choose “USERDATA” (case sensitive)

Examples

```
SYST:ERAS "USERDATA"
```

Query Syntax SYSTem:ERASe? "USERDATA"
Returns the date of the last time that user data was erased.

Default Not Applicable

Last modified:

28-Mar-2013 Added read

SYSTem:ERRor[:NEXT]?

(Read-Only) Read the next error in the error queue.

Learn How to Query the Error Queue.

Relevant Modes	ALL
Examples	`SYST:ERR?`
Return Type	Numeric, String
Default	Not Applicable

SYSTem:GPS:CNOise?

This query returns a string containing Carrier to Noise (C/No dBHz) data for each satellite currently in view of the FieldFox GPS.

Note: The C/No values returned are not calibrated at the factory or warranted for accuracy. The numbers retrieved are passed unprocessed directly from the GPS receiver in use.

Relevant Modes	GPS
Examples	SYSTem:GPS:CNOise
Query Syntax	SYSTem:GPS:CNOise?
Return Type	Comma separated string in the form "sat#,cno,sat#,cno,...". If GPS mode is not enabled or there are no satellites in view, the query returns "0,0". If there are 10 satellites in view, this query generates 20 numbers in the SCPI return string.
Default	Not applicable

SYSTem:GPS:DATA?

(Read-only) Returns current GPS data in the following form:
<latitude>,<longitude>,<elevation (m)>,<timestamp (UTC)>

Relevant Modes	ALL Modes
Parameters	None

Examples	`SYST:GPS:DATA?`
	`'Returns`
	`"38 28.88657 N,122 42.66682 W,152,2010-06-28 23:35:38Z"`

Return Type	Comma-separated numeric
Default	Not Applicable

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:GPS:DATA:LAST?

(Read-only) Returns the data for the last successfully-locked GPS read in the form: <latitude>,<longitude>,<elevation (m)>,<timestamp (UTC)>,<seconds since last read>

Relevant Modes ALL Modes.

Parameters None

Examples

```
SYST:GPS:DATA:LAST?
'Returns
"38 28.88657 N,122 42.66682 W,152,2010-06-28 23:35:38Z,4"
```

Return Type Comma-separated numeric

Default Not Applicable

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:GPS:DISPlay:COORdinate:FORMat <char>

(Read-Write) Set and query the format of the Latitude / Longitude coordinates.

Relevant Modes ALL Modes.

Parameters

<char> Choose from:
DMS - degrees, minutes, seconds
DMM - degrees, decimal minutes

Examples

```
SYST:GPS:DISP:COOR:FORM DMM
```

Query Syntax SYSTem:GPS:DISPlay:COORdinate:FORMat?

Return Type Character

Default DMS

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:GPS:DISPlay:DISTance:UNIT <char>

(Read-Write) Set and query the units of elevation.

Relevant Modes ALL Modes

Parameters

<char> Choose from:
FEET
METers

Examples
```
SYST:GPS:DISP:DIST:UNIT MET
```

Query Syntax SYSTem:GPS:DISPlay:DISTance:UNIT?

Return Type Character

Default METers

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:GPS:DISPlay:STATe <bool>

(Read-Write) Set and query the GPS status line display state.

Relevant Modes ALL Modes

Parameters

<char> Choose from:
ON (1) - Status line ON
OFF (0) - Status line OFF

Examples
```
SYST:GPS:DISP:STAT 0
```

Query Syntax SYSTem:GPS:DISPlay:STATe?

Return Type Boolean

Default ON (1)

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:GPS:LSTate?

(Read-only) Returns the GPS lock state.

Relevant Modes ALL Modes

Parameters

Examples
```
SYST:GPS:LST?
```

Return Type Numeric
0 - OFF
1 - Locked
2 - ON but unlocked
3 - ON but no GPS device present

Default 0 - OFF

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:GPS[:STATe] <char>

(Read-Write) Set and query the GPS state.

Relevant Modes ALL Modes.

Parameters

<char> Choose from:
OFF - GPS OFF
EXTernal - External GPS ON
INTernal - Internal GPS ON. Requires Option 307 (Built-in GPS)

Examples

```
SYST:GPS EXT
```

Query Syntax SYSTem:GPS[:STATe]?

Return Type Character

Default OFF

Last modified:

17-Jul-2012 Updated for Internal (A.06.00)

20-Jul-2010 New command (A.05.33)

SYSTem:GPS:SYNChronize <bool>

(Read-Write) Set and query the GPS clock sync state.

Relevant Modes ALL Modes

Parameters

<char> Choose from:
ON (1) - FieldFox clock synchronized with GPS clock.
OFF (0) - FieldFox clock NOT synchronized with GPS clock.

Examples `SYST:GPS:SYNC 0`

Query Syntax SYSTem:GPS:SYNChronize?

Return Type Boolean

Default OFF (0)

Last modified:

20-Jul-2010 New command (A.05.33)

SYSTem:PREFerences:DFLT

(Write-Only) Sets the system (language and display) preferences to their default settings.

Relevant Modes ALL

Parameters None

Examples `SYST:PREF:DFLT`

Query Syntax Not Applicable

Default Not Applicable

SYSTem:PREFerences:SAVE

(Read-Write) Saves the current language and display settings as your system preferences.

Relevant Modes ALL

Parameters None

Examples SYST:PREF:SAVE

Query Syntax Not Applicable

Default Not Applicable

:SYSTem:PRESet

(Write-Only) Perform a full preset on the FieldFox.

Relevant Modes ALL

Examples `SYST:PRES`

Query Syntax Not Applicable

Default Not Applicable

:SYSTem:PRESet:MODE

(Write-Only) Perform a Mode preset on the FieldFox. Only the current mode is preset to default settings.

Relevant Modes ALL

Examples
```
SYST:PRES:MODE
```

Query Syntax Not Applicable

Default Not Applicable

SYSTem:PWR:AUTO <value>

(Write-only) Determines how the FieldFox is turned ON after a charged battery or DC power has been removed from the FieldFox. This setting will remain until it is changed either using the command or the User Interface.

Relevant Modes ALL

Parameters

<value> **0** - Power comes ON only when the power button is pressed.

1 - Power comes ON automatically when either a charged battery or the DC adapter is inserted.

Examples
```
SYST:PWR:AUTO 1
```

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

7-May-2013	User Interface added (6.25)
1-Nov-2012	New command (A.06.06)

SYSTem:PWR:SHUTdown <value>

(Write-only) Turns the FieldFox OFF. You can use with SYSTem:PWR:SHUTdown:DLY and SYSTem:PWR:SHUTdown:DURation.

Relevant Modes ALL

Parameters

<value> **0** - Shuts down the FieldFox and does NOT reboot.

1 - Reboots the FieldFox

Examples
```
SYST:PWR:SHUT:DLY 5
SYST:PWR:SHUT:DUR 3
SYST:PWR:SHUT 0 //Shutdown after 5 seconds, no reboot
SYST:PWR:SHUT 1 //Reboot
```

Query Syntax Not Applicable

Default Not Applicable

SYSTem:PWR:SHUTdown:DLY <value>

(Read-Write) Sets the time to delay before turning the FieldFox OFF.

Use SYSTem:PWR:SHUTdown to turn the FieldFox OFF.

Use SYSTem:PWR:SHUTdown:DURation to specify period of time before rebooting.

Relevant Modes ALL

Parameters

<value> Time (in seconds) to delay shutdown.

Examples

```
Reboot after 5 seconds, for a duration of 3 seconds:
SYST:PWR:SHUT:DLY 5
SYST:PWR:SHUT:DUR 3
SYST:PWR:SHUT 1
```

Query Syntax SYSTem:PWR:SHUTdown:DLY?

Default 0 - Do NOT delay

SYSTem:PWR:SHUTdown:DURation <value>

(Read-Write) Sets the time to wait before rebooting the FieldFox.

Use SYSTem:PWR:SHUTdown to turn the FieldFox OFF.

Relevant Modes ALL

Parameters

<value> Time (in seconds) to wait before rebooting the FieldFox.

Examples

```
Reboot after 5 seconds, for a duration of 3 seconds:
SYST:PWR:SHUT:DLY 5
SYST:PWR:SHUT:DUR 3
SYST:PWR:SHUT 1
```

Query Syntax SYSTem:PWR:SHUTdown:DURation?

Default -1 - Do NOT reboot after shutdown

SYSTem:PWR:SUSP <bool>

(Write-only) Puts the FieldFox into Standby mode. You can use with SYSTem:PWR:SUSP:DLY and SYSTem:PWR:SUSP:DURation.

Relevant Modes ALL

Parameters

<bool> Choose **1** to put the FieldFox into Standby.

IMPORTANT: There is no SCPI command to recover from standby mode.

Examples

```
SYST:PWR:SUSP 1
```

Query Syntax Not Applicable

Default Not Applicable

SYSTem:PWR:SUSP:DLY <value>

(Read-Write) Sets the time to delay before putting the FieldFox in Standby.
Use SYSTem:PWR:SUSP to put the FieldFox in Standby.
Use SYSTem:PWR:SUSP:DURation to cause the FieldFox to awaken after a specified period of time.

Relevant Modes ALL

Parameters

<value> Time (in seconds) to delay Standby.

Examples

```
SYST:PWR:SUSP:DLY 10
```

Query Syntax SYSTem:PWR:SUSP:DLY?

Default 0 - Do NOT delay

SYSTem:PWR:SUSP:DURation <value>

(Read-Write) Sets the time to wait before awakening the FieldFox from Standby.
Use SYSTem:PWR:SUSP to put the FieldFox into Standby.

Relevant Modes ALL

Parameters

<value> Time (in seconds) to wait before awakening the FieldFox.

Examples

```
SYST:PWR:SUSP:DUR 10
```

Query Syntax SYSTem:PWR:SUSP:DURation?

Default **-1** Do NOT awaken after putting into standby.

SYSTem:UPReset:FPANel[:STATe] <bool>

(Read-Write) Set and query User Preset ON | OFF state.

Relevant Modes ALL Modes.

Parameters

<bool> Choose from:
OFF - User Preset OFF.
ON - User Preset ON.

Examples

```
SYST:UPR:FPAN 0
```

Query Syntax SYSTem:UPReset:FPANel[:STATe]?

Return Type Boolean

Default OFF

Last modified:

1-Nov-2013 New command

SYSTem:UPReset:MODE

(Write-Only) Perform a User MODE Preset on the FieldFox. The settings for only the current mode are recalled from UserPreset.sta.

Relevant Modes ALL

Examples
```
SYST:UPR:MODE
```

Query Syntax Not Applicable

Default Not Applicable

SYSTem:UPReset:SAVE

(Write-Only) Your FieldFox settings are saved to a standard State file (UserPreset.sta). However, unlike State files, calibration data is NOT saved.

Relevant Modes ALL

Examples
```
SYST:UPR:SAVE
```

Query Syntax Not Applicable

Default Not Applicable

SYSTem:UPReset

(Write-Only) Perform a User Preset on the FieldFox. The entire UserPreset.sta file is recalled. ALL modes assume the settings that were in place when the User Preset was saved. The active mode is the mode that was visible when the file was saved.

Relevant Modes ALL

Examples
```
SYST:UPR
```

Query Syntax Not Applicable

Default Not Applicable

SYSTem:TIME <hr,min,sec>

(Read-Write) Set and query the current system time.

Relevant Modes ALL

Parameters

<num> Current time in hours (24 hr clock), minutes, seconds.

Examples

```
SYST:TIME 22,15,2
```

Query Syntax SYSTem:TIME?

Return Type Comma-separated numeric

Default Not Applicable

SYSTem:TZONe <string>

(Read-Write) Set and query the current time zone setting.

Relevant Modes ALL Modes.

Parameters

<string> Use SYSTem:TZONe:CATalog? to read the valid time zone settings.

Examples

```
SYST:TZON "(GMT+10:00) Brisbane"
```

Query Syntax SYSTem:TZONe?

Return Type String

Default "(GMT-08:00) Pacific Time (US & Canada)"

Last modified:

20-Jul-2010 New command (A.05.30)

SYSTem:TZONe:CATalog?

(Read-only) Query the list of valid time zone settings. Use SYSTem:TZONe to set and read the current time zone setting.

Relevant Modes ALL Modes.

Parameters None

Examples

```
SYST:TZON:CAT?
```

Return Type Comma-separated strings

Default Not Applicable

Last modified:

20-Jul-2010 New command (A.05.30)

SYSTem:VERSion?

(Read-Write) Set and query the current version of the SCPI standard. For more information see: http://www.ivifoundation.org/docs/scpi-99.pdf

Relevant Modes ALL

Parameters None

Examples `SYST:VERS?`

Return Type String

Default Not Applicable

Last Modified:

16-Feb-2011 New command

SYSTem:VVS:CURRent?

(Read-only) Query the amount of current draw in amperes.

Relevant Modes ALL Modes.
ALL models with Option 309 (Voltage Source)

Parameters None

Examples `SYST:VVS:CURR?`

Return Type Numeric

Default Not Applicable

Last Modified:

17-Jul-2012 New command

SYSTem:VVS:ENABle <bool>

(Write Only) Set and query the voltage source state.
To clear a 'Tripped' condition, send SYSTem:VVS:ENABle OFF, then SYSTem:VVS:ENABle ON.
To query the present state of the voltage source using SYSTem:VVS[:STATe]?.
See example program.

Relevant Modes ALL Modes.
ALL models with Option 309 (Voltage Source)

Parameters

<bool> Voltage source state. Choose from:

- ON (or 1) - Voltage source enabled.
- OFF (or 0) - Voltage source disabled.

Examples	`SYST:VVS:ENAB 1`
Query Syntax	n/a
Return Type	Boolean
Default	OFF

Last Modified:

20june2018	Updated to be Write Only
23-Jul-2013	Added trip condition
17-Jul-2012	New command

SYSTem:VVS:HIMD <bool>

(Write Only) Set the high impedance load state.

Relevant Modes	ALL Modes. ALL models with Option 309 (Voltage Source)
Parameters	
<bool>	Voltage source state. Choose from: • ON (or 1) - High impedance load enabled. • OFF (or 0) - High impedance load disabled.
Examples	`SYST:VVS:HMID 1`
Query Syntax	n/a
Return Type	Boolean
Default	OFF

Last Modified:

20june2018	New command

SYSTem:VVS:MAXCurrent?

(Read-only) Query the maximum amount of current that can be drawn at the present voltage setting.

Relevant Modes	ALL Modes. ALL models with Option 309 (Voltage Source)
Parameters	None
Examples	`SYST:VVS:MAXC?`
Return Type	Numeric

Default Not Applicable

Last Modified:

17-Jul-2012 New command

SYSTem:VVS:MVOLtage?

(Read-only) Query the present measured voltage.

Relevant Modes ALL Modes.
ALL models with Option 309 (Voltage Source)

Parameters None

Examples
```
SYST:VVS:MVOLtage?
```

Return Type Numeric

Default Not Applicable

Last Modified:

17-Jul-2012 New command

SYSTem:VVS:RVOLtage <num>

(Read Only) Query the present requested voltage.

Relevant Modes ALL Modes.
ALL models with Option 309 (Voltage Source)

Parameters

n/a

Examples
```
SYST:VVS:RVOL?
```

Query Syntax SYSTem:VVS:RVOLtage?

Return Type Numeric

Default Varies by mode

Last Modified:

20june2018 New VVS command.

SYSTem:VVS[:STATe]?

(Read-only) Query the present Voltage Source state.

Relevant Modes ALL Modes.
ALL models with Option 309 (Voltage Source)

Parameters None

Examples
```
SYST:VVS?
```

Return Type Character - Returns one of the following:

- **ON** - Voltage source enabled.
- **OFF** - Voltage source disabled.
- **TRIPPED** - The voltage source has drawn more current than the present capability. To clear a 'Tripped' condition, send SYSTem:VVS:ENABle OFF, then SYSTem:VVS:ENABle ON

Default Not Applicable

Last Modified:

23-Jul-2013	Added tripped note
17-Jul-2012	New command

SYSTem:VVS:VOLTage <num>

(Read-Write) Set and query the output voltage.
To query the present requested voltage using SYSTem:VVS:RVOLtage?.

Relevant Modes ALL Modes.
ALL models with Option 309 (Voltage Source)

Parameters

<num>Output voltage. Choose from 1.00 to 32.00 with .01 V resolution.

Examples
```
SYST:VVS:VOLT 5.05
```

Query Syntax SYSTem:VVS:VOLTage?

Return Type Numeric

Default 1.00

Last Modified:

17-Jul-2012	New command

TRACe<n>:DATA? <char>

(Read-Only) Returns the current data trace values. If correction is ON, then the returned data is corrected.

- Set Units with [:SENSe]:AMPLitude:UNIT.
- Set data format with FORMat[:DATA]

Relevant Modes NF, SA, RTSA, VVM
For CAT mode and NA mode, use **CALCulate:DATA:<type>** commands.

Parameters

<n> Trace number of data to be returned.
SA Only. Choose from 1 through 4.
NF Only. Chose from 1 through 2.
If unspecified, <n> is set to 1.

<char> **Note:** These parameters are NOT allowed for NF, RTSA and SA mode.
Type of data to return. Choose from:
FDATA - (*VVM Only*) Data in the current display format.
SDATA - (*VVM Only*) Raw (non-formatted) complex data.
VVM Mode always returns two data points: Mag and Phase.

Examples

```
TRACE:DATA? FDATA  'VVM mode. Assumes n = 1
TRAC2:DATA?  'NF, SA, & RTSA mode
```

Return Type Comma-separated numeric

Default Not Applicable

Last modified:

01june2018	Added NF mode Opt. 356 (10.3)
19-sep-2016	Added RTSA to relevant modes (A.09.50).
28-Oct-2011	Added link to format:data

TRACe:ERTA:RINPut <char>

(Read-Write) Set and query receiver trace measurement.

Relevant Modes ERTA

Parameters

<string> Choose from:
B - B receiver measurement.
R - R receiver measurement.
BoR - B over R (ratio) measurement.

Examples

```
TRAC:ERTA:RINP BOR
```

Query Syntax TRACe:ERTA:RINPut?

Return Type Character

Default BOR

Last Modified:

20-Jan-2015 New command (8.00)

TRACe:IMAGinary:DATA?

(Read Only) Returns the type the imaginary trace data (quadrature component vs. time) for the current trace.

Note: Only trace data is stored, **not** the screen's GUI data.

Relevant Modes IQA

Parameters

<char> n/a

Examples `TRAC:IMAG:DATA?`

Query Syntax TRAC:IMAG:DATA?

Return Type real

Default n/a

Last Modified:

22-oct-2017 Added new IQA mode (10.1x).

:TRACe:IMAGinary:Y:AUTO

(Write Only) Enables the imaginary auto-scaling setting. The Auto Scaling function automatically determines the scale per division and reference values based on the measurement results.

See also TRAC:WAV:Y:AUTO, TRAC:REAL:Y:AUTO, TRAC:PHAS:Y:AUTO, TRAC:POL:Y:AUTO, and TRAC:UPH:Y:AUTO.

Relevant Modes IQA

Parameters n/a

Examples `:TRAC:IMAG:Y:AUTO`

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

:TRACe:IMAGinary:Y:DLINe <volt>

(Read-Write) Set and query the waveform imaginary line values.

See also TRAC:WAV:Y:DLIN, TRAC:REAL:Y:DLIN, TRAC:PHAS:Y:DLIN, and TRAC:UPH:Y:DLIN.

Note: Polar trace is not supported.

Relevant Modes IQA

Parameters

<voltage> Y-axis waveform imaginary level. Units depend on the selected setting. See :TRAC:WAV:AMPL:UNIT

Minimum: -9.9e37V

Maximum: 9.9e37V

Examples

```
TRAC:IMAG:Y:DLIN 1
```

Query Syntax TRAC:IMAG:Y:DLINe?

Return Type Numeric

Default 0V

Last Modified:

22oct2017 Added IQA mode (10.1x)

:TRACe:IMAGinary:Y:PDIVision <volt>

(Read-Write) Set and query the IQA waveform imaginary Y-axis scale values per division.

Relevant Modes IQA

Parameters

<voltage> Minimum: 1.00 nV

Maximum: 20.0V

Examples

```
TRAC:IMAGinary:Y:PDIV 1.0e-9
TRAC:IMAGinary:Y:PDIV 1
```

Query Syntax	TRAC:IMAG:Y:PDIV?
Return Type	numeric
Default	100 mV

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

:TRACe:IMAGinary:Y:RLEVel <volt>

(Read-Write) Set and query the imaginary reference level value.

See also TRAC:WAV:Y:RLEV, TRAC:REAL:Y:RLEV, TRAC:PHAS:Y:RLEV, TRAC:POL:Y:RLEV, and TRAC:UPH:Y:RLEV.

Relevant Modes	IQA
Parameters	
<voltage>	Y-axis waveform imaginary level. Minimum: -5V Maximum: 5V
Examples	`TRAC:IMAG:Y:RLEV 1`
Query Syntax	TRAC:IMAG:Y:RLEV?
Return Type	Numeric
Default	0V

Last Modified:

22oct2017	Added IQA mode (10.1xx)

:TRACe:IMAGinary:Y:RPOSition <int>

(Read-Write) Set and query the imaginary reference position.

See also TRAC:WAV:Y:RPOS, TRAC:REAL:Y:ROS, TRAC:PHAS:Y:RPOS, and TRAC:UPH:Y:RPOS.

Relevant Modes	IQA
Parameters	
<integer>	Y-axis waveform imaginary reference position. Minimum: 0 Maximum: 10

Examples	`TRAC:IMAG:Y:RPOS 2`
Query Syntax	TRAC:IMAG:Y:RPOS?
Return Type	Integer
Default	5

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe:IQCapture:DATA?

(Read Only) Returns the type the I/Q capture data (quadrature component vs. time).

Note:
- This command can only be used in Single acquisition mode and after executing the INITiate:IQCapture command. Else, the data integrity cannot be guaranteed.

Relevant Modes	IQA
Parameters	
	n/a
Examples	`TRAC:IQC:DATA?`
Query Syntax	TRAC:IQC:DATA?
Return Type	numeric
Default	n/a

Last Modified:

19-Dec-2018 Added new IQA mode (10.1x).

TRACe<n>:JITTer:WARNing:DATA?

(Read Only) Reads the jitter goal exceeded trace data.

Relevant Modes	NF
Parameters	
<n>	Trace number. Choose from 1 to 2.
Examples	`TRAC:JITT:WARN:DATA?  'Assumes n = 1`
Query Syntax	TRACe2:JITTer:WARNing:DATA?

Return Type Block data

Default 1,1,1,1,1,1,1,1,1,1

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

TRACe<n>:MEMory:DATA?

(Read Only) Reads the normalized magnitude memory data for each of the trace points.

Relevant Modes NF

Parameters

<n> Trace number.
Choose from 1 to 2.

Examples

```
TRAC:MEM:DATA?  'Assumes n = 1
```

Query Syntax TRACe2:MEMory:DATA?

Default 0.0000000E+00,0.0000000E+00

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

TRACe<n>:MEMory:JITTer:WARNing:DATA?

(Read Only) Reads the the jitter goal exceeded warning memory trace value.

Relevant Modes NF

Parameters

<n> Trace number.
Choose from 1 to 2.

Examples

```
TRAC:MEM:JITT:WARN:DATA?  'Assumes n = 1
```

Query Syntax TRACe2:MEMory:JITTer:WARNing:DATA?

Default 0,0

Last Modified:

01june2018 Added NF mode Opt. 356 (10.3)

TRACe<n>:MEMory:UNCertainty:DATA?

(Read-only) Read the uncertainty memory trace data (two values per data point -- upper uncertainty and lower uncertainty).

See also, TRAC<n>:MEM:UNC:LOW:DATA? and TRAC<n>:MEM:UNC:UPP:DATA?.

Relevant Modes NF

Parameters

<n> Trace number.
Choose from 1 to 2.

Examples

```
TRAC:MEM:UNC:DATA?  'Assumes n = 1
```

Query Syntax TRACe2:MEMory:UNCertainty:DATA?

Return Type Comma-separated numeric

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

TRACe<n>:MEMory:UNCertainty:LOWer:DATA?

(Read-only) Read the lower uncertainty memory trace data (one value per data point -- lower uncertainty).

See also, TRAC<n>:MEM:UNC:DATA? and TRAC<n>:MEM:UNC:UPP:DATA?.

Relevant Modes NF

Parameters

<n> Trace number.
Choose from 1 to 2.

Examples

```
TRAC:MEM:UNC:LOW:DATA? 'Assumes n = 1
TRACe2:MEMory:UNCertainty:LOWer:DATA?
```

Query Syntax See Examples

Return Type Comma-separated numeric

Default Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

TRACe<n>:MEMory:UNCertainty:UPPer:DATA?

(Read-only) Read the lower uncertainty memory trace data (one value per data point -- upper uncertainty).

See also, TRAC<n>:MEM:UNC:DATA? and TRAC<n>:MEM:UNC:LOW:DATA?.

Relevant Modes	NF
Parameters	
<n>	Trace number. Choose from 1 to 2.
Examples	`TRAC:MEM:UNC:UPP:DATA?  'Assumes n = 1`
Query Syntax	TRACe2:MEMory:UNCertainty:UPPer:DATA?
Return Type	Comma-separated numeric
Default	Not Applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

TRACe:PHASe:DATA?

(Read Only) Returns the wrapped trace data (-180 degrees to 180 degrees).

Relevant Modes	IQA
Parameters	
	n/a
Examples	`:TRAC:PHAS:DATA?`
Query Syntax	:TRAC:PHAS:DATA?
Return Type	real
Default	n/a

Last Modified:

22-oct-2017	Added new IQA mode (10.1x).

:TRACe:PHASe:Y:AUTO

(Read Only) Enables the phase auto-scaling setting. The Auto Scaling function automatically determines the scale per division and reference values based on the measurement results.

See also TRAC:WAV:Y:AUTO, TRAC:REAL:Y:AUTO, TRAC:PHAS:Y:AUTO, TRAC:POL:Y:AUTO, and TRAC:UPH:Y:AUTO.

Relevant Modes	IQA
Parameters	n/a
Examples	`:TRAC:PHAS:Y:AUTO`
Query Syntax	n/a
Return Type	n/a
Default	n/a

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

:TRACe:PHASe:Y:DLINe <deg>

(Read-Write) Set and query the waveform phase view line values.

See also TRAC:WAV:Y:DLIN, TRAC:REAL:Y:DLIN, TRAC:IMAG:Y:DLIN, and TRAC:UPH:Y:DLIN.

Note: Polar trace is not supported.

Relevant Modes	IQA
Parameters	
<degree>	Y-axis waveform phase level. Units depend on the selected setting. See :TRAC:WAV:AMPL:UNIT Minimum: -360 degrees Maximum: 360 degrees
Examples	`TRAC:PHAS:Y:DLIN -180`
Query Syntax	TRAC:PHAS:Y:DLINe?
Return Type	degrees
Default	0 degrees

Last Modified:

22oct2017 Added IQA mode (10.1x)

:TRACe:PHASe:Y:RLEVel <deg>

(Read-Write) Set and query the phase reference level value.

See also TRAC:WAV:Y:RLEV, TRAC:REAL:Y:RLEV, TRAC:IMAG:Y:RLEV, TRAC:POL:Y:RLEV, and TRAC:UPH:Y:RLEV.

Relevant Modes	IQA
Parameters	
<degree>	Y-axis waveform phase reference level. Minimum: -360 degrees Maximum: 360 degrees
Examples	`TRAC:PHAS:Y:RLEV -180`
Query Syntax	TRAC:PHAS:Y:RLEV?
Return Type	degrees
Default	0 degrees

Last Modified:

22oct2017 Added IQA mode (10.1x)

:TRACe:PHASe:Y:RPOSition <int>

(Read-Write) Set and query the phase reference position.
See also TRAC:WAV:Y:RPOS, TRAC:REAL:Y:ROS, TRAC:IMAG:Y:RPOS, and TRAC:UPH:Y:RPOS.

Relevant Modes	IQA
Parameters	
<integer>	Y-axis waveform phase reference position. Minimum: 0 Maximum: 5
Examples	`TRAC:PHAS:Y:RPOS 2`
Query Syntax	TRAC:PHAS:Y:RPOS?
Return Type	Integer
Default	5

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe:POLar:DATA?

(Read Only) Returns the polar trace data.

Relevant Modes	IQA
Parameters	
	n/a
Examples	`:TRAC:POL:DATA?`
Query Syntax	:TRAC:POL:DATA?
Return Type	real
Default	n/a

Last Modified:

22-oct-2017	Added new IQA mode (10.1x).

:TRACe:POLar:Y:AUTO

(Write Only) Enables the polar auto-scaling setting. The Auto Scaling function automatically determines the scale per division and reference values based on the measurement results.

See also TRAC:WAV:Y:AUTO, TRAC:REAL:Y:AUTO, TRAC:PHAS:Y:AUTO, TRAC:UPH:Y:AUTO, and TRAC:IMAG:Y:AUTO.

Relevant Modes	IQA
Parameters	n/a
Examples	`:TRAC:POL:Y:AUTO`
Query Syntax	n/a
Return Type	n/a
Default	n/a

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

:TRACe:POLar:Y:RLEVel <volt>

(Read-Write) Set and query the polar (imaginary vs. real) view reference level value.

See also TRAC:WAV:Y:RLEV, TRAC:REAL:Y:RLEV, TRAC:IMAG:Y:RLEV, TRAC:PHAS:Y:RLEV, and TRAC:UPH:Y:RLEV.

Relevant Modes	IQA

Parameters	
<voltage>	Y-axis waveform polar reference level. Minimum: -5V Maximum: 5V
Examples	`TRAC:POL:Y:RLEV 0.02`
Query Syntax	TRAC:POL:Y:RLEV?
Return Type	voltage
Default	500 mV

Last Modified:

22oct2017	Added IQA mode (10.1x)

TRACe:REAL:DATA?

(Read Only) Returns the real trace data (in phase component vs. time).

Relevant Modes	IQA
Parameters	
	n/a
Examples	`TRAC:REAL:DATA?`
Query Syntax	TRAC:REAL:DATA?
Return Type	real
Default	n/a

Last Modified:

22-oct-2017	Added new IQA mode (10.1x).

TRACe:REAL:Y:AUTO

(Write Only) Enables the real auto-scaling setting. The Auto Scaling function automatically determines the scale per division and reference values based on the measurement results.

See also TRAC:WAV:Y:AUTO, TRAC:IMAG:Y:AUTO, TRAC:PHAS:Y:AUTO, TRAC:POL:Y:AUTO, and TRAC:UPH:Y:AUTO.

Relevant Modes	IQA
Parameters	n/a
Examples	`:TRAC:REAL:Y:AUTO`
Query Syntax	n/a
Return Type	n/a
Default	n/a

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

TRACe:REAL:Y:DLINe <volt>

(Read-Write) Set and query the waveform real line values.

See also TRAC:WAV:Y:DLINe, TRAC:IMAG:Y:DLIN, TRAC:PHAS:Y:DLIN, and TRAC:UPH:Y:DLIN.

Note: Polar trace is not supported.

Relevant Modes	IQA
Parameters	
<voltage>	Y-axis waveform real level. Units depend on the selected setting. See :TRAC:WAV:AMPL:UNIT Minimum: -9.9e37V Maximum: 9.9e37V
Examples	`TRAC:REAL:Y:DLIN 1`
Query Syntax	TRAC:REAL:Y:DLINe?
Return Type	Numeric
Default	0V

Last Modified:

22oct2017	Added IQA mode (10.1x)

:TRACe:REAL:Y:PDIVision <volt>

(Read-Write) Set and query the IQA waveform real Y-axis scale values per division.

Relevant Modes	IQA

Parameters

<voltage> Minimum: 1.00 nV
Maximum: 20.0V

Examples

```
TRAC:REAL:Y:PDIV 1.0e-9
TRAC:REAL:Y:PDIV 1
```

Query Syntax TRAC:REAL:Y:PDIV?

Return Type numeric

Default 100 mV

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

TRACe:REAL:Y:RLEVel <volt>

(Read-Write) Set and query the waveform real reference level value.

See also TRAC:WAV:Y:RLEV, TRAC:IMAG:Y:RLEV, TRAC:PHAS:Y:RLEV, TRAC:POL:Y:RLEV, and TRAC:UPH:Y:RLEV.

Relevant Modes IQA

Parameters

<voltage> Y-axis waveform real level.
Minimum: -5V
Maximum: 5V

Examples

```
TRAC:REAL:Y:RLEV 1
```

Query Syntax TRAC:REAL:Y:RLEV?

Return Type Numeric

Default 0V

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe:REAL:Y:RPOSition <int>

(Read-Write) Set and query the real reference position.

See also TRAC:WAV:Y:RPOS, TRAC:IMAG:Y:RPOS, TRAC:PHAS:Y:RPOS, and TRAC:UPH:Y:RPOS.

Relevant Modes	IQA
Parameters	
<integer>	Y-axis waveform real reference position. Minimum: 0 Maximum: 10
Examples	`TRAC:REAL:Y:RPOS 1`
Query Syntax	TRAC:REAL:Y:RPOS?
Return Type	Integer
Default	5

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe:SPECtrum:AMPLitude:SCALe <char>

(Read-Write) Set and query the IQA spectrum Y-axis scale to either logarithmic or linear.

Relevant Modes	IQA
Parameters	
<character>	Scale type. Choose from: **LOG** -units in dBm **LIN** - units in dBm
Examples	TRAC:SPEC AMP:SCAL LIN
Query Syntax	TRAC:SPEC:AMPL:SCAL?
Return Type	Character
Default	LOG

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

TRACe:SPECtrum:AMPLitude:UNIT <char>

(Read-Write) Set and query the IQA spectrum viewed line units, regardless of the current Scale setting. The UNIT choice affects the following: Reference Level, Trigger Level, Limit Lines, and Marker annotation. This measurement is FFT (Fast Fourier Transform) based.

Relevant Modes	IQA
Parameters	
<character>	The following are IQA (spectrum) only: • DBM - dB milliWatts • DBMV - dB milliVolts • DBUV - dB microVolts • DBMA - dB milliAmps • DBUA - dB microAmps • V - volts • A - amps • W - watts
Examples	**TRAC:SPEC:AMPL:UNIT W** **TRAC:SPEC:AMPL:UNIT DBM**
Query Syntax	TRAC:SPEC:AMPL:UNIT?
Return Type	Character
Default	DBM

Last Modified:

22oct2017	Added IQA mode (10.1x)

TRACe:SPECtrum:RAWiq?

(Read only) Returns the spectrum raw I/Q data.

Relevant Modes	IQA
Parameters	
	n/a
Examples	**:TRAC:SPEC:RAW?**
Query Syntax	:TRAC:SPEC:RAW?
Return Type	real
Default	n/a

Last Modified:

22-oct-2017	Added new IQA mode (10.1x).

:TRACe:SPECtrum:Y:AUTO

(Write-Only) Autoscale spectrum scale per division and the reference position values based on the measurement results.

Relevant Modes IQA

Parameters n/a

Examples :TRAC:SPEC:Y:AUTO

Query Syntax N/A

Default N/A

Last Modified:

22oct2017 New IQA mode (10.1x)

:TRACe:SPECtrum:Y:DLINe <ampl>

(Read-Write) Set and query the spectrum display line Y-axis amplitude level..

Relevant Modes IQA

Parameters

<amplitude> Minimum: -9.9e37 dBm
Maximum: 9.9e37 dBm

Examples `TRAC:SPEC:Y:DLIN 0`

Query Syntax TRAC:SPEC:Y:DLIN?

Return Type numeric

Default -2.000E+01

Last modified:

22oct2017 New IQA mode (A.10.1x)

:TRACe:SPECtrum:Y:PDIVision <num>

(Read-Write) Set and query the IQA spectrum Y-axis scale values per division.

Relevant Modes IQA

Parameters

<numeric> Minimum: 1.0e-9 dB
Maximum: 20 dB

Examples	`TRAC:SPEC:Y:PDIV 1.0e-9`
Query Syntax	TRAC:SPEC:Y:PDIV?
Return Type	numeric
Default	1.000000000E+01

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

:TRACe:SPECtrum:Y:RLEVel <ampl>

(Read-Write) Set and query IQA spectrum Y axis absolute power reference value.

Relevant Modes	IQA
Parameters	
<numeric>	Enter IQA spectrum Y axis absolute power reference value. Minimum: -210 dBm Maximum: 30 dBm
Examples	`:TRAC:SPEC:Y:RLEV 5`
Query Syntax	:TRAC:SPEC:Y:RLEV?
Return Type	numeric
Default	0.000000000E+00

Last Modified:

22oct2017	New IQA mode (10.1x)

:TRACe:SPECtrum:Y:RPOSition <int>

(Read-Write) Set and query the position of the IQA spectrum Y-axis reference line. Use this command with TRAC:SPEC:Y:RLEVel which sets the Y-axis value of the absolute power reference value.

Relevant Modes	IQA
Parameters	
<integer>	Reference position. Choose a value from 0 to 10.
Examples	`:TRAC:SPEC:Y:RPOS 5`
Query Syntax	:TRAC:SPEC:Y:RPOS?
Return Type	integer

Default 0

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

TRACe:SPECtrum<n>:DATA?

(Query only) Returns spectrum trace data for the trace selected (1:4).

Relevant Modes IQA

Parameters

<*n*> Trace number for which display state is to be set or queried. Choose from 1 through 4.

<character> Trace choice. Choose from:

1, 2, 3, or 4

Examples

```
TRAC:SPEC2:DATA?
```

Query Syntax TRAC:SPEC<n>:DATA?

Return Type real

Default 1

Last Modified:

22-oct-2017 Added new IQA mode (10.1x).

:TRACe:SPECtrum<n>:TYPE <char>

(Read-Write) Set and query the spectrum trace state.

See also :TRAC:WAV<*n*>:TYPE.

Relevant Modes IQA

Parameters

<n> Trace number for which display state is to be set or queried. Choose from 1 through 4.

<char> Trace type. Choose from:

CLRW - Clear/Write

BLANk - Blank

MAXH - Max Hold

MINH - Min Hold

AVG - Average (this parameter only applies to trace averaging.)
VIEW - View

Examples
```
TRAC:SPEC2:TYPE VIEW
```

Query Syntax :TRACe:SPEC<n>:TYPE?

Return Type Character

Default CLWR - trace 1
BLAN - traces 2:4

Last Modified:

22oct2017 Added new IQA mode (10.1x).

TRACe:UPHase:DATA?

(Read Only) Returns the unwrapped trace data.

Relevant Modes IQA

Parameters

n/a

Examples
```
TRAC:UPH:DATA?
```

Query Syntax TRAC:UPH:DATA?

Return Type real

Default n/a

Last Modified:

22-oct-2017 Added new IQA mode (10.1x).

:TRACe:UPHase:Y:AUTO

(Read Only) Enables the unwrapped phase auto-scaling setting. The Auto Scaling function automatically determines the scale per division and reference values based on the measurement results.

See also TRAC:WAV:Y:AUTO, TRAC:REAL:Y:AUTO, TRAC:PHAS:Y:AUTO, TRAC:POL:Y:AUTO, and TRAC:IMAG:Y:AUTO.

Relevant Modes IQA

Parameters n/a

Examples
```
:TRAC:UPH:Y:AUTO
```

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

:TRACe:UPHase:Y:DLINe

(Read-Write) Set and query the waveform unwrapped phase line values.

See also TRAC:WAV:Y:DLIN, TRAC:REAL:Y:DLIN, TRAC:IMAG:Y:DLIN, and TRAC:PHAS:Y:DLIN.

Note: Polar trace is not supported.

Relevant Modes IQA

Parameters

<degree> Y-axis waveform unwrapped phase level. Units depend on the selected setting. See :TRAC:WAV:AMPL:UNIT

Minimum: -360 degrees

Maximum: 360 degrees

Examples

```
TRAC:UPH:Y:DLIN -180
```

Query Syntax TRAC:UPH:Y:DLINe?

Return Type degrees

Default 0 degrees

Last Modified:

22oct2017 Added IQA mode (10.1x)

:TRACe:UPHase:Y:RLEVel <deg>

(Read-Write) Set and query the unwrapped phase reference level value.

See also TRAC:WAV:Y:RLEV, TRAC:REAL:Y:RLEV, TRAC:IMAG:Y:RLEV, TRAC:POL:Y:RLEV, and TRAC:PHAS:Y:RLEV.

Relevant Modes IQA

Parameters

<degree> Y-axis waveform unwrapped phase reference level.

	Minimum: -360 degrees Maximum: 360 degrees
Examples	**`TRAC:UPH:Y:RLEV -180`**
Query Syntax	TRAC:UPH:Y:RLEV?
Return Type	degrees
Default	0 degrees

Last Modified:

22oct2017 Added IQA mode (10.1x)

:TRACe:UPHase:Y:RPOSition <int>

(Read-Write) Set and query the unwrapped phase reference position.

See also TRAC:WAV:Y:RPOS, TRAC:REAL:Y:ROS, TRAC:IMAG:Y:RPOS, and TRAC:PHAS:Y:RPOS.

Relevant Modes	IQA
Parameters	
<integer>	Y-axis waveform phase reference position. Minimum: 0 Maximum: 5
Examples	**`TRAC:UPH:Y:RPOS 2`**
Query Syntax	TRAC:UPH:Y:RPOS?
Return Type	Integer
Default	5

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe<n>:UNCertainty:DATA?

(Read-Only) Query the uncertainty trace data.

Note: Noise Figure has asymmetric uncertainty. Noise Factor and Noise Temperature, have symmetric uncertainty.

This query operates on the selected trace. First select a trace using CALC:PAR<n>:SELect.

See also, TRACe<n>:UNCertainty:DATA:UPPer? and TRACe<n>:UNCertainty:DATA:LOWer?.

Relevant Modes	NF
Parameters	
	Not applicable - query only
Examples	`No write available`
Query Syntax	CALCulate:TRACe2:UNCertainty:DATA?
Return Type	Block data
Default	not applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

TRACe<n>:UNCertainty:LOWer:DATA?

(Read-Only) Query the uncertainty lower trace data.

Note: Noise Figure has asymmetric uncertainty. Noise Factor and Noise Temperature, have symmetric uncertainty.

This command operates on the selected trace. First select a trace using CALC:PAR<n>:SELect.

See also, TRACe<n>:UNCertainty:DATA? and TRACe<n>:UNCertainty:DATA:UPPer?.

Relevant Modes	NF
Parameters	
	Not applicable - query only
Examples	`No write available`
Query Syntax	TRACe<n>:UNCertainty:DATA:LOWer?
Return Type	Block data
Default	not applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

TRACe<n>:UNCertainty:LOWer:DATA?

(Read-Only) Query the uncertainty lower trace data.

Note: Noise Figure has asymmetric uncertainty. Noise Factor and Noise Temperature, have symmetric uncertainty.

This command operates on the selected trace. First select a trace using CALC:PAR<n>:SELect.

See also, TRACe<n>:UNCertainty:DATA? and TRACe<n>:UNCertainty:DATA:UPPer?.

Relevant Modes	NF
Parameters	
	Not applicable - query only
Examples	`No write available`
Query Syntax	TRACe<n>:UNCertainty:DATA:LOWer?
Return Type	Block data
Default	not applicable

Last Modified:

01june2018	Added NF mode Opt. 356 (10.3)

:TRACe<n>:TYPE <char>

(Read-Write) Set and query the type of SA Mode trace display state.

Use [:SENSe]:QUANtity:TACTive? to read the number of active traces.

Relevant Modes	SA, RTSA
Parameters	
<n>	Trace number for which display state is to be set or queried. Choose from 1 through 4.
<char>	Trace type. Choose from: **CLRW** - Clear/Write **BLANk** - Blank **MAXH** - Max Hold **MINH** - Min Hold **AVG** - Average (this parameter only applies to trace averaging.) **VIEW** - View
Examples	`TRAC1:TYPE VIEW`
Query Syntax	:TRACe<n>:TYPE?
Return Type	Character
Default	CLRW

Last Modified:

19-sep-2016 Added RTSA to relevant modes (A.09.50).

TRACe:WAVeform:AMPLitude:SCALe <char>

(Read-Write) Set and query the waveform RF envelope scale type.

Relevant Modes IQA

Parameters

<character> Scale type. Choose from:
LOG -units in dBm
LIN - units in mV

Examples
```
TRAC:WAV:AMPL:SCAL LIN
```

Query Syntax TRAC:WAV:AMPL:SCAL?

Return Type Character

Default LOG

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe:WAVeform:AMPLitude:UNIT <char>

(Read-Write) Sets and returns the output amplitude unit for trace of RF envelope vs. Time.

Relevant Modes IQA (RF envelope Only)

Parameters

<character> The following are IQA (spectrum) only:

- DBM - dB milliWatts
- DBMV - dB milliVolts
- DBUV - dB microVolts
- DBMA - dB milliAmps
- DBUA - dB microAmps
- V - volts
- A - amps
- W - watts

Examples
```
TRAC:WAV:AMPL:UNIT W
TRAC:WAV:AMPL:UNIT DBM
```

Query Syntax TRAC:WAV:AMPL:UNIT?

Return Type Character

Default DBM

Last Modified:

22oct2017 Added IQA mode (10.1x)

TRACe:WAVeform:RAWiq?

(Read Only) Returns the waveform raw I/Q trace data.

Relevant Modes IQA

Parameters

n/a

Examples

```
:TRAC:WAV:RAW?
```

Query Syntax :TRAC:WAV:RAW?

Return Type real

Default n/a

Last Modified:

22-oct-2017 Added new IQA mode (10.1x).

:TRACe:WAVeform:Y:AUTO

(Read Only) Enables the waveform RF envelope view auto-scaling setting. The Auto Scaling function automatically determines the scale per division and reference values based on the measurement results.

See also TRAC:REAL:Y:AUTO, TRAC:IMAG:Y:AUTO, TRAC:PHAS:Y:AUTO, TRAC:POL:Y:AUTO, and TRAC:UPH:Y:AUTO.

Relevant Modes IQA

Parameters n/a

Examples

```
:TRAC:WAV:Y:AUTO
```

Query Syntax n/a

Return Type n/a

Default n/a

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

:TRACe:WAVeform:Y:DLINe <ampl>

(Read-Write) Set and query the waveform RF envelope view line values.

See also TRAC:REAL:Y:DLINe, TRAC:IMAG:Y:DLIN, TRAC:PHAS:Y:DLIN, and TRAC:UPH:Y:DLIN.

Note: Polar trace is not supported.

Relevant Modes	IQA
Parameters	
<amplitude>	Y-axis waveform amplitude level. Units depend on the selected setting. See :TRAC:WAV:AMPL:UNIT Minimum: -9.9e37 dBm Maximum: 9.9e37 dBm
Examples	**TRAC:WAV:Y:DLIN 30**
Query Syntax	:TRAC:WAV:Y:DLIN?
Return Type	Numeric
Default	-20 dBm

Last Modified:

22oct2017	Added IQA mode (10.1x)

:TRACe:WAVeform:Y:PDIVision <rel_amp>

(Read-Write) Set and query the IQA RF envelope Y-axis scale values per division.

Relevant Modes	IQA
Parameters	
<relative_amplitude>	Minimum: 1.0e-9 dB Maximum: 20 dB
Examples	**TRAC:WAV:Y:PDIV 1.0e-9** **TRAC:WAV:Y:PDIV 5**
Query Syntax	TRAC:SPEC:Y:PDIV?
Return Type	numeric
Default	1.000000000E+01

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

:TRACe:WAVeform:Y:RLEVel <amptd>

(Read-Write) Set and query IQA waveform RF envelope Y-axis absolute power reference level value.

See also TRAC:REAL:Y:RLEV, TRAC:IMAG:Y:RLEV, TRAC:PHAS:Y:RLEV, TRAC:POL:Y:RLEV, and TRAC:UPH:Y:RLEV.

Relevant Modes IQA

Parameters

<amplitude> Enter IQA waveform Y-axis absolute power reference value.
Minimum: -210 dBm
Maximum: 90 dBm

Examples

```
:TRAC:WAV:Y:RLEV 30
```

Query Syntax :TRAC:WAV:Y:RLEV?

Return Type numeric

Default 0.000000000E+00

Last Modified:

22oct2017	New IQA mode (10.1x)

:TRACe:WAVeform:Y:RPOSition <int>

(Read-Write) Set and query the position of the IQA waveform RF envelope Y-axis.

See also TRAC:REAL:Y:RPOS, TRAC:IMAG:Y:RPOS, TRAC:PHAS:Y:RPOS, and TRAC:UPH:Y:RPOS.

Relevant Modes IQA

Parameters

<integer> Waveform reference position. Choose a value from 0 to 10.

Examples

```
:TRAC:WAV:Y:RPOS 2
```

Query Syntax :TRAC:WAV:Y:RPOS?

Return Type Integer

Default 0

Last Modified:

22-oct-2017	Added IQA mode (10.1x)

TRACe:WAVeform<n>:DATA?

(Read Only) Returns the RF envelope trace data (magnitude vs. power).

Relevant Modes IQA

Parameters

<*n*> Trace number for which display state is to be set or queried. Choose from 1 through 4.

Examples

```
:TRAC:WAV2:DATA?
```

Query Syntax :TRAC:WAV<n>:DATA?

Return Type real

Default 1

Last Modified:

22-oct-2017 Added new IQA mode (10.1x).

:TRACe:WAVeform<n>:TYPE <char>

(Read-Write) Set and query the waveform RF envelope trace state.

See also :TRAC:SPEC<*n*>:TYPE.

Relevant Modes IQA

Parameters

<n> Trace number for which display state is to be set or queried. Choose from 1 through 4.

<character> Trace type. Choose from:

CLRW - Clear/Write

BLANk - Blank

MAXH - Max Hold

MINH - Min Hold

AVG - Average (this parameter only applies to trace averaging.)

VIEW - View

Examples

```
TRAC:WAV2:TYPE MINH
TRAC:WAV1:TYPE BLAN
```

Query Syntax :TRACe:WAV<*n*>:TYPE?

Return Type Character

Default CLWR - trace 1
BLAN - traces 2:4

Last Modified:

22oct2017 Added new IQA mode (10.1x).

TRIGger:DELay <num>

(Write-Read) Set and query the trigger delay time.

Relevant Modes Pulse Measurements

Parameters

<num> Trigger delay time in seconds. Choose a value between -10 to +10.

Examples

```
TRIG:DEL 5e-6
```

Query Syntax TRIGger:DELay?

Default 0

Last Modified:

29-Oct-2013 New command

TRIGger:LEVel:AUTO <bool>

(Write-Read) Set and query whether the trigger level is set manually or is set to the default level in the USB Power Sensor.

Relevant Modes Pulse Measurements

Parameters

<bool> Choose from:
ON or 1 - Trigger level is determined by the USB Power Sensor firmware.
OFF or 0 - Trigger level is set manually using TRIGger:LEVel.

Examples

```
TRIG:LEV 5e-6
```

Query Syntax TRIGger:LEVel?

Default -15

Last Modified:

29-Oct-2013 New command

TRIGger:LEVel <num>

(Write-Read) Set and query the power level at which the USB power sensor is triggered when TRIGger:LEVel:AUTO = OFF.

Relevant Modes Pulse Measurements

Parameters

<num> Trigger level in dBm.

Examples

```
TRIG:LEV 5e-6
```

Query Syntax TRIGger:LEVel?

Default -15

Last Modified:

29-Oct-2013 New command

TRACe:PRESet:ALL

(Write-Only) Sets all of the RTSA traces back to their values.

Relevant Modes RTSA

Parameters

<char>

Examples

```
TRACe:PRESet:ALL 'Both these examples reset all of the traces.
TRAC2:PRES:ALL
```

Return Type n/a

Default Not Applicable

Last modified:

19-sep-2016 Added new RTSA command (A.09.50).

:TRIGger[:SEQuence]:ATRigger <num>

(Read-Write) Set and query the auto-trigger time. If a trigger signal is not received before the specified

auto trigger time, a sweep will occur automatically.
Enable or disable automatic trigger time using :TRIG:ATR:STAT.

Relevant Modes 5GTF, IQA, SA, LTE FDD, RTSA

Parameters

<numeric> Auto trigger time in seconds.
SA: Choose a value between 0 and 65 seconds.
IQA and RTSA: Choose a value between 1 ms and 100 seconds.
Enter 0 (SA only) to set Auto Trigger OFF. When Auto Trigger is OFF, the FieldFox does NOT sweep unless a valid trigger signal is received.

Examples

```
TRIG:ATR 2
TRIGger:ATRigger .003
TRIG:ATR 1e2
```

Query Syntax TRIG:ATR?

Return Type Numeric

Default 1.000E+00 (SA)
1.00E-01 (RTSA)
1.000000E-01 (IQA)

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)
6-Mar-2013	Modified for 6.25

:TRIGger[:SEQuence]:ATRigger:STATe <bool>

(Read-Write) Set and query the auto-triggering state.
Set automatic trigger time using :TRIG:ATR.

Relevant Modes 5GTF,IQA, SA, LTE FDD, RTSA

Parameters

<boolean> Auto trigger state. Choose from:
OFF or **0** - Auto Trigger OFF. The FieldFox does NOT sweep unless a valid trigger signal is received.
ON or **1** - Auto Trigger ON. If a trigger signal is not received before the specified Auto Trig Time (TRIGger[:SEQuence]:EXTernal:ATRigger), a sweep will occur automatically.

Examples

```
TRIG:ATR:STAT 1
```

Query Syntax TRIGger[:SEQuence]:ATRigger:STATe?

Return Type Boolean

Default OFF (0)

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)
6-Mar-2013	Modified for 6.25

:TRIGger[:SEQuence]:EXTernal:SLOPe <char>

(Read-Write) Set and query the trigger slope. Trigger Slope determines which edge of a trigger signal initiates a sweep.

Note: Only valid for VIDeo, EXTernal, and RFBurst triggers.

Relevant Modes 5GTF, IQA LTE FDD

Parameters

<character> Trigger slope. Choose from:

POS - Sweep is triggered by the rising (positive) edge of signal.

NEG - Sweep is triggered by the falling (negative) edge of signal.

Examples

```
TRIG:EXT:SLOP NEG
```

Query Syntax TRIGger[:SEQuence]:EXTernal:SLOPe?

Return Type Character

Default POS

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added new command for IQA mode (10.1x)

TRIGger[:SEQuence]:DELay <num>

(Read-Write) Set and query the trigger delay time. After a valid trigger signal is received, the sweep begins after the specified Trigger Delay time. Enable Trigger delay using :TRIGger[:SEQuence]:EXTernal:DELay:STATe

Relevant Modes SA, RTSA

Parameters

<num> Trigger delay time in seconds. Choose a value between 0 and 65 seconds.

Examples	`TRIG:DEL 2`
Query Syntax	TRIGger[:SEQuence]:DELay?
Return Type	Numeric
Default	0

Last Modified:

10-june-2016	Added RTSA mode (9.50)
6-Mar-2013	Modified for 6.25

TRIGger[:SEQuence]:DELay:STATe

(Read-Write) Set and query the trigger delay state. Set delay time using :TRIGger[:SEQuence]:DELay

Relevant Modes	SA, RTSA
Parameters	
<bool>	Trigger delay state. Choose from: **OFF** or **0** - Trigger delay OFF. **ON** or **1** - Auto Trigger ON.
Examples	`TRIG:DEL:STAT 1`
Query Syntax	TRIGger[:SEQuence]:DELay:STATe?
Return Type	Boolean
Default	OFF (0)

Last Modified:

10-june-2016	Added RTSA mode (9.50)
6-Mar-2013	Modified for 6.25

:TRIGger[:SEQuence]:EXTernal:DELay <num>

(Read-Write) Set and query the trigger delay time. After a valid trigger signal is received, the sweep begins after the specified Trigger Delay time. Enable Trigger delay using :TRIGger[:SEQuence]:EXTernal:DELay:STATe

Relevant Modes	5GTF, IQA,LTE FDD
Parameters	
<num>	Trigger delay time in seconds. Choose a value between 0 and 65 seconds. IQA mode:

Minimum: -150 ms
Maximum: 500 ms

Examples `TRIG:EXT:DEL 2`

Query Syntax TRIGger[:SEQuence]:EXTernal:DELay?

Return Type Numeric

Default 0

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:EXTernal:DELay:STATe <bool>

(Read-Write) Set and query the trigger delay state. Set delay time using :TRIGger[:SEQuence]:EXTernal:DELay

Relevant Modes 5GTF,IQA,LTE FDD

Parameters

<bool> Trigger delay state. Choose from:
OFF or **0** - Trigger delay OFF.
ON or **1** - Auto Trigger ON.

Examples `TRIG:EXT:DEL:STAT 1`

Query Syntax TRIGger[:SEQuence]:EXTErnal:DELay:STATe?

Return Type Boolean

Default OFF (0)

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:EXTernal:SLOPe <char>

(Read-Write) Set and query the trigger slope. Trigger Slope determines which edge of a trigger signal initiates a sweep.

Note: Only valid for VIDeo, EXTernal, and RFBurst triggers.

Relevant Modes 5GTF, IQA LTE FDD

Parameters

<character> Trigger slope. Choose from:

POS - Sweep is triggered by the rising (positive) edge of signal.
NEG - Sweep is triggered by the falling (negative) edge of signal.

Examples `TRIG:EXT:SLOP NEG`

Query Syntax TRIGger[:SEQuence]:EXTernal:SLOPe?

Return Type Character

Default POS

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added new command for IQA mode (10.1x)

TRIGger[:SEQuence]:FGATe:DELay <num>

(Read-Write) Set and query the trigger delay time. This effectively moves the gating area left (negative delay) or right (positive delay) within the gating window.

See all FFT Gating commands.

Relevant Modes SA

Parameters

<num> Trigger delay time in seconds.

Examples `TRIG:DEL 2`

Query Syntax TRIGger[:SEQuence]:DELay?

Return Type Numeric

Default 0

Last Modified:

28-Mar-2013	New command (6.25)

TRIGger[:SEQuence]:FGATe[:STATe]

(Read-Write) Set and query the FFT Gating On/Off state.

See all FFT Gating commands.

Relevant Modes SA

Parameters

<bool> FFT Gating state. Choose from:
OFF or **0** - FFT Gating OFF.
ON or **1** - FFT Gating ON.

Examples	`TRIG:FGAT 1`
Query Syntax	TRIGger[:SEQuence]:FGATe[:STATe]?
Return Type	Boolean
Default	OFF (0)

Last Modified:

6-Mar-2013 Modified for 6.25

TRIGger[:SEQuence]:FGATe:VIEW[:STATe] <bool>

Not finished

(Read-Write) Set and query the display of the FT Gating window. When ON, a time domain window is displayed below the frequency domain window.

See all FFT Gating commands.

Relevant Modes	SA
Parameters	
<num>	Choose from: ON (or 1) - Gate window ON OFF (or 0) - Gate window OFF
Examples	`TRIG:FGAT:VIEW 1`
Query Syntax	TRIGger[:SEQuence]:FGATe:VIEW[:STATe]?
Return Type	Boolean
Default	OFF (or 0)

Last Modified:

28-Mar-2013 New command (6.25)

TRIGger[:SEQuence]:FGATe:VIEW:TIME <num>

Not finished

(Read-Write) Set and query the X-axis time span for the time domain window.

See all FFT Gating commands.

Relevant Modes	SA
Parameters	
<num>	FFT gating view time in seconds. Choose a value between seconds.
Examples	`TRIG:FGAT:VIEW:TIME 2`
Query Syntax	TRIGger[:SEQuence]:FGATe:VIEW:TIME?

Return Type Numeric

Default 1.5e-3

Last Modified:

28-Mar-2013 New command (6.25)

TRIGger[:SEQuence]:FGATe:WIDTh <num>

Not finished

(Read-Write) Set and query the width of the gating area within the time domain window. The gating area is indicated by two vertical green lines.

See all FFT Gating commands.

Relevant Modes SA

Parameters

<num> Choose a value between 0 and 65 seconds.

Examples

```
TRIG:FGAT:WIDT 2
```

Query Syntax TRIGger[:SEQuence]:FGATe:WIDTh?

Return Type Numeric

Default 1e-3

Last Modified:

28-Mar-2013 New command (6.25)

TRIGger[:SEQuence]:FRAMe:OFFSet

(Read-Write) Set the trigger frame offset. This command lets you advance the phase of the frame trigger by the amount you specify. It does not change the period of the trigger waveform. If the command is sent multiple times, it advances the phase of the frame trigger an additional amount each time it is sent. See also period frame offset reset.

Relevant Modes RTSA

Parameters

<num> Range: 0 to 100 ms

Examples

```
TRIG:FRAM:OFFS 1.6 ms
```

Query Syntax [:SENSe]:FRAM:OFFS?

Return Type numeric

Default 0.00000000

Last Modified:

19-sep-2016 Added new RTSA command (A.09.50).

TRIGger[:SEQuence]:FRAMe:OFFSet:DISPlay:RESet

(Write-Only) Resets the trigger frame offset to 0. Resets the value of the periodic trigger frame offset display setting to 0.0 seconds. The current displayed trigger location may include an offset value defined with the Offset key. Pressing this key redefines the currently displayed trigger location as the new trigger point that is 0.0 s offset. The Frame Offset SCPI can then be used to add offset relative to this new timing.

Relevant Modes RTSA

Parameters

<Bool>

Examples

```
TRIG:FRAM:OFFS:DISP:RES
```

Query Syntax n/a

Return Type n/a

Default 0.00000000

Last Modified:

19-sep-2016 Added new RTSA command (A.09.50).

TRIGger[:SEQuence]:FRAMe:PERiod

(Read-Write) Sets the period of the internal periodic timer clock. For digital communications signals, this is usually set to the frame period of your current input signal.

Relevant Modes RTSA

Parameters

<num> Range: 100 ns (1.000E-07) to 400 ms (4.000000000E-1)

Examples

```
TRIG:FRAM:PER 1.6 ms
```

Query Syntax TRIG:FRAM:OFFS?

Return Type numeric

Default 2.00000000E-02

Last Modified:

19-sep-2016 Added new RTSA command (A.09.50).

TRIGger[:SEQuence]:HOLDoff

(Read-Write) Sets the holdoff time between triggers. When the trigger condition is satisfied, the trigger occurs, the delay begins, and the holdoff time begins. New trigger conditions will be ignored until the holdoff time expires.

Relevant Modes	RTSA
Parameters	
<numl>	Range: 0 seconds (0.000000E+00) to 10 seconds (1.0000000E+01)
Examples	`TRIG:HOLD 1.6 ms`
Query Syntax	TRIG:HOLD?
Return Type	numeric
Default	0.000000E+00

Last Modified:

20-sep-2016	Added new RTSA command (A.09.50).

:TRIGger[:SEQuence]:LEVel

(Read-Write) Set and query the level at which a video or RF Burst trigger will occur. An incoming signal with this amplitude will initiate a sweep.

Relevant Modes	RTSA
Parameters	
<num>	Trigger level. (Range: -210 dBm to 30 dBm)
Examples	`TRIG:LEV -30`
Query Syntax	TRIGger[:SEQuence]:LEVel?
Return Type	Numeric
Default	- 25 dBm

Last Modified:

20-sep-2016	Added for RTSA mode A.09.50

TRIGger[:SEQuence]:POSition <num>

(Read-Write) Set and query the trigger position. Available ONLY in Zerospan measurements.

This is an easy way to automatically set the Trigger Delay by positioning the trigger event (also known as T zero) at any graticule along the X-axis.

Also set TRIGger[:SEQuence]:POSition:STATe

Relevant Modes	SA
Parameters	
<num>	Trigger position. Choose a value from 0 to 10: 0 - T zero occurs at the left graticule. 5 - T zero occurs at the center of the screen. 10 - T zero occurs at the far right graticule.
Examples	`TRIG:POS 5`
Query Syntax	TRIGger[:SEQuence]:POSition?
Return Type	Numeric
Default	0

Last Modified:

28-Mar-2013 New command (6.25)

:TRIGger[:SEQuence]:POSition:STATe <bool>

(Read-Write) Set and query the trigger position state. Set trigger position using TRIGger[:SEQuence]:POSition.

Relevant Modes	SA
Parameters	
<bool>	Trigger position state. Choose from: **OFF** or **0** - Trigger position OFF. **ON** or **1** - Trigger position ON. TRIGger[:SEQuence]:DELay is set automatically and can NOT be overwritten.
Examples	`TRIG:POS:STAT 1`
Query Syntax	TRIGger[:SEQuence]:POSition:STATe?
Return Type	Boolean
Default	OFF (0)

Last Modified:

19-Dec-2018 New command

:TRIGger[:SEQuence]:RFBurst:DELay <num>

(Read-Write) Set and query the IQA delay for RF Burst triggers. An incoming signal with this amplitude will initiate an acquisition.

See also TRIG:RFB:DEL:STAT.

Relevant Modes	IQA
Parameters	
<numeric>	Minimum: -150 ms Maximum: 500 ms
Examples	**TRIG:RFB:DEL 500e-3**
Query Syntax	TRIG:RFB:DEL?
Return Type	Numeric
Default	0.0000000E+00 s

Last Modified:

22-Oct-2017	Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:RFBurst:DELay:STATe <bool>

(Read-Write) Set and query the IQA trigger delay states for RFBurst. Set delay time using :TRIG:RFB:DEL.

Relevant Modes	IQA
Parameters	
<boolean>	Trigger delay state. Choose from: **OFF** or **0** - Trigger delay OFF. **ON** or **1** - Auto Trigger ON.
Examples	**TRIG:RFB:DEL:STAT 0**
Query Syntax	TRIG:RFB:DEL:STAT?
Return Type	Boolean
Default	OFF (0)

Last Modified:

22-Oct-2017	Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:RFBurst:GLIMask <real>

(Read-Write) Set and query the IQA RF Burst glitch mask trigger to stabilize trigger signals and minimize

spurs.

Relevant Modes IQA

Parameters

<real> Minimum: 0 s
Maximum: 5 ms

Examples

```
TRIG:RFB:GLIM 3e-3
TRIG:RFB:GLIM .002
```

Query Syntax TRIG:RFB:GLIM?

Return Type Numeric

Default 5.0000E-03

Last Modified:

22-Oct-2017 Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:RFBurst:LEVel

(Read-Write) Set and query the IQA trigger level for RFBurst. Similar to a Video trigger where an acquisition is triggered from a signal at the SA RF Input connector. But, an RF Burst trigger is detected in the third IF stage. An acquisition is triggered when the amplitude of the incoming signal exceeds the settable Trigger Level.

Note: Only valid for RFBurst triggers.

Relevant Modes IQA

Parameters

<numeric> RF Burst trigger level (dBm).
Minimum: -210 dBm
Maximum: 30 dBm

Examples

```
TRIG:RFB:LEV -10
```

Query Syntax :TRIG:VID:LEV?
:TRIG:RFB:LEV?

Return Type numeric

Default -25 dBm

Last Modified:

22-Oct-2017 New IQA command (A.10.1x)

:TRIGger[:SEQuence]:RFBurst:SLOPe

(Read-Write) Set and query the IQA trigger slope. Trigger Slope determines which edge of a trigger signal initiates an acquisition.

Note: Only valid for VIDeo, EXTernal, and RFBurst triggers.

Relevant Modes	IQA
Parameters	
<character>	Trigger slope. Choose from: **POS** - Sweep is triggered by the rising (positive) edge of signal. **NEG** - Sweep is triggered by the falling (negative) edge of signal.
Examples	`TRIG:RFB:SLOP NEG`
Query Syntax	TRIGger:RFBurst:SLOPe?
Return Type	Character
Default	POS

Last Modified:

22-Oct-2017	Added new command for IQA mode (10.1x)

TRIGger[:SEQuence]:SLOPe

(Read-Write) Set and query the trigger slope. Trigger Slope determines which edge of a trigger signal initiates a sweep.

Relevant Modes	SA, RTSA
Parameters	
<character>	Trigger slope. Choose from: **POS** - Sweep is triggered by the rising (positive) edge of signal. **NEG** - Sweep is triggered by the falling (negative) edge of signal.
Examples	`TRIG:SLOP NEG`
Query Syntax	TRIGger[:SEQuence]:SLOPe?
Return Type	Character
Default	POS

Last Modified:

10-june-2016	Added RTSA mode (9.50)
28-Mar-2013	Modified for 6.25

:TRIGger[:SEQuence]:SOURce <char>

(Read-Write) Set and query the source of FieldFox trigger signals.

Relevant Modes IQA, 5GTF, SA, LTE FDD, RTSA

Parameters

<character> Trigger slope. Choose from:

FREE - (Free run) Triggering is provided by the FieldFox internal circuitry. A new sweep begins when the previous sweep ends.

EXT - (External) A sweep is triggered on an external TTL signal at the External Trigger connector. External trigger is available only after first setting BNC Connector Use to Trigger.

VID - (Video) - (*Not applicable for LTE FDD/5GTF*) - Available in Zerospan and FFT sweeps. A sweep is triggered on a signal at the SA RF Input connector when the amplitude of the incoming signal exceeds the settable Trigger Level.

RFB - (RF Burst) - (*Not applicable for LTE FDD/5GTF*) - Available in Zerospan and FFT sweeps (SA and RTSA only). Similar to Video triggering, a sweep is triggered from a signal at the SA RF Input connector. However, an RF Burst trigger is detected in the third IF stage. A sweep is triggered when the amplitude of the incoming signal exceeds the settable Trigger Level.

Note: Learn more about RF Burst in the N9927-90001 User's Guide.

PER - (Periodic) -*RTSA Only* - Trigger repeats at the period rate entered. Periodic trigger's phase can be altered by the Offset value.

See Also

TRIGger[:SEQuence]:VIDeo:LEVel (SA Only)

TRIGger[:SEQuence]:VIDeo|RFBurst:LEVel (IQA Only)

Examples

```
TRIG:SOUR EXT
```

Query Syntax TRIGger[:SEQuence]:SOURce?

Return Type Character

Default FREE

Last Modified:

28nov2018	Added LTE FDD & 5GTF (11.0)
22-Oct-2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)
28-Mar-2013	Added RF Burst (6.25)

:TRIGger[:SEQuence]:VIDeo:DELay <num>

(Read-Write) Set and query the IQA delay for video, external, or RF Burst triggers. An incoming signal with this amplitude will initiate an acquisition.

See also TRIG:VID:DEL:STAT.

Relevant Modes	IQA
Parameters	
<numeric>	Minimum: -150 ms Maximum: 500 ms
Examples	`TRIG:VID:DEL 200e-3`
Query Syntax	TRIG:VID:DEL?
Return Type	Numeric
Default	0.0000000E+00 s

Last Modified:

22-Oct-2017	Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:VIDeo:DELay:STATe <bool>

(Read-Write) Set and query the IQA trigger delay states for VIDeo. Set delay time using :TRIG:VID:DEL.

Relevant Modes	IQA
Parameters	
<boolean>	Trigger delay state. Choose from: **OFF** or **0** - Trigger delay OFF. **ON** or **1** - Auto Trigger ON.

Examples	`TRIG:VID:DEL:STAT 1`
	`TRIG:VID:DEL:STAT ON`
	`TRIG:VID:DEL:STAT 0`

Query Syntax	TRIG:VID:DEL:STAT?
Return Type	Boolean
Default	OFF (0)

Last Modified:

22-Oct-2017	Added new IQA mode command (10.1x).

:TRIGger[:SEQuence]:VIDeo:LEVel <num>

(Read-Write) Set and query the level at which a video or RF Burst trigger will occur. An incoming signal with this amplitude will initiate a sweep.

Relevant Modes SA

Parameters

<num> Trigger level. The Units depend on the Scale Type setting: (dB for Log and mV for Linear). Set with [:SENSe]:AMPLitude:SCALe.

Examples

```
TRIG:VID:LEV -30
```

Query Syntax TRIGger[:SEQuence]:VIDeo:LEVel?

Return Type Numeric

Default - 20 dBm (Log)
22.361 mv (Lin)

Last Modified:

28-Mar-2013 Modified for 6.25

:TRIGger[:SEQuence]:VIDeo:SLOPe <char>

(Read-Write) Set and query the IQA trigger slope. Trigger Slope for video determines which edge of a trigger signal initiates a acquisition.

Note: Only valid for VIDeo, EXTernal, and RFBurst triggers.

Relevant Modes IQA

Parameters

<character> Trigger slope. Choose from:
POS - Sweep is triggered by the rising (positive) edge of signal.
NEG - Sweep is triggered by the falling (negative) edge of signal.

Examples

```
TRIG:VID:SLOP NEG
```

Query Syntax TRIGger:VIDeo:SLOPe?

Return Type Character

Default POS

Last Modified:

22-Oct-2017 Added new command for IQA mode (10.1x)

TRIGger:SLOPe <char>

(Read-Write) Set and query the polarity of a valid external trigger signal.

Relevant Modes NA, Pulse Measurements

Parameters

<char> Choose from:

POSitive - Sweep is triggered by the rising (positive) edge of signal at about 1.7 V.

NEGative - Sweep is triggered by the falling (negative) edge of signal at about 1.0 V.

Examples

```
TRIG:SLOP POS
```

Query Syntax TRIGger:SLOPe?

Return Type Character

Default POSitive

Last Modified:

31-Oct-2013	Added Pulse
6-Mar-2013	New command (6.25)

TRIGger:SOURce <char>

(Read-Write) Set and query the source of trigger signals which initiate a measurement.

See Trigger:Source command for Pulsed Measurements Mode.

Relevant Modes NA

Parameters

<char> Choose from:

INTernal - Sweeps are initiated by the FieldFox internal circuitry.

EXTernal - A sweep is initiated on the rising or falling edge of an external TTL signal at the Ref In/Trig In connector on the FieldFox top panel.

Examples

```
TRIG:SOUR EXT
```

Query Syntax TRIGger:SOURce?

Return Type Character

Default INTernal

Last Modified:

6-Mar-2013	New command (6.25)

UNIT:POWer <string>

(Read-Write) Set and query the units to display in Power Meter mode.

Relevant Modes Power Meter

Parameters

<string> Choose from:
"W" (Watts)
"DBM"

Examples

```
UNIT:POW "W"
```

Query Syntax UNIT:POWer?

Return Type String

Default DBM

:V5G:DATA:GPS?

(Read-Only) Returns 5GTF result with GPS information.

Relevant Modes 5GTF

Parameters None

Examples

```
V5G:DATA:GPS?
```

Default Not Applicable

Last Modified:

19-Dec-2018 New command

:V5G:DATA?

(Read-Only) Returns 5GTF result without GPS information.

Relevant Modes 5GTF

Parameters None

Examples

```
V5G:DATA?
```

Default Not Applicable

Last Modified:

19-Dec-2018	New command

Edition 1, December 2018

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