

Programming Guide

Keysight FieldFox Handheld Analyzers

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1. Home

FieldFox Programming Guide

All Models

- [Commands Common to All Modes](#)(See 4.13)

List of Commands by Mode

- [CAT Mode](#)(See 4.1)
- [NA Mode](#)(See 4.2)
- [SA Mode](#)(See 4.3)
- [RTSA Mode](#)(See 4.4)
- [IQA Mode](#)(See 4.5) **NEW!**
- [VVM Mode](#)(See 4.8)
- [USB Power Meter Mode](#)(See 4.6)
 -
 - [FOPS](#)(See 4.6)
- [Pulse Measurements](#)(See 4.9)
- [CPM Mode](#)(See 4.7)
- [ERTA Mode](#)(See 4.10)
- [AM/FM Metrics](#)(See 4.12)
- [Channel Scanner Mode](#)(See 4.11)



See Also

- [Example Programs](#)(See 3.)
- [SCPI Concepts and Tips](#)(See 2.)
- [New Commands](#)(See 5.1) with this release.
- [Status Registers](#)(See 4.15)
- [Calibration Commands](#)(See 4.14)
- [Instrument Console](#)(See 2.4)
- [FieldFox User's Guides](#)
- Command Reference – See [Table of Contents](#)

2. SCPI Concepts and Tips

[FieldFox Programming Tips](#)(See 2.1)

- [Correction Methods Explained](#)(See 2.2)
- [Instrument Console](#)(See 2.4)
- [The Rules and Syntax of SCPI Commands](#)(See 2.5)

See Also

[Examples](#)(See 3.)

Last Modified:

29-Jan-2012 New topic

2.1 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\[:SElect\]](#)(See 5.250)).

Here is a list of commands that are common to ALL modes: [Commands Common to All Modes](#)(See 4.13).

Perform Single Triggering

When programming the FieldFox, it is ALWAYS recommended to perform single sweep triggering: [INITiate:CONTinuous 0](#)(See 5.242) and [INITiate\[:IMMediate\]](#)(See 5.243) followed with [*OPC?](#)(See 5.3).

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**(See 5.240) 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 that are made from the FieldFox front panel (user interface) can NOT be queried programmatically.

2.2 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**(See 2.2)
- **Cal Methods**(See 2.2)
 -
 - **1-Port (OSL)**(See 2.2)
 - **FULL 2-Port**(See 2.2)
 - **SOLR**(See 2.2)
 - **QSOLT**(See 2.2)
 - **Enhanced Response Cal**(See 2.2)
 - **Response Cals**(See 2.2)
- **FieldFox Model Summary**(See 2.2)

See Also

Calibration Examples(See 3.4)

CAT Mode Commands(See 4.1)

NA Mode Commands(See 4.2)

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 that are made from the FieldFox front panel (user interface) can NOT be queried programmatically.

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(See 2.2) and **QSOLT**(See 2.2) 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**(See 2.2) and **1-port**(See 2.2) cals, which require sweeps in one direction only.

Cal Methods

1-Port (OSL)

- Insertability – 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 (See 2.2)	QCAL:CAL (See 5.369) <p>	1	111
Enhanced Response (See 2.2)	QCAL:ERES (See 5.370) <p>	1,2	111, 110
Mechanical Cals - specify connector and cal kit			
1-port OSL (See 2.2)	SOLT1 (See 5.375) <p>	1	None
Enhanced Response (See 2.2)	ERES (See 5.367) <p>	1,2	110
Response Cals			
Open Response (See 2.2)	OPEN (See 5.372) <p>	1	None
Short Response (See 2.2)	SHORT (See 5.373) <p>	1	None
Thru Response (See 2.2)	THRU (See 5.374) <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(See 2.2) or Full 2 port(See 2.2)	QCAL:CAL(See 5.369) <p>	1 (1-port)	112
		2 (1-port)	122,112
		1,2 (2-port)	122,112
Enhanced Response(See 2.2)	QCAL:ERES(See 5.370) <p>	1,2 (Fwd)	112
		2,1 (Rev)	122,112
Mechanical Cals - specify connector and cal kit			
1-port OSL(See 2.2)	SOLT1(See 5.375) <p>	1	None
		2	122
Full 2 port(See 2.2)	SOLT2(See 5.376) <p>	1,2	122
Unknown Thru(See 2.2)	SOLR(See 5.380) <p>	1,2	122
QSOLT(See 2.2)	QSOLT(See 5.371) <p>	1,2 or 2,1	122
Enhanced Response(See 2.2)	ERES(See 5.367) <p>	1,2	None
		2,1	122
Response Cals			
Open Response(See 2.2)	OPEN(See 5.372) <p>	1	None
		2	122
Short Response(See 2.2)	SHORT(See 5.373) <p>	1	None
		2	122
Thru Response(See 2.2)	THRU(See 5.374) <p>	1,2	None

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 All other N992x models

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

2.3 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?**(See 5.540)
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?).

2.4 Instrument Console

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 msec>	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.

2.5 The Rules and Syntax of SCPI Commands

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](#)(See 2.5)
- [Command and Query](#)(See 2.5)
- [Multiple Commands](#)(See 2.5)
- [Command Abbreviation](#)(See 2.5)
- [Bracketed \(Optional\) Keywords](#)(See 2.5)
- [Vertical Bars \(Pipes\)](#)(See 2.5)
- [MIN and MAX Parameters](#)(See 2.5)

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**(See 5.565) 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**(See 2.5) 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**(See 5.346)

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
```

Last Modified:

29-Jan-2012

New topic

2.6 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 2.6)

See Also

[How to Query the Error Queue](#)(See 2.3)

-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.

- std_GETNotAllowed
105

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.
- std_tooManyParameters
108

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.
- std_tooFewParameters
109

Missing parameter - Indicates that less parameters were received than required for the header. For example, *ESE requires one parameter, *ESE is not allowed.
- std_cmdHeader
110

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.
- std_headerSeparator
111

Header separator - Indicates that a character that is not a legal header separator was encountered while parsing the header.
- std_IDTooLong
112

Program mnemonic too long - Indicates that the header contains more than twelve characters, see IEEE 488.2, 7.6.1.4.1.
- std_undefinedHeader
113

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.
- std_suffixOutOfRange
114

Header suffix out of range - Indicates the value of a header suffix attached to a program mnemonic makes the header invalid.
- std_numericData
120

Numeric data - This error, as well as errors
- std_invalidCharInNumber
121

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, an 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.

- std_invalidWithinMacro
183 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.
- std_macroParm
184 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 because 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 488.2, 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_terminated	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

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

3. Examples

- [Read Block Data using C#](#)(See 3.11)
- [Transfer Image to PC](#)(See 3.12)

VEE Examples

- [Get NA Formatted Data as Real 32 BinBlock](#)(See 3.13.1)
- [Get_NA Formatted Data_as_ASCII_Output](#)(See 3.13.2)
- [SpecAn Get Data as ASCII Output](#)(See 3.13.4)
- [Trigger Synch Sweep Complete](#)(See 3.13.3)

See Also

[How the FieldFox Error Queue Works](#)(See 2.3)

[Instrument Console \(IC\)](#)(See 2.4)

[SCPI Concepts and Tips](#)(See 2.)

3.1 NA

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](#).(See 2.4)

```
# 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

3.2 VVM

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](#). (See 2.4)

```

# 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

```

3.3 VVS

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](#). (See 2.4)

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?

```

3.4 Calibration

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 that are made from the FieldFox front panel (user interface) can NOT be queried programmatically.

Guided Cal

- [Guided Calibration](#)(See 3.7) (separate topic)
- [ECal](#)(See 3.5) (separate topic)

Mechanical Cals

- [1-Port OSL](#)(See 3.4)
- [2- Port SOLR](#)(See 2.2)
- [2-Port QSOLT](#)(See 3.4)
- [2-Port Enhanced Response](#)(See 3.4)
- [THRU Response](#)

QuickCals

- [1-Port QuickCal](#)(See 3.4)
- [2-Port Non-Insertable QuickCal](#)(See 3.4)
- [2-Port Insertable QuickCal](#)(See 3.4)
- [Enhanced Response QuickCal](#)(See 3.4)

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](#)(See 4.1)

[NA Mode Commands](#)(See 4.2)

[See All Programming Examples](#)(See 3.)

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](#).(See 2.4)

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
```

3.5 ECal

ECal requires the use of the Guided Cal acquisition command:

[[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire(See 5.365)

The following two 'Guided' commands are optional:

[[:SENSe]:CORRection:COLLect:GUIDed:SCOunt(See 5.364)

[[:SENSe]:CORRection:COLLect:GUIDed:STEP:PRoMpt(See 5.366)

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](#).(See 2.4)

Relevant ECal module commands:

- `[[:SENSe]:CORRection:COLLect:CKIT:LABel`(See 5.359)
- `[[:SENSe]:CORRection:COLLect:ECAL:AORient`(See 5.362)

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`(See 5.363) 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`(See 5.363) has been set.

The `:CORRection:COLLect:GUIDed:SCOut?`(See 5.364) 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
```

3.6 FOPS

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](#). (See 2.4)

```
# 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
```

3.7 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 ");

}

```

3.8 Markers

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](#). (See 2.4)

```

# 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?

```

3.9 Memory Commands

These commands are used for memory storage and retrieval.

See also [MMEM:DATA](#)(See 5.254).

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 a 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 directory: `[INTERNAL]:\InternalSD\UserData`.
- Use the file path: `"[INTERNAL]:\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](#)(See 5.255).
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.

3.10 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](#)(See 2.4).

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.

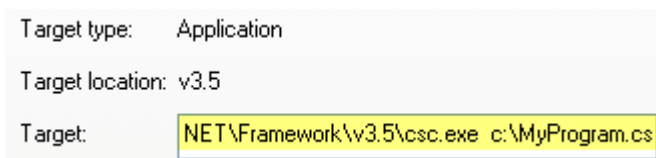
1. Shut down the FieldFox.
2. Connect the FieldFox to the Internet using a LAN connection.
3. Power ON the FieldFox.
4. On the FieldFox, press System, then System Configuration, then LAN.
5. Record the Current IP Address

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`

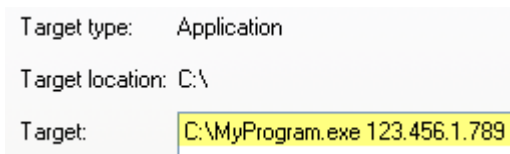
To make this process more convenient:

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
}

```

3.11 Read Block Data using C#

The following example program illustrates how to parse **block data** (See 5.240) 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);
}

```

3.12 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](#). (See 2.4)

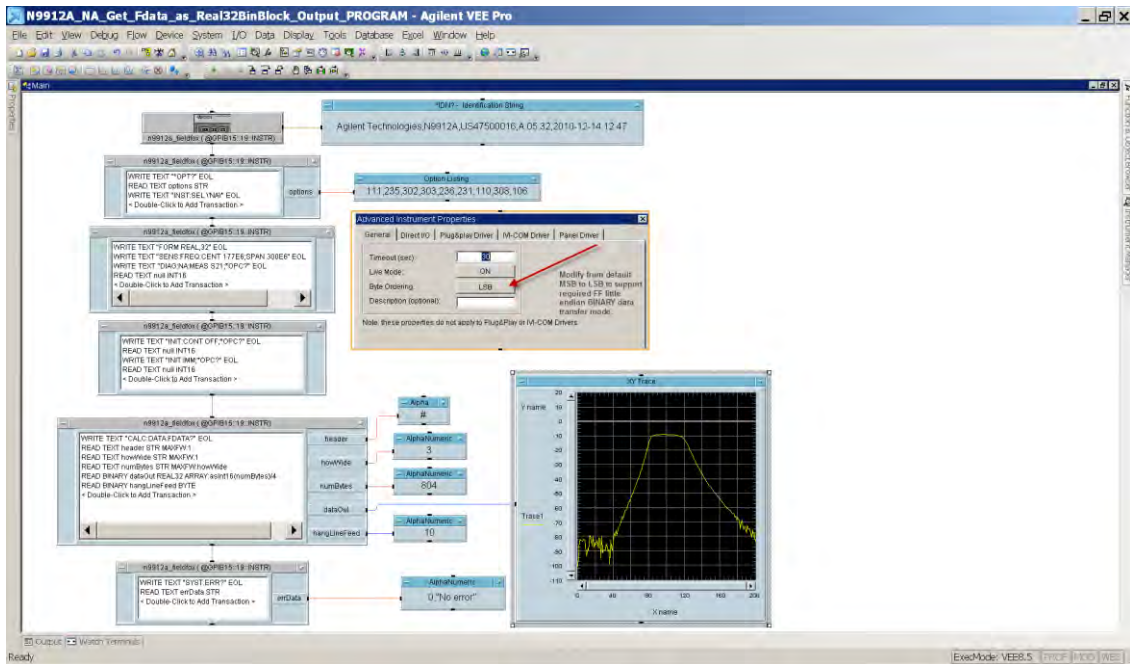
```
# Store screen to my.png into the current directory on the FieldFox
# The default directory is the userdata directory on the instrument.
MMEM:STOR:IMAG "my.png"
# Transfers the contents of my.png as a BINBLOCK
# The file data that is returned by the 2nd command depends on the programming environment.
# 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"
```

3.13 VEE

3.13.1 Get Formatted Data as Real 32 BinBlock

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](#)



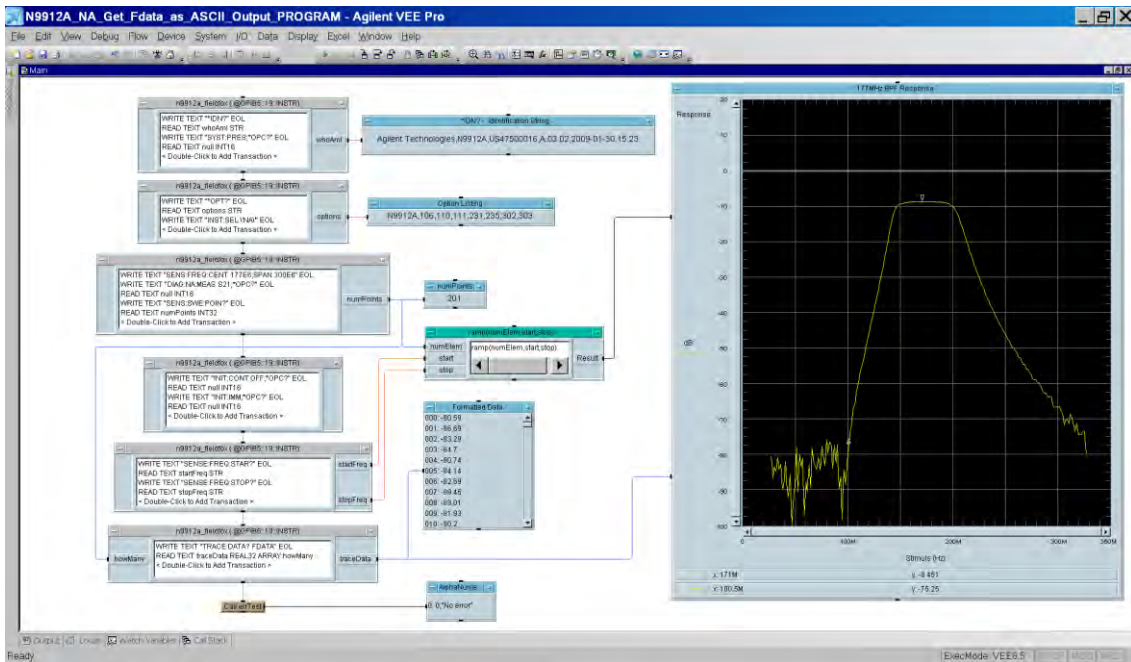
Last Modified:

24-Aug-2011 New topic

3.13.2 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](#)



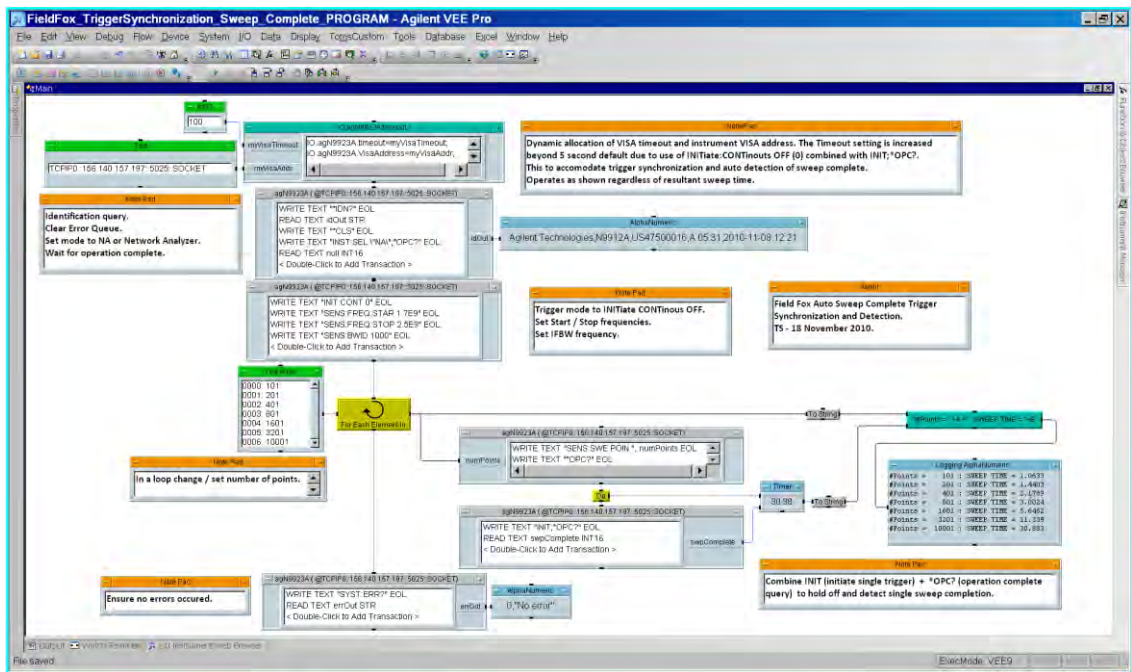
Last Modified:

24-Aug-2011 New topic

3.13.3 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:

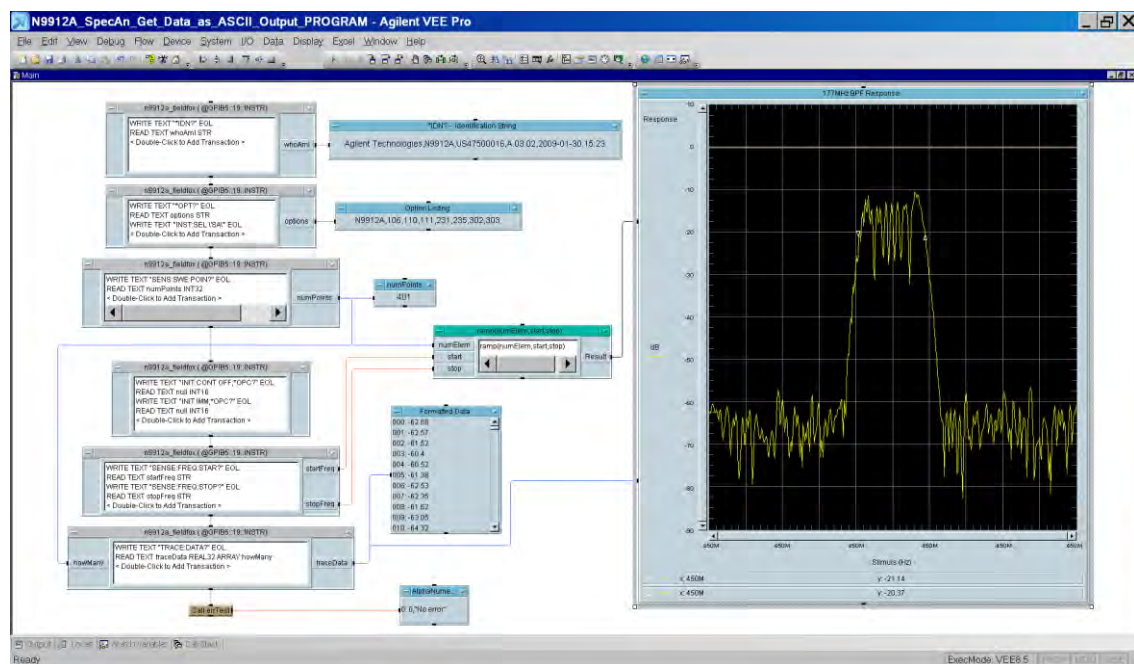
24-Aug-2011 New topic

3.13.4

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:

29-Nov-2017 New command

4. Commands by Mode

4.1 CAT Mode

In this topic:

- [Set and select Traces](#)(See 4.1)
- [Sweep](#)(See 4.1)
- [Averaging](#)(See 4.1)

- [Display](#)(See 4.1)
- [Limit Lines](#)(See 4.1)
- [Markers](#)(See 4.1)
- [Math](#)(See 4.1)
- [DTF](#)(See 4.1)
- [DTF Cable Correction](#)(See 4.1)
- [TDR](#)(See 4.1)
- [Save/Recall](#)(See 4.1)
- [Send/Read Data](#)(See 4.1)
- [Calibration](#)(See 4.1)

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Correction Methods Explained](#)(See 2.2)
- [New Programming Commands](#)(See 5.1)
- [Status Registers](#)(See 4.15)

Set and select Traces

Description	Commands
Set and read number of traces	CALCulate:PARAmeter:COUNT (See 5.24)
Change parameter	CALCulate:PARAmeter:DEFine (See 5.25)
Select trace	CALCulate:PARAmeter:SElect (See 5.26)
Sweep Settings	
Set center freq	[:SENSe]:FREQuency:CENTer (See 5.409)
Set freq span	[:SENSe]:FREQuency:SPAN (See 5.413)
Set start freq	[:SENSe]:FREQuency:START (See 5.417)
Set stop freq	[:SENSe]:FREQuency:STOP (See 5.419)
Read X-axis values	[:SENSe]:FREQuency:DATA? (See 5.412)
Set resolution (number of points)	[:SENSe]:SWEep:POINTs (See 5.473)
Set sweep time	[:SENSe]:SWEep:TIME (See 5.475)
Read sweep time	[:SENSe]:SWEep:MTIME? (See 5.472)
Set manual source power	SOURce:POWer (See 5.502)

Set flat source power	SOURce:POWer:ALC[:MODE] (See 5.504)
Averaging	
Averaging	[:SENSe]:AVERage:COUNT (See 5.333)
Clear Averaging	[:SENSe]:AVERage:CLEar (See 5.332)
Read IFBW	[:SENSe]:BWID (See 5.346)
Image rejection	CALCulate:IREJection:LEVel (See 5.5)
Smoothing On/Off	CALCulate[:SElected]:SMOothing[:STATe] (See 5.119)
Smoothing aperture	CALCulate[:SElected]:SMOothing:APERture (See 5.118)
Display Items	
View Memory trace	DISPlay:WINDow:TRACe:MEMory:STATe (See 5.229)
View Data trace	DISPlay:WINDow:TRACe:STATe (See 5.230)
Scaling - auto	DISPlay:WINDow:TRACe:Y[:SCALe]:AUTO (See 5.231)
Scaling - Set bottom of scale	DISPlay:WINDow:TRACe:Y[:SCALe]:BOTTOm (See 5.232)
Scaling - Set per division	DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision (See 5.233)
Scaling - Set reference level	DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel (See 5.234)
Scaling - Set reference position	DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition (See 5.235)
Scaling - Set top of scale	DISPlay:WINDow:TRACe:Y[:SCALe]:TOP (See 5.236)
Limit Lines	
Limit line beep	CALCulate[:SElected]:LIMit:SOUNd (See 5.90)
Create limit lines	CALCulate[:SElected]:LIMit:LLData (See 5.89)
Limit line testing state	CALCulate[:SElected]:LIMit[:STATe] (See 5.91)
Limit line testing annotation	CALCulate[:SElected]:LIMit:WARN (See 5.92)

Read Pass / Fail [STATus:QUEStionable:LIMit:CONDition?](#)(See 5.514)

Build Limit from Trace None

Markers

Activate a marker [CALCulate\[:SElected\]:MARKer:ACTivate](#)(See 5.93)

Markers - all off [CALCulate\[:SElected\]:MARKer:AOff](#)(See 5.94)

Markers - coupled [CALCulate\[:SElected\]:MARKer:COUPled](#)(See 5.97)

Marker search - Max [CALCulate\[:SElected\]:MARKer:FUNCTION:MAXimum](#)(See 5.101)

Marker search - Min [CALCulate\[:SElected\]:MARKer:FUNCTION:MINimum](#)(See 5.102)

Marker search - Peak excursion [CALCulate\[:SElected\]:MARKer:FUNCTION:PEXCursion](#)(See 5.103)

Marker search - Peak Next [CALCulate\[:SElected\]:MARKer:FUNCTION:PNEXT](#)(See 5.104)

Marker search - Peak threshold [CALCulate\[:SElected\]:MARKer:FUNCTION:PTHReshold](#)(See 5.105)

Tracking On/Off [CALCulate\[:SElected\]:MARKer:FUNCTION:TRACking](#)(See 5.109)

FieldFox setting => to marker location [CALCulate\[:SElected\]:MARKer:SET](#)(See 5.111)

Marker On/Off [CALCulate\[:SElected\]:MARKer\[:STATe\]](#)(See 5.112)

Marker => specified trace [CALCulate\[:SElected\]:MARKer:TRACe](#)(See 5.113)

Marker => specified X-axis location [CALCulate\[:SElected\]:MARKer:X](#)(See 5.114)

Read Marker Y-axis location [CALCulate\[:SElected\]:MARKer:Y?](#)(See 5.115)

Math

Math function [CALCulate\[:SElected\]:MATH:FUNCTION](#)(See 5.116)

Data to Memory [CALCulate\[:SElected\]:MATH:MEMorize](#)(See

5.117)

Distance to Fault

DTF - Set bandpass/lowpass	CALCulate:TRANSform:DISTance:BANDpass (See 5.127)
DTF - Set center freq	CALCulate:TRANSform:DISTance:FREQuency:CENTer (See 5.128)
DTF - Set max freq span	CALCulate:TRANSform:DISTance:FREQuency:SPAN:MAXimum (See 5.129)
DTF - Set min start freq	CALCulate:TRANSform:DISTance:FREQuency:START:MINimum (See 5.130)
DTF - Set max freq	CALCulate:TRANSform:DISTance:FREQuency:STOP:MAXimum (See 5.131)
DTF - Set start distance	CALCulate:TRANSform:DISTance:START (See 5.132)
DTF - Set stop distance	CALCulate:TRANSform:DISTance:STOP (See 5.133)
DTF - Set distance units	CALCulate:TRANSform:DISTance:UNIT (See 5.134)
DTF - Set window type	CALCulate:TRANSform:DISTance:WINDow (See 5.135)
DTF - Set bandpass/lowpass	CALCulate:TRANSform:FREQuency[:TYPE] (See 5.136)

DTF Cable Specs

Select Auto or Manual setting	[:SENSe]:CORRection:COAX (See 5.352)
Set cable loss	[:SENSe]:CORRection:LOSS:COAX (See 5.389)
Set velocity factor	[:SENSe]:CORRection:RVELocity:COAX (See 5.392)

TDR

Set resolution mode	[:SENSe]:SWEep:TDR:RES (See 6.36)
Max stop	[:SENSe]:SWEep:TDR:AUTO:FREQuency:STOP:MAXimum (See 6.36)

frequency with 6.35)
Res mode =
AUTO

TDR marker [CALCulate\[:SElected\]:MARKer:TDR:FORMat](#)(See 6.17)
format

Save / Recall Files

Recall Cable data [MMEMory:LOAD:CABLe](#)(See 5.264)

Store Cable data [MMEMory:STORe:CABLe](#)(See 5.273)

Save data trace to csv file [MMEMory:STORe:FDATa](#)(See 5.274)

Save SNP data [MMEMory:STORe:SNP\[:DATA\]](#)(See 5.281)

[See other Save / Recall commands](#)(See 4.13)

Send / Read Data

Send and read formatted [CALCulate\[:SElected\]:DATA:FDATA](#)(See 5.74)
measured data

Send and read formatted [CALCulate\[:SElected\]:DATA:FMEM](#)(See 5.75)
memory data

Set data format for read [FORMat\[:DATA\]](#)(See 5.240)

Calibration Commands

See Also

[Correction Methods Explained](#)(See 2.2)

[Calibration Examples](#)(See 3.4)

Set and [\[:SENSe\]:CORRection:COEFFicient\[:DATA\]](#)(See 5.353)
read error
term data

Read [\[:SENSe\]:CORRection:COLLect:GUIDed:SCOUnt](#)(See 5.364)
number of
cal steps

Measure [\[:SENSe\]:CORRection:COLLect:GUIDed:STEP:ACQuire](#)(See 5.365)
step
number

Prompt for [\[:SENSe\]:CORRection:COLLect:GUIDed:STEP:PROMpt](#)(See 5.366)
step
number

Measure Quick Cal	[:SENSe]:CORRection:COLLect[:ACQuire]:INT (See 5.354)
Measure load	[:SENSe](See 5.355):CORRection:COLLect[:ACQuire]:LOAD (See 5.356)
Measure open	[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN (See 5.356)
Measure short	[:SENSe]:CORRection:COLLect[:ACQuire]:SHORT (See 5.357)
Measure thru	[:SENSe]:CORRection:COLLect[:ACQuire]:THRU (See 5.358)
Set Cal Kit	[:SENSe]:CORRection:COLLect:CKIT:LABel (See 5.359)
Catalog all cal kits	[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog? (See 5.360)
Set connectors	[:SENSe]:CORRection:COLLect:CONNector (See 5.361)
Select method - Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:ERES (See 5.367)
Select method - QuickCal	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate (See 5.369)
Select method - QuickCal Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse (See 5.370)
Select method - Simple Open response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN (See 5.372)
Select method - Simple	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORT (See 5.373)

Short
response

Select method - Thru response [\[:SENSe\]:CORRection:COLLect:METHod\[:RESponse\]:THRU](#)(See 5.374)

Select method - Short response [\[:SENSe\]:CORRection:COLLect:METHod:SRESponse](#)(See 5.377)

Select method - Open response [\[:SENSe\]:CORRection:COLLect:METHod:ORESponse](#)(See 5.368)

Select method - 1-port SOLT [\[:SENSe\]:CORRection:COLLect:METHod:SOLT1](#)(See 5.375)

Select method - TRL [\[:SENSe\]:CORRection:COLLect:METHod:TRL](#)(See 5.378)

Read method [\[:SENSe\]:CORRection:COLLect:METHod:TYPE?](#)(See 5.379)

Set AutoOrient for ECal [\[:SENSe\]:CORRection:COLLect:ECAL:AORient](#)(See 5.362)

Set simple ECal [\[:SENSe\]:CORRection:COLLect:ECAL:SIMPle](#)(See 5.363)

Omit Isolation [\[:SENSe\]:CORRection:COLLect:OISolation](#)(See 5.381)

Select Medium [\[:SENSe\]:CORRection:MEDIum](#)(See 5.391)

Set Waveguide cutoff [\[:SENSe\]:CORRection:WGCutoff](#)(See 5.399)

Select [\[:SENSe\]:CORRection:WAVEguide:STANdard](#)(See 5.398)

Waveguid
e standard
(CAT only)

Finish Cal [\[:SENSe\]:CORRection:COLLect:SAVE](#)(See 5.382)

Turn ALL [\[:SENSe\]:CORRection\[:STATe\]](#)(See 5.393)
Correction
ON and
OFF

Turn User [\[:SENSe\]:CORRection:USER\[:STATe\]](#)(See 5.396)
Correction
ON and
OFF

Set system [\[:SENSe\]:CORRection:IMPedance\[:INPut\]\[:MAGNitude\]](#)(See 5.388)
impedance

Set [\[:SENSe\]:CORRection:CALReady:TYPE](#)(See 5.351)
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

4.2 NA Mode

In this topic:

- [Traces](#)(See 4.2)
- [Sweep Settings](#)(See 4.2)
- [Averaging](#)(See 4.2)
- [Display Items](#)(See 4.2)
- [Limit Lines](#)(See 4.2)
- [Markers](#)(See 4.2)

- [Big Marker Readout](#)(See 4.2)
- [Math](#)(See 4.2)
- [Save / Recall Files - Data](#)(See 4.2)
- [Port Extensions](#)(See 4.2)
- [Calibration](#)(See 4.2)
- [Time Domain](#)(See 4.2) (Opt 010)
- [Time Domain Gating](#)(See 4.2) (Opt 010)

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Correction Methods Explained](#)(See 2.2)
- [New Programming Commands](#)(See 5.1)
- [Status Registers](#)(See 4.15)

Traces

Description	Commands
Create Measurement	CALCulate:PARAmeter{1:4}:DEFine (See 5.25)
Set and read number of traces	CALCulate:PARAmeter:COUNt (See 5.24)
Select Measurement	CALCulate:PARAmeter{1:4}:SELect (See 5.26)
Set trace format	CALCulate[:SELected]:FORMat (See 5.86)
Multi-trace Configurations	DISPlay:WINDow:SPLit (See 5.224)
Perform measurement conversion	CALCulate[:SELected]:CONVersion:FUNCTion (See 5.71)

Sweep Settings

Set center freq	[:SENSe]:FREQuency:CENTer (See 5.409)
Set freq span	[:SENSe]:FREQuency:SPAN (See 5.413)
Set start freq	[:SENSe]:FREQuency:START (See 5.417)
Set stop freq	[:SENSe]:FREQuency:STOP (See 5.419)
Read X-axis values	[:SENSe]:FREQuency:DATA? (See 5.412)
Set resolution (number of points)	[:SENSe]:SWEep:POINTs (See 5.473)
Set sweep time	[:SENSe]:SWEep:TIME (See 5.475)

Read sweep time	[:SENSe]:SWEep:MTIME? (See 5.472)
Set manual source power	SOURce:POWer (See 5.502)
Set flat source power	SOURce:POWer:ALC[:MODE] (See 5.504)
Set trigger Internal or External	TRIGger:SOURce (See 5.658)
Set polarity of external	TRIGger:SLOPe (See 5.657)
IFBW / Average / Smooth / Image Rej	
IFBW	[:SENSe]:BWID (See 5.346)
Averaging	[:SENSe]:AVERage:COUNT (See 5.333)
Clear Averaging	[:SENSe]:AVERage:CLEar (See 5.332)
Average (Swp/Point)	[:SENSe]:AVERage:MODE (See 5.336)
Smoothing ON/OFF	CALCulate[:SElected]:SMOothing[:STATE] (See 5.119)
Smoothing aperture	CALCulate[:SElected]:SMOothing:APERture (See 5.118)
Display Items	
View Memory trace	DISPlay:WINDow:TRACe:MEMory:STATe (See 5.229)
View Data trace	DISPlay:WINDow:TRACe:STATe (See 5.230)
Scaling - auto	DISPlay:WINDow:TRACe:Y[:SCALE]:AUTO (See 5.231)
Scaling - Set bottom of scale	DISPlay:WINDow:TRACe:Y[:SCALE]:BOTTOm (See 5.232)
Scaling - Set per division	DISPlay:WINDow:TRACe:Y[:SCALE]:PDIVision (See 5.233)
Scaling - Set reference level	DISPlay:WINDow:TRACe:Y[:SCALE]:RLEVel (See 5.234)
Scaling - Set reference position	DISPlay:WINDow:TRACe:Y[:SCALE]:RPOSition (See 5.235)
Scaling - Set top of scale	DISPlay:WINDow:TRACe:Y[:SCALE]:TOP (See 5.236)
Electrical Delay	CALCulate[:SElected]:CORRection:EDELay:TIME (See 5.72)

Phase Offset [CALCulate\[:SElected\]:CORRection:OFFSet:PHASe](#)(See 5.73)

Mag Offset [CALCulate\[:SElected\]:OFFSet\[:MAGNitude\]](#)(See 6.18)

Mag Slope [CALCulate\[:SElected\]:OFFSet:SLOPe](#)(See 6.19)

Limit Lines

Limit line beep [CALCulate\[:SElected\]:LIMit:SOUNd](#)(See 5.90)

Create limit lines [CALCulate\[:SElected\]:LIMit:LLData](#)(See 5.89)

Limit line testing state [CALCulate\[:SElected\]:LIMit\[:STATe\]](#)(See 5.91)

Limit line testing annotation [CALCulate\[:SElected\]:LIMit:WARN](#)(See 5.92)

Read Pass / Fail [STATus:QUEStionable:LIMit:CONDition?](#)(See 5.514)

Build Limit from Trace None

Markers

Marker On/Off [CALCulate\[:SElected\]:MARKer\[:STATe\]](#)(See 5.112)

Activate a marker [CALCulate\[:SElected\]:MARKer:ACTivate](#)(See 5.93)

Markers – all off [CALCulate\[:SElected\]:MARKer:AOFF](#)(See 5.94)

Read BW data [CALCulate\[:SElected\]:MARKer:BWIDth:DATA](#)(See 5.95)

Marker search – BW / Q On/Off [CALCulate\[:SElected\]:MARKer:BWIDth\[:STATe\]](#)(See 5.96)

Markers – coupled [CALCulate\[:SElected\]:MARKer:COUPled](#)(See 5.97)

BW search value [CALCulate\[:SElected\]:MARKer:FUNCTion:BWIDth:THReshold](#)(See 5.99)

Marker search – Max [CALCulate\[:SElected\]:MARKer:FUNCTion:MAXimum](#)(See 5.101)

Marker search – Min [CALCulate\[:SElected\]:MARKer:FUNCTion:MINimum](#)(See 5.102)

Marker search - Peak excursion	CALCulate[:SElected]:MARKer:FUNctio:n:PEXCursion (See 5.103)
Marker search - Peak Next	CALCulate[:SElected]:MARKer:FUNctio:n:PNEXt (See 5.104)
Marker search - Peak threshold	CALCulate[:SElected]:MARKer:FUNctio:n:PTHReshold (See 5.105)
Marker search - Target	CALCulate[:SElected]:MARKer:FUNctio:n:TARGet (See 5.107)
Marker search - Wrap/No Wrap	CALCulate[:SElected]:MARKer:FUNctio:n:TDIRectio:n (See 5.108)
Tracking On/Off	CALCulate[:SElected]:MARKer:FUNctio:n:TRACking (See 5.109)
FieldFox setting => to marker location	CALCulate[:SElected]:MARKer:SET (See 5.111)
Marker format	CALCulate[:SElected]:MARKer:FORMat (See 5.98)
Marker => specified trace	CALCulate[:SElected]:MARKer:TRACe (See 5.113)
Marker => specified X- axis location	CALCulate[:SElected]:MARKer:X (See 5.114)
Read Marker Y-axis location	CALCulate[:SElected]:MARKer:Y? (See 5.115)

Big Marker Display States (A and B)

Enable Big marker readouts	<code>DISPlay:MARKer:LARGe:STATe</code> (See 5.198)
Set font size	<code>DISPlay:MARKer:LARGe:<x>:FONT</code> (See 5.208)
Set how the marker is displayed (norm / delta)	<code>DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:MARKer:STATe</code> (See 5.200)
Enable a readout line	<code>DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:STATe</code> (See 5.202)
Assign a marker number to the readout line	<code>DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:MNUMber</code> (See 5.201)
Assign a trace number to the readout line	<code>DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TNUMber</code> (See 5.203)
Set format for the readout line	<code>DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:FORMat</code> (See 5.199)
Set marker tracking	<code>DISPlay:MARKer:LARGe:<x>:DEFine:LINE<n>:TRACking</code> (See 5.204)
Set number of traces	<code>DISPlay:MARKer:LARGe:<x>:TRACE:COUNT</code> (See 5.209)
Set measurement for the trace	<code>DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:MEASurement</code> (See 5.207)
Set format for the trace	<code>DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:FORMat</code> (See 5.206)
Enable bandwidth search	<code>DISPlay:MARKer:LARGe:<x>:DEFine:TRACe<n>:BWIDth:STATe</code> (See 5.205)
Math	
Math function	<code>CALCulate[:SElected]:MATH:FUNction</code> (See 5.116)

Data to Memory [CALCulate\[:SElected\]:MATH:MEMorize](#)(See 5.117)

Save / Recall Files - Data

Save data trace to csv file [MMEMory:STORe:FDATa](#)(See 5.274)

Save SNP data [MMEMory:STORe:SNP\[:DATA\]](#)(See 5.281)

[See other Save / Recall commands](#)(See 4.13)

Send and read formatted measured data [CALCulate\[:SElected\]:DATA:FDATa](#)(See 5.74)

Send and read formatted memory data [CALCulate\[:SElected\]:DATA:FMEM](#)(See 5.75)

Send and read unformatted measured data [CALCulate\[:SElected\]:DATA:SDATa](#)(See 5.76)

Send and read unformatted memory data [CALCulate\[:SElected\]:DATA:SMEM](#)(See 5.77)

Set read format [FORMat\[:DATA\]](#)(See 5.240)

Port Extensions

Enable [\[:SENSe\]:CORRection:EXTension\[:STATe\]](#)(See 5.385)

Set port 1 [\[:SENSe\]:CORRection:EXTension:PORT1](#)(See 5.383)

Set port 2 [\[:SENSe\]:CORRection:EXTension:PORT2](#)(See 5.384)

Set velocity factor [\[:SENSe\]:CORRection:RVELocity:COAX](#)(See 5.392)

Calibration

See Also

[Correction Methods Explained](#)(See 2.2)

[Calibration Examples](#)(See 3.4)

Set and read error term data [\[:SENSe\]:CORRection:COEFFicient\[:DATA\]](#)(See 5.353)

Read number of [\[:SENSe\]:CORRection:COLLect:GUIDed:SCOUnt](#)(See 5.364)

cal steps

Measure step number
[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire(See 5.365)

Prompt for step number
[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt(See 5.366)

Measure Quick Cal
[:SENSe]:CORRection:COLLect[:ACQuire]:INT(See 5.354)

Measure load
[:SENSe](See 5.355):CORRection:COLLect[:ACQuire]:LOAD(See 5.356)

Measure open
[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN(See 5.356)

Measure short
[:SENSe]:CORRection:COLLect[:ACQuire]:SHORT(See 5.357)

Measure thru
[:SENSe]:CORRection:COLLect[:ACQuire]:THRU(See 5.358)

Set Cal Kit
[:SENSe]:CORRection:COLLect:CKIT:LABel(See 5.359)

Catalog all cal kits
[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog?(See 5.360)

Set connectors
[:SENSe]:CORRection:COLLect:CONNector(See 5.361)

Select method - Enhanced Response
[:SENSe]:CORRection:COLLect:METHod:ERES(See 5.367)

Select method - QuickCal
[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate(See 5.369)

Select method - QuickCal Enhanced Response
[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse(See 5.370)

Select method - Simple Open response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN (See 5.372)
Select method - Simple Short response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORT (See 5.373)
Select method - Thru response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:THRU (See 5.374)
Select method - Open response	[:SENSe]:CORRection:COLLect:METHod:ORESPonse (See 5.368)
Select method - Short response	[:SENSe]:CORRection:COLLect:METHod:SRESPonse (See 5.377)
Select method - 1-port SOLT	[:SENSe]:CORRection:COLLect:METHod:SOLT1 (See 5.375)
Select method - TRL	[:SENSe]:CORRection:COLLect:METHod:TRL (See 5.378)
Read method	[:SENSe]:CORRection:COLLect:METHod:TYPE? (See 5.379)
Set AutoOrient for ECal	[:SENSe]:CORRection:COLLect:ECAL:AORient (See 5.362)
Set simple ECal	[:SENSe]:CORRection:COLLect:ECAL:SIMPle (See 5.363)
Omit	[:SENSe]:CORRection:COLLect:OISolation (See 5.381)

Isolation

Select Medium [\[:SENSe\]:CORRection:MEDium](#)(See 5.391)

Set Waveguide cutoff [\[:SENSe\]:CORRection:WGCutoff](#)(See 5.399)

Finish Cal [\[:SENSe\]:CORRection:COLLect:SAVE](#)(See 5.382)

Turn ALL Correction ON and OFF [\[:SENSe\]:CORRection\[:STATe\]](#)(See 5.393)

Turn User Correction ON and OFF [\[:SENSe\]:CORRection:USER\[:STATe\]](#)(See 5.396)

Set system impedance [\[:SENSe\]:CORRection:IMPedance\[:INPut\]\[:MAGNitude\]](#)(See 5.388)

Set CalReady type [\[:SENSe\]:CORRection:CALReady:TYPE](#)(See 5.351)

Time Domain (Opt 010)

Enable [CALCulate\[:SELected\]:TRANSform:TIME:STATe](#)(See 5.143)

Start time [CALCulate\[:SELected\]:TRANSform:TIME:START](#)(See 5.142)

Stop time [CALCulate\[:SELected\]:TRANSform:TIME:STOP](#)(See 5.146)

Center time [CALCulate\[:SELected\]:TRANSform:TIME:CENTer](#)(See 5.137)

Span time [CALCulate\[:SELected\]:TRANSform:TIME:SPAN](#)(See 5.141)

Lowpass or BandPass [CALCulate\[:SELected\]:TRANSform:TIME: \[TYPE\]](#)(See 5.147)

Step or Impulse [CALCulate\[:SELected\]:TRANSform:TIME:STIMulus](#)(See 5.145)

Step rise time [CALCulate\[:SELected\]:TRANSform:TIME:STEP:RTIME](#)(See 5.144)

Impulse width [CALCulate\[:SELected\]:TRANSform:TIME:IMPulse:WIDTH](#)(See

5.138)

Kaiser Bessel width [CALCulate\[:SElected\]:TRANSform:TIME:KBESsel](#)(See 5.139)

Set Lowpass freq. [CALCulate\[:SElected\]:TRANSform:TIME:LPFREQuency](#)(See 5.140)

Time Domain Gating

Enable [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME:STATe](#)(See 5.82)

Start time [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME:START](#)(See 5.81)

Stop time [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME:STOP](#)(See 5.83)

Center time [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME:CENTer](#)(See 5.78)

Span time [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME:SPAN](#)(See 5.80)

Gating shape [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME:SHAPE](#)(See 5.79)

Bandpass or notch [CALCulate\[:SElected\]:FILTer\[:GATE\]:TIME](#)(See 5.84)

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)

4.3 SA Mode

In this topic:

- [Frequency](#)(See 4.3)
- [Radio Standard](#)(See 4.3)
- [Gain / Atten](#)(See 4.3)

- [Sweep](#)(See 4.3)
- [Scale/Units](#)(See 4.3)
- [Average](#)(See 4.3)
- [Video / Res Bandwidth](#)(See 4.3)
- [Trace Type / Detector](#)(See 4.3)
- [Alignments \(InstAlign\)](#)(See 4.3)
- [Limit / Display Lines](#)(See 4.3)
- [Markers](#)(See 4.3)
- [Read / Save Data](#)(See 4.3)
- [Independent Source / Tracking Generator](#)(See 4.3)
- [Source Tracking Offset](#)(See 4.3)
- [Field Strength \(Corrections\)](#)(See 4.3)
- [Trigger Settings](#)(See 4.3)
- [FFT Gating](#)(See 4.3)
- [Record/Playback Actions](#)(See 4.3)
- [Record/Playback Configuration](#)(See 4.3)
- [Record/Playback Sessions](#)(See 4.3)
- [Select Channel Measurement](#)(See 4.3)
- [Read Current Channel Measurement Data](#)(See 4.3)
- [Channel Measurement Setup](#)(See 4.3)
- [Adjacent Channel Power Setup](#)(See 4.3)
- [Interference Analyzer Settings](#)(See 4.3)
- [Tune and Listen Settings](#)(See 4.3)
- [General Status](#)(See 4.3)

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Status Registers](#)(See 4.15)

Frequency

	Description	Command
Center freq		[:SENSe]:FREQuency:CENTer (See 5.409)
Step size for up/down keys		[:SENSe]:FREQuency:CENTer:STEP (See 5.410)
Step size auto/manual		[:SENSe]:FREQuency:CENTer:STEP:AUTO (See 5.411)

Freq span	<code>[[:SENSe]:FREQuency:SPAN</code> (See 5.413)
Span to full	<code>[[:SENSe]:FREQuency:SPAN:FULL</code> (See 5.415)
Span to zero	<code>[[:SENSe]:FREQuency:SPAN:ZERO</code> (See 5.416)
Start freq	<code>[[:SENSe]:FREQuency:START</code> (See 5.417)
Stop freq	<code>[[:SENSe]:FREQuency:STOP</code> (See 5.419)
Frequency annotation method	<code>[[:SENSe]:FREQuency:ANNotation[:SElect]</code> (See 5.408)
Radio Standard	
Channel number center	<code>[[:SENSe]:RADio:CHANnel:CENTer</code> (See 5.446)
Uplink or Downlink	<code>[[:SENSe]:RADio:CHANnel:DIRection</code> (See 5.447)
Start channel	<code>[[:SENSe]:RADio:CHANnel:START</code> (See 5.448)
Channel step size	<code>[[:SENSe]:RADio:CHANnel:STEP</code> (See 5.449)
Stop channel	<code>[[:SENSe]:RADio:CHANnel:STOP</code> (See 5.450)
Select standard	<code>[[:SENSe]:RADio:STANdard[:SElect]</code> (See 5.452)
Freq or Chan	<code>[[:SENSe]:RADio:TEUNit</code> (See 5.453)
Gain/Atten	
Attenuation value	<code>[[:SENSe]:POWer[:RF]:ATTenuation</code> (See 5.440)
Atten Auto/Manual	<code>[[:SENSe]:POWer[:RF]:ATTenuation:AUTO</code> (See 5.441)
Set external gain value	<code>[[:SENSe]:POWer[:RF]:EXTGain</code> (See 5.442)
Preamplifier ON/OFF	<code>[[:SENSe]:POWer[:RF]:GAIN[:STATe]</code> (See 5.444)
Read number of traces.	<code>[[:SENSe]:QUANtity:TACTive?</code> (See 5.445)
Sweep	
Sweep time (Non-zerospan)	<code>[[:SENSe]:SWEep:ACQuisition</code> (See 5.470)
Sweep time (Zerospan)	<code>[[:SENSe]:SWEep:TIME</code> (See 5.475)
Read sweep time	<code>[[:SENSe]:SWEep:MTIME?</code> (See 5.472)
Auto / Manual	<code>[[:SENSe]:SWEep:ACQuisition:AUTO</code> (See 5.471)
Sweep points	<code>[[:SENSe]:SWEep:POINts</code> (See 5.473)

Sweep Type	<code>[[:SENSe]:SWEep:TYPe</code> (See 5.476)
Reverse sweep (Step sweep and Opt. 209 only)	<code>[[:SENSe]:FREQuency:SPAN:DREVerse</code> (See 6.32)
Scale / Units	
Auto Scale trace	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:AUTO</code> (See 5.231)
Per division	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision</code> (See 5.233)
Reference level	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel</code> (See 5.234)
Reference position	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition</code> (See 5.235)
Log / Linear scale	<code>[[:SENSe]:AMPLitude:SCALe</code> (See 5.330)
Set Units	<code>[[:SENSe]:AMPLitude:UNIT</code> (See 5.331)
Read ONLY - Bottom scale value	<code>DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:BOTTOm</code> (See 5.232)
Read ONLY - Top scale value	<code>DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:TOP</code> (See 5.236)
Average	
Average count	<code>[[:SENSe]:AVERAge:COUNT</code> (See 5.333)
Averaging type	<code>[[:SENSe]:AVERAge:TYPE</code> (See 5.338)
Restart trace averaging	<code>INITiate:REStart</code> (See 5.244)
Video / Res Bandwidth	
Manual Res BW value	<code>[[:SENSe]:BANDwidth[:RESolution]</code> (See 5.340)
Choose Auto or Manual Res BW	<code>[[:SENSe]:BANDwidth[:RESolution]:AUTO</code> (See 5.341)
Manual Video BW value	<code>[[:SENSe]:BANDwidth:VIDeo</code> (See 5.343)
Choose Auto or Manual Video BW	<code>[[:SENSe]:BANDwidth:VIDeo:AUTO</code> (See 5.344)
IF Output	<code>[[:SENSe]:BANDwidth:IF:OUT</code> (See 5.339)
Trace Type/Detector	
Set Trace Type	<code>TRACe{1:4}:TYPE</code> (See 5.613)

Detector function	[:SENSe]:DETector:FUNction (See 5.405)
Alignments (InstAlign)	
Align all now (coupled to all individual alignments)	[:SENSe]:ALIGNment:ALL:NOW (See 6.2)
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGNment:ALL[:STATe] (See 6.1)
Align now	[:SENSe]:ALIGNment:AMPLitude:NOW (See 6.4)
InstAlign state	[:SENSe]:ALIGNment:AMPLitude[:STATe] (See 6.3)
RF burst now (Not applicable to ERTA)	[:SENSe]:ALIGNment:BURSt:NOW (See 6.6)
RF burst state (Not applicable to ERTA)	[:SENSe]:ALIGNment:BURSt[:START] (See 6.5)
Limit / Display Lines	
Limit line beep	CALCulate[:SElected]:LIMit:SOUNd (See 5.90)
Create limit lines	CALCulate:LIMit:LLData (See 5.89)
Limit line testing state	CALCulate:LIMit[:STATe] (See 5.91)
Limit line testing annotation	CALCulate:LIMit:WARN (See 5.92)
Display Line level setting	DISPlay:WINDow:TRACe:Y:DLINe (See 5.227)
Display Line state	DISPlay:WINDow:TRACe:Y:DLINe:STATe (See 5.228)
Read Pass/Fail	STATus:QUESTionable:LIMit:CONDition? (See 5.514)
Build Limit from Trace	None
Markers	
Select a marker	CALCulate:MARKer:ACTivate (See 5.93)
Markers - all off	CALCulate:MARKer:AOff (See 5.94)
Audio Beep on Marker	CALCulate:MARKer:AUDio:BEEP (See 5.6)
Markers - Fixed delta reference marker state.	CALCulate:MARKer:DREF:FIXed (See 5.7)
Frequency counter	CALCulate:MARKer:FCOunt[:STATe] (See 5.8)

marker ON/OFF	
Read Frequency Count	<code>CALCulate:MARKer:FCOunt:X?</code> (See 5.9)
Set Noise Marker and Band Power Marker	<code>CALCulate:MARKer:FUNCTion</code> (See 5.10)
Band power span	<code>CALCulate:MARKer:FUNCTion:BAND:SPAN</code> (See 5.11)
Band power mode	<code>CALCulate:MARKer:FUNCTion:BAND:SPAN:AUTO</code> (See 5.12)
Interval power span	<code>CALCulate:MARKer:FUNCTion:INTerval:SPAN</code> (See 5.13)
Interval power mode	<code>CALCulate:MARKer:FUNCTion:INTerval:SPAN:AUTO</code> (See 5.14)
Marker search – Max	<code>CALCulate:MARKer{1:6}:FUNCTion:MAXimum</code> (See 5.101)
Marker search – Min	<code>CALCulate:MARKer{1:6}:FUNCTion:MINimum</code> (See 5.102)
Marker search – Peak excursion	<code>CALCulate:MARKer{1:6}:FUNCTion:PEXCursion</code> (See 5.103)
Marker search – Peak left	<code>CALCulate:MARKer{1:6}:FUNCTion:PLEft</code> (See 5.15)
Marker search – Peak Next	<code>CALCulate:MARKer{1:6}:FUNCTion:PNEXT</code> (See 5.104)
Marker search – Peak right	<code>CALCulate:MARKer{1:6}:FUNCTion:PRIGHT</code> (See 5.16)
Marker search – Peak threshold	<code>CALCulate:MARKer{1:6}:FUNCTion:PTHReshold</code> (See 5.105)
Noise marker On/Off	<code>CALCulate:MARKer:NOISe[:STATe]</code> (See 5.17)
Marker -> Setting	<code>CALCulate:MARKer:SET</code> (See 5.111)
Move marker to center freq	<code>CALCulate:MARKer:SET:CENTer</code> (See 5.18)
Move marker to ref level	<code>CALCulate:MARKer:SET:REFLevel</code> (See 5.19)
Signal Tracking	<code>CALCulate:MARKer:STRack</code> (See 5.20)
Marker On/Off	<code>CALCulate:MARKer[:STATe]</code> (See 5.112)

Move marker to other trace **CALCulate:MARKer:TRACe**(See 5.113)

Move/read marker X-axis position **CALCulate:MARKer:X**(See 5.114)

Read marker Y-axis position **CALCulate:MARKer:Y?**(See 5.115)

Read / Save Data

See Also: **Read Current Channel Measurement Data**(See 4.3)

Read Trace Data **TRACe{1:4}:DATA**(See 5.575)

Saves trace to CSV file. **MMEMory:STORe:FDATA**(See 5.274)

Independent Source / Tracking Generator

CW or S/R **SOURce:MODE**(See 5.500)

CW Frequency **SOURce:FREQuency[:CW]**(See 5.496)

Normalize **SOURce:NORMalize**(See 5.501)

Power Level (All models EXCEPT N9912A) **SOURce:POWer**(See 5.503)

Max Power (All models EXCEPT N9912A) **SOURce:POWer:MAXimum**(See 5.506)

Attenuation (power) N9912A ONLY **SOURce:POWer:ATTenuation**(See 5.505)

Enable Source Tracking **SOURce:TRACking**(See 6.10)

Source Tracking Offset

Enable **SOURce:TOFFset:ENABle**(See 6.37)

Set frequency **SOURce:TOFFset:FREQuency**(See 6.38)

Reverse frequency **SOURce:TOFFset:REVerse**(See 6.39)

Field Strength (Corrections)

All corrections ON **[:SENSe]:AMPLitude:CORRections[:STATe]**(See 5.329)

Receiver (or ONLY one) Antenna/Cables

Antenna corrections ON **[:SENSe]:AMPLitude:CORRections:ANTenna[:STATe]**(See 5.326)

Cable corrections ON	[:SENSe]:AMPLitude:CORRections:CABLe[:STATe] (See 5.328)
Load Antenna file	MMEMory:LOAD:ANTenna (See 5.263)
Store Antenna file	MMEMory:STORe:ANTenna (See 5.272)
Clear Antenna correction values	[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault (See 5.325)
Load Cable file	MMEMory:LOAD:CABLe (See 5.264)
Store Cable file	MMEMory:STORe:CABLe (See 5.273)
Clear Cable correction values	[:SENSe]:AMPLitude:CORRections:CABLe:DEFault (See 5.327)

Source Antenna/Cables

Antenna corrections ON	[:SENSe]:AMPLitude:CORRections:SANTenna[:STATe] (See 6.28)
Cable corrections ON	[:SENSe]:AMPLitude:CORRections:SCABLe[:STATe] (See 6.30)
Load Antenna file	MMEMory:LOAD:SANTenna (See 6.23)
Store Antenna file	MMEMory:STORe:SANTenna (See 6.25)
Clear Antenna correction values	[:SENSe]:AMPLitude:CORRections:SANTenna:DEFault (See 6.27)
Load Cable file	MMEMory:LOAD:SCABLe (See 6.24)
Store Cable file	MMEMory:STORe:SCABLe (See 6.26)
Clear Cable correction values	[:SENSe]:AMPLitude:CORRections:SCABLe:DEFault (See 6.29)

Trigger Settings

Trigger Type (Ext/Vid/RFBurst/Freerun)	TRIGger[:SEQuence]:SOURce (See 5.652)
Trigger Slope (Pos/Neg)	TRIGger[:SEQuence]:SLOPe (See 5.651)
Trigger Delay	TRIGger[:SEQuence]:DELay (See 5.630)
Trigger Delay ON/OFF	TRIGger[:SEQuence]:DELay:STATe (See 5.631)
Trigger Level	TRIGger[:SEQuence]:VIDeo:LEVel (See 5.655)

Auto trigger time	TRIGger[:SEQuence]:ATRigger (See 5.628)
Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe (See 5.629)
Trigger Position	TRIGger[:SEQuence]:POSition (See 5.649)
Trigger Position ON/OFF	TRIGger[:SEQuence]:POSition:STATe (See 5.650)
FFT Gating	
Enable gating	TRIGger[:SEQuence]:FGATe[:STATe] (See 5.640)
Set gate delay	TRIGger[:SEQuence]:FGATe:DELay (See 5.639)
Display the gating window	TRIGger[:SEQuence]:FGATe:VIEW[:STATe] (See 5.641)
Set X-axis time span for the gating window	TRIGger[:SEQuence]:FGATe:VIEW:TIME (See 5.642)
Set the width of the gated area within the gating window	TRIGger[:SEQuence]:FGATe:WIDTh (See 5.643)
Record/Playback Actions	
Pause	RECPlayback:ACTion:PAUSe (See 5.284)
Play	RECPlayback:ACTion:PLAY (See 5.285)
Record	RECPlayback:ACTion:RECOrd (See 5.286)
Tag position	RECPlayback:ACTion:SPOSition (See 5.287)
Stop	RECPlayback:ACTion:STOP (See 5.288)
Trace position	RECPlayback:ACTion:TPOSition (See 5.289)
Record/Playback Configuration	
Frequency Mask Trigger (FMT) data	RECPlayback:CONFig:FMTRigger:LLData (See 5.292)
FMT enable	RECPlayback:CONFig:FMTRigger:ENABle (See 5.291)
Playback Time Interval	RECPlayback:CONFig:PTINterval (See 5.293)
Record Segment Counting Length	RECPlayback:CONFig:RSCLength (See 5.294)
Record Source	RECPlayback:CONFig:RSOurce (See 5.295)

Record Time Interval	RECPlayback:CONFig:RTINerval (See 5.296)
Record Time limit	RECPlayback:CONFig:RTLSeconds (See 5.297)
Record/Playback Sessions	
Clear all records	RECPlayback:SESSion:CARecords (See 5.298)
Close	RECPlayback:SESSion:CLOSe (See 5.299)
Create new session	RECPlayback:SESSion:NEW (See 5.300)
Open session	RECPlayback:SESSion:OPEN? (See 5.301)
Storage device	RECPlayback:SESSion:SDEvice (See 5.302)
Trace record limit	RECPlayback:SESSion:TRLimit (See 5.303)
Is a session open?	STATus:OPERation:SAMode:CONDition? (See 5.511)
Select Channel Measurement	
All channel meas OFF	[:SENSe]:MEASurement:AOff (See 5.426)
Select channel meas	[:SENSe]:MEASurement:CHANnel (See 5.429)
Select Interference Analysis (Opt 236) display.	[:SENSe]:MEASurement:INTerference (See 5.434)
Preset channel meas	[:SENSe]:MEASurement:PRESet (See 5.435)
Tune and Listen demod type	[:SENSe]:MEASurement:TAListen (See 5.436)
Power percent for Occupied Bandwidth	[:SENSe]:OBW:PPOW (See 5.437)
Read Current Channel Measurement Data	
Channel Power, Occupied Bandwidth, or Adjacent Channel Power	
Read current channel measurement data	CALCulate:MEASurement:DATA? (See 5.22)
Channel Measurement Setup	
Averaging ON/OFF	[:SENSe]:CMEasurement:AVERage:ENABle (See 5.347)
Integration BW	[:SENSe]:CMEasurement:IBW (See 5.348)
RCC filter state	[:SENSe]:CMEasurement:RRCFilter (See 5.349)
RCC filter value	[:SENSe]:CMEasurement:RRCFilter:ALPHa (See 5.350)

5.350)

Adjacent Channel Power Setup

Reference value	[:SENSe]:ACPower:MREference (See 5.305)
Reference method	[:SENSe]:ACPower:MREference:AUTO (See 5.306)
Meas Type	[:SENSe]:ACPower:MTYPE (See 5.307)
Limit testing On/Off	[:SENSe]:ACPower:LIMit[:STATe] (See 5.304)
Offset bandwidths	[:SENSe]:ACPower:OFFSet:BWIDth (See 5.308)
Offset frequencies	[:SENSe]:ACPower:OFFSet:FREQuency (See 5.309)
Offset states	[:SENSe]:ACPower:OFFSet:STATe (See 5.311)
Lower offset limits	[:SENSe]:ACPower:OFFSet:LLIMit (See 5.310)
Upper offset limits	[:SENSe]:ACPower:OFFSet:ULIMit (See 5.312)

Interference Analyzer Settings

Blue power level	[:SENSe]:SPECtrogram:BPLevel (See 5.457)
Red power level	[:SENSe]:SPECtrogram:RPLevel (See 5.458)
Time/Delta marker state	[:SENSe]:SPECtrogram:TMARker:STATe (See 5.459)
Time/Delta marker location	[:SENSe]:SPECtrogram:TMARker:VALue (See 5.460)
Spectrogram display setting	[:SENSe]:SPECtrogram:VIEW (See 5.462)
Waterfall angle	[:SENSe]:SPECtrogram:WANGLe (See 5.463)

Tune and Listen Settings

Volume	[:SENSe]:TAListen:AVOLume (See 5.478)– OBSOLETE
Demod ON / OFF	[:SENSe]:TAListen:DSTate (See 5.479)
Demod type	[:SENSe]:TAListen:DTYPE (See 5.480)
Listen tme	[:SENSe]:TAListen:LTIME (See 5.481)
Tune freq	[:SENSe]:TAListen:TFReq (See 5.482)

General Status

ADC Over-range status	CALCulate:MEASurement:WAOR? (See 6.16)
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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)

4.4 RTSA Mode

In this topic:

- [Frequency](#)(See 4.4)
- [Gain/Atten](#)(See 4.4)
- [Sweep](#)(See 4.4)
- [Scale/Units](#)(See 4.4)
- [Average](#)(See 4.4)
- [Res Bandwidth](#)
- [Trace Type/Detector](#)
- [Alignments \(InstAlign\)](#)
- [Limit / Display Lines](#)(See 4.4)
- [Markers](#)(See 4.4)
- [Read / Save Data](#)
- [Source](#)
- [Trigger Settings](#)(See 4.4)
- [Record/Playback Actions](#)(See 4.4)
- [Record/Playback Configuration](#)(See 4.4)
- [Record/Playback Sessions](#)(See 4.4)
- [Density](#)
- [Spectrogram](#)

See Also

[Commands that are Common to All Modes](#)(See 4.13)

Frequency

Description		Command
Center freq	[:SENSe]:FREQuency:CENTer (See 5.409)	

Step size for up/down keys	<code>[[:SENSe]:FREQuency:CENTer:STEP</code> (See 5.410)
Step size auto/manual	<code>[[:SENSe]:FREQuency:CENTer:STEP:AUTO</code> (See 5.411)
Freq span	<code>[[:SENSe]:FREQuency:SPAN</code> (See 5.413)
Span to full	<code>[[:SENSe]:FREQuency:SPAN:FULL</code> (See 5.415)
Start freq	<code>[[:SENSe]:FREQuency:START</code> (See 5.417)
Stop freq	<code>[[:SENSe]:FREQuency:STOP</code> (See 5.419)
Frequency annotation method	<code>[[:SENSe]:FREQuency:ANNotation[:SElect]</code> (See 5.408)
Gain/Atten	
Attenuation value	<code>[[:SENSe]:POWer[:RF]:ATTenuation</code> (See 5.440)
Atten Auto/Manual	<code>[[:SENSe]:POWer[:RF]:ATTenuation:AUTO</code> (See 5.441)
Set external gain value	<code>[[:SENSe]:POWer[:RF]:EXTGain</code> (See 5.442)
Preamplifier ON/OFF/AUTO	<code>[[:SENSe]:POWer[:RF]:GAIN[:STATe]</code> (See 5.444)
Sweep	
Selects between Density, Spectrogram, & Real-Time Spectrum traces	<code>[[:SENSe]:MEASure</code> (See 5.422)
Selects the acquisition time in the Density & Real-time Traces.	<code>[[:SENSe]:ACQuisition:TIME</code> (See 5.313)
Sets the acquisition time in the Density & Real-time Traces to AUTO.	<code>[[:SENSe]:ACQuisition:TIME:AUTO</code> (See 5.314)
Scale / Units	
Per division	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision</code> (See 5.233)
Reference level	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel</code> (See 5.234)
Reference position	<code>DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition</code> (See 5.235)
Average	

Average count	<code>[[:SENSe]:AVERage:COUNT]</code> (See 5.333)
Restart trace averaging	<code>INITiate:REStart</code> (See 5.244)
Res Bandwidth	
Manual Res BW value	<code>[[:SENSe]:BANDwidth[:RESolution]]</code> (See 5.340)
Choose Auto or Manual Res BW	<code>[[:SENSe]:BANDwidth[:RESolution]:AUTO]</code> (See 5.341)
Query ration of Span to Res BW	<code>[[:SENSe]:FREQuency:SPAN:BANDwidth[:RESolution]:RATio?]</code> (See 5.414)
Trace Type/Detector	
Set Trace Type	<code>TRACe{1:4}:TYPE</code> (See 5.613)
Detector function	<code>[[:SENSe]:DETECTOR:TRACe{1:4}:FUNCTioN]</code> (See 5.406)
Retrieves trace data	<code>:TRACe:DATA?</code> (See 5.575)
Defaults all traces back to their default state	<code>:TRACe:PRESet:ALL</code> (See 5.627)
Alignments (InstAlign)	
Align all now (coupled to all individual alignments)	<code>[[:SENSe]:ALIGNment:ALL:NOW]</code> (See 6.2)
Align all state (coupled to all individual alignments)	<code>[[:SENSe]:ALIGNment:ALL[:STATe]]</code> (See 6.1)
Align now	<code>[[:SENSe]:ALIGNment:AMPLitude:NOW]</code> (See 6.4)
InstAlign state	<code>[[:SENSe]:ALIGNment:AMPLitude[:STATe]]</code> (See 6.3)
RF burst now	<code>[[:SENSe]:ALIGNment:BURSt:NOW]</code> (See 6.6)
RF burst state	<code>[[:SENSe]:ALIGNment:BURSt[:START]]</code> (See 6.5)
Channel equalization now	<code>[[:SENSe]:ALIGNment:CHEQ:NOW]</code> (See 6.8)
Channel equalization state	<code>[[:SENSe]:ALIGNment:CHEQ[:STATe]]</code> (See 6.7)
Limit / Display Lines	
Display Line level setting	<code>DISPlay:WINDow:TRACe:Y:DLINe</code> (See 5.227)

Display Line state	DISPlay:WINDow:TRACe:Y:DLINe:STATe (See 5.228)
Markers	
Select a marker	CALCulate:MARKer{1:6}:ACTivate (See 5.93)
Markers – all off	CALCulate:MARKer{1:6}:AOFF (See 5.94)
Markers – Fixed delta reference marker state.	CALCulate:MARKer{1:6}:DREF:FIXed (See 5.7)
Marker search – Max	CALCulate:MARKer{1:6}:FUNCTion:MAXimum (See 5.101)
Marker search – Min	CALCulate:MARKer{1:6}:FUNCTion:MINimum (See 5.102)
Marker search – Peak excursion	CALCulate:MARKer{1:6}:FUNCTion:PEXCursion (See 5.103)
Marker search – Peak left	CALCulate:MARKer{1:6}:FUNCTion:PLEft (See 5.15)
Marker search – Peak Next	CALCulate:MARKer{1:6}:FUNCTion:PNEXt (See 5.104)
Marker search – Peak right	CALCulate:MARKer{1:6}:FUNCTion:PRIGht (See 5.16)
Marker search – Peak threshold	CALCulate:MARKer{1:6}:FUNCTion:PTHReshold (See 5.105)
Move marker to center freq	CALCulate:MARKer{1:6}:SET:CENTer (See 5.18)
Move marker to ref level	CALCulate:MARKer{1:6}:SET:REFLevel (See 5.19)
Marker On/Off	CALCulate:MARKer{1:6}[:STATe] (See 5.112)
Move marker to other trace	CALCulate:MARKer{1:6}:TRACe (See 5.113)
Move/read marker X-axis position	CALCulate:MARKer{1:6}:X (See 5.114)
Read marker Y-axis position	CALCulate:MARKer{1:6}:Y? (See 5.115)
Enable/Disables a displayed marker table	:DISPlay:TABLE:MARKer (See 5.211)
Read / Save Data	

See Also: [Read Current Channel Measurement Data](#)(See 4.3)

Read Trace Data [TRACe{1:4}:DATA](#)(See 5.575)

Saves trace to CSV file. [MMEMory:STORe:FDATa](#)(See 5.274)

Source

Trigger Settings

Auto trigger time [TRIGger\[:SEQuence\]:ATRigger](#)(See 5.628)

Auto trigger ON/OFF [TRIGger\[:SEQuence\]:ATRigger:STATe](#)(See 5.629)

Trigger Delay [TRIGger\[:SEQuence\]:DELay](#)(See 5.630)

Trigger Delay ON/OFF [TRIGger\[:SEQuence\]:DELay:STATe](#)(See 5.631)

Trigger Frame Offset value [:TRIGger\[:SEQuence\]:FRAME:OFFSet](#)(See 5.644)

Trigger Frame Offset Reset [:TRIGger\[:SEQuence\]:FRAME:OFFSet:DISPlay:RESet](#)(See 5.645)

Set the period of the internal periodic timer clock [:TRIGger\[:SEQuence\]:FRAME:PERiod](#)(See 5.646)

Sets the holdoff time between triggers [:TRIGger\[:SEQuence\]:HOLDoff](#)(See 5.647)

Sets the level for the trigger [:TRIGger\[:SEQuence\]:LEVel](#)(See 5.648)

Trigger Type (Ext/Vid/RFBurst/Freerun) [TRIGger\[:SEQuence\]:SOURce](#)(See 5.652)

Trigger Slope (Pos/Neg) [TRIGger\[:SEQuence\]:SLOPe](#)(See 5.651)

Record/Playback Actions

Pause [RECPlayback:ACTion:PAUSE](#)(See 5.284)

Play [RECPlayback:ACTion:PLAY](#)(See 5.285)

Record [RECPlayback:ACTion:RECOrd](#)(See 5.286)

Tag position [RECPlayback:ACTion:SPOStion](#)(See 5.287)

Stop [RECPlayback:ACTion:STOP](#)(See 5.288)

Trace position [RECPlayback:ACTion:TPOStion](#)(See 5.289)

Record/Playback Configuration

Playback Time Interval	RECPlayback:CONFig:PTINterval (See 5.293)
Record Segment Counting Length	RECPlayback:CONFig:RSCLength (See 5.294)
Record Source	RECPlayback:CONFig:RSource (See 5.295)
Record Time Interval	RECPlayback:CONFig:RTINerval (See 5.296)
Record Time limit	RECPlayback:CONFig:RTLSeconds (See 5.297)

Record/Playback Sessions

Clear all records	RECPlayback:SESSion:CARecords (See 5.298)
Close	RECPlayback:SESSion:CLOSe (See 5.299)
Create new session	RECPlayback:SESSion:NEW (See 5.300)
Open session	RECPlayback:SESSion:OPEN? (See 5.301)
Storage device	RECPlayback:SESSion:SDEvice (See 5.302)
Trace record limit	RECPlayback:SESSion:TRLimit (See 5.303)
Is a session open?	STATus:OPERation:SAMode:CONDition? (See 5.511)

Density

Density blue limit percentage	[:SENSe]:DENSity:BPLevel (See 5.403)
Density red limit percentage	[:SENSe]:DENSity:RPLLevel (See 5.404)
Persistence values	:DISPlay:VIEW:DENSity:PERStistence (See 5.218)
Persistence Infinite (enables/disables)	:DISPlay:VIEW:DENSity:PERStistence:INFinite (See 5.219)
Enables/Disables Show Density graphics	:DISPlay:VIEW:DENSity:STATe (See 5.217)

Spectrogram

Spectrogram blue limit percentage	[:SENSe]:SPECtrogram:BPLLevel (See 5.457)
Spectrogram red limit percentage	[:SENSe]:SPECtrogram:RPLLevel (See 5.458)

Time per division values	[:SENSe]:SPECtrogram:TPDivision (See 5.461)
View choice	[:SENSe]:SPECtrogram:VIEW (See 5.462)

Last Modified:

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

4.5 IQA Mode

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](#)(See 5.187) command to set the measurement to Spectrum.
 - For Waveform data, use the [:CONFigure:WAVEform](#)(See 5.188) command to set the measurement to Waveform.
2. Change to **Single** acquisition mode by using [INITiate:CONTInuous](#)(See 5.242) **OFF**, if the unit is not already in Single acquisition mode.
3. Execute one acquisition by using [INITiate:IMMediate](#)(See 5.243).
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](#)(See 4.5)
- [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(See 4.13)
- Status Registers(See 4.15)

Frequency

Description	Command
Center freq	<code>[[:SENSe]:FREQuency:CENTer</code> (See 5.409)
Freq span	<code>[[:SENSe]:SPECTrum:FREQuency:SPAN</code> (See 5.469)

Gain/Atten

Attenuation value	<code>[[:SENSe]:POWer[:RF]:ATTenuation</code> (See 5.440)
Atten Auto/Manual	<code>[[:SENSe]:POWer[:RF]:ATTenuation:AUTO</code> (See 5.441)
External gain	<code>[[:SENSe]:POWer[:RF]:EXTGain</code> (See 5.442)
Preamplifier state	<code>[[:SENSe]:POWer[:RF]:GAIN:AUTO</code> (See 5.443)
Preamplifier ON/OFF	<code>[[:SENSe]:POWer[:RF]:GAIN[:STATe]</code> (See 5.444)

Acquisition

Enable/Disable acquisition mode	<code>INITiate:CONTInuous</code> (See 5.242)
Restart trace averaging	<code>INITiate:REStart</code> (See 5.244)

Scale / Units

Auto Scale (IMAGinary)	<code>TRACe:IMAGinary:Y:AUTO</code> (See 5.578)
Per division (IMAGinary)	<code>TRACe:IMAGinary:Y:PDIVision</code> (See 5.580)
Reference level (IMAGinary)	<code>TRACe:IMAGinary:Y:RLEVel</code> (See 5.581)
Reference position (IMAGinary)	<code>TRACe:IMAGinary:Y:RPOSition</code> (See 5.582)

Auto Scale (PHASe)	TRACe:PHASe:Y:AUTO(See 5.585)
Per division (PHASe)	TRACe:PHASe:Y:PDIVision(See 6.11)
Reference level (PHASe)	TRACe:PHASe:Y:RLEVel(See 5.587)
Reference position (PHASe)	TRACe:PHASe:Y:RPOSition(See 5.588)
Auto Scale (POLar)	TRACe:POLar:Y:AUTO(See 5.590)
Reference level (POLar)	TRACe:POLar:Y:RLEVel(See 5.591)
Auto Scale (REAL)	TRACe:REAL:Y:AUTO(See 5.593)
Per division (REAL)	TRACe:REAL:Y:PDIVision(See 5.595)
Reference level (REAL)	TRACe:REAL:Y:RLEVel(See 5.596)
Reference position (REAL)	TRACe:REAL:Y:RPOSition(See 5.597)
Log/Linear scale (SPECTrum)	TRACe:SPECTrum:AMPLitude:SCALE(See 5.598)
Unit (SPECTrum)	TRACe:SPECTrum:AMPLitude:UNIT(See 5.599)
Auto Scale (SPECTrum)	TRACe:SPECTrum:Y:AUTO(See 5.601)
Per division (SPECTrum)	TRACe:SPECTrum:Y:PDIVision(See 5.603)
Reference level (SPECTrum)	TRACe:SPECTrum:Y:RLEVel(See 5.604)
Reference position (SPECTrum)	TRACe:SPECTrum:Y:RPOSition(See 5.605)
Auto Scale (UPHase)	TRACe:UPHase:Y:AUTO(See 5.609)
Per division (UPHase)	TRACe:UPHase:Y:PDIVision(See 6.12)
Reference level (UPHase)	TRACe:UPHase:Y:RLEVel(See 5.611)
Reference position (UPHase)	TRACe:UPHase:Y:RPOSition(See 5.612)
Log/Linear scale (RF Envelope)	TRACe:WAVEform:AMPLitude:SCALE(See 5.614)
Unit (RF Envelope)	TRACe:WAVEform:AMPLitude:UNIT(See 5.615)
Auto Scale (RF Envelope)	TRACe:WAVEform:Y:AUTO(See 5.617)
Per division (RF Envelope)	TRACe:WAVEform:Y:PDIVision(See 5.619)
Reference level (RF	TRACe:WAVEform:Y:RLEVel(See 5.620)

Envelope)

Reference position (RF Envelope) TRACe:WAVeform:Y:RPOSition(See 5.621)

Average

Average count [:SENSe]:AVERAge:COUNT(See 5.333)

Averaging type [:SENSe]:AVERAge:TYPE(See 5.338)

Restart trace averaging INITiate:REStart(See 5.244)

Video / Res Bandwidth

IF bandwidth (IF BW) [:SENSe]:DIF:BANDwidth(See 5.402)

Resolution bandwidth (Res BW) [:SENSe]:SPECTrum:BANDwidth[:RESolution](See 5.464)

Resolution bandwidth mode (Res BW mode) [:SENSe]:SPECTrum:BANDwidth[:RESolution]:AUTO(See 5.465)

Measurement/Display

Configure query (Spectrum/Waveform) :CONFigure?(See 5.186)

Configure Spectrum command :CONFigure:SPECTrum(See 5.187)

Configure Waveform command :CONFigure:WAVeform(See 5.188)

Waveform view selection :DISPlay:WAVeform:VIEW[:SElect](See 6.22)

Selected window :DISPlay:WINDow[:SElect](See 5.223)

Window display trace (SPECTrum/WAVeform/PHASe/POLar/UPHase/REAL/IMAGinary/TIMesummary) :DISPlay:WINDow<n>:DATA(See 5.237)

Window State (Enable/Disable) :DISPlay:WINDow<n>:STATe(See 5.238)

Trace Type

Spectrum trace type :TRACe:SPECTrum<n>:TYPE(See 5.607)

Waveform trace type :TRACe:WAVeform<n>:TYPE(See 5.623)

Alignments (InstAlign)

Align all now (coupled to all individual alignments)	[:SENSe]:ALIGNment:ALL:NOW (See 6.2)
Align all state (coupled to all individual alignments)	[:SENSe]:ALIGNment:ALL[:STATe] (See 6.1)
Align now	[:SENSe]:ALIGNment:AMPLitude:NOW (See 6.4)
InstAlign state	[:SENSe]:ALIGNment:AMPLitude[:STATe] (See 6.3)
RF burst now	[:SENSe]:ALIGNment:BURSt:NOW (See 6.6)
RF burst state	[:SENSe]:ALIGNment:BURSt[:START] (See 6.5)
Channel equalization now	[:SENSe]:ALIGNment:CHEQ:NOW (See 6.8)
Channel equalization state	[:SENSe]:ALIGNment:CHEQ[:STATe] (See 6.7)
Limit / Display Lines	
Display Line state	DISPlay:WINDow:TRACe:Y:DLINE:STATe (See 5.228)
Display line (IMAGinary)	TRACe:IMAGinary:Y:DLINE (See 5.579)
Display line (PHASe)	TRACe:PHASe:Y:DLINE (See 5.586)
Display line (REAL)	TRACe:REAL:Y:DLINE (See 5.594)
Display line (SPECTrum)	TRACe:SPECTrum:Y:DLINE (See 5.602)
Display line (UPHase)	TRACe:UPHase:Y:DLINE (See 5.610)
Display line (RF envelope)	TRACe:WAVEform:Y:DLINE (See 5.618)
Markers	
Markers all disabled (Spectrum)	CALCulate:SPECTrum:MARKer:AOff (See 5.28)
Continuous peak search (Spectrum) - (disable/enable)	CALCulate:SPECTrum:MARKer:CPSearch[:STATe] (See 5.29)
Markers - Fixed delta reference marker state (Spectrum) - (disable/enable)	CALCulate:SPECTrum:MARKer:DREF:FIXed (See 5.30)
Marker search - Peak	CALCulate:SPECTrum:MARKer:FUNCTion:PEXCursion (See 5.31)

excursion (Spectrum)	
Marker search - Peak threshold (Spectrum)	CALCulate:SPECTrum:MARKer:FUNction:PTHReshold (See 5.32)
Set Noise Marker and Band Power Marker (Spectrum)	CALCulate:SPECTrum:MARKer<n>:FUNction (See 5.33)
Band power span	CALCulate:SPECTrum:MARKer:FUNction:BAND:SPAN (See 5.34)
Band power mode	CALCulate:SPECTrum:MARKer:FUNction:BAND:SPAN:AUTO (See 5.35)
Marker search - Maximum (Spectrum)	CALCulate:SPECTrum:MARKer<n>:FUNction:MAXimum (See 5.36)
Marker search - Minimum (Spectrum)	CALCulate:SPECTrum:MARKer<n>:FUNction:MINimum (See 5.37)
Marker search - Peak left (Spectrum)	CALCulate:SPECTrum:MARKer<n>:FUNction:PLEft (See 5.38)
Marker search - Peak right (Spectrum)	CALCulate:SPECTrum:MARKer<n>:FUNction:PRIGht (See 5.39)
Read phase (Spectrum)	CALCulate:SPECTrum:MARKer<n>:PHASe? (See 5.40)
Move marker to center frequency (Spectrum)	CALCulate:SPECTrum:MARKer<n>:SET:CENTer (See 5.41)
Move marker to reference level (Spectrum)	CALCulate:SPECTrum:MARKer<n>:SET:RLEVel (See 5.42)
Move marker to another	CALCulate:SPECTrum:MARKer<n>:TRACe (See 5.43)

specified trace (Spectrum)	
Move/read marker X-axis position (Spectrum)	CALCulate:SPECTrum:MARKer<n>:X (See 5.44)
Read marker Y-axis position (Spectrum)	CALCulate:SPECTrum:MARKer<n>:Y? (See 5.45)
Marker State (Spectrum)	CALCulate:SPECTrum:MARKer<n>[:STATe] (See 5.46)
Markers - all disabled (Waveform)	CALCulate:WAVEform:MARKer:AOff (See 5.47)
Coupled marker X value (Waveform)	CALCulate:WAVEform:MARK:COUPle:X (See 5.48)
Markers - coupled (Waveform)	CALCulate:WAVEform:MARKer:COUPle[:STATe] (See 5.49)
Continuous peak search (Waveform) - (disable/enabl e)	CALCulate:WAVEform:MARKer:CPSearch[:STATe] (See 5.50)
Fixed delta / reference markers (Waveform) - (disable/enabl e)	CALCulate:WAVEform:MARKer:DREF:FIXed (See 5.51)
Marker search - Peak excursion (Waveform)	CALCulate:WAVEform:MARKer:FUNCTion:PEXCursion (See 5.52)
Marker search - Peak threshold (Waveform)	CALCulate:WAVEform:MARKer:FUNCTion:PTHReshold (See 5.53)

Set result trace to marker (Waveform)	CALCulate:WAVEform:MARKer<n>:DATA (See 5.64)
Set Noise Marker and Interval Span Marker (Waveform)	CALCulate:WAVEform:MARKer<n>:FUNCTion (See 5.55)
Interval span (Waveform)	CALCulate:WAVEform:MARKer:FUNCTion:INTerval:SPAN (See 5.56)
Interval span mode (Waveform)	CALCulate:WAVEform:MARKer:FUNCTion:INTerval:SPAN:AUTO (See 5.57)
Marker search – Maximum (Waveform)	CALCulate:WAVEform:MARKer<n>:FUNCTion:MAXimum (See 5.58)
Marker search – Minimum (Waveform)	CALCulate:WAVEform:MARKer<n>:FUNCTion:MINimum (See 6.9)
Marker search – Next Peak (Waveform)	CALCulate:WAVEform:MARKer<n>:FUNCTion:PNEXT (See 5.60)
Move marker to another specified trace (Waveform)	CALCulate:WAVEform:MARKer<n>:TRACe (See 5.61)
Move/read marker X-axis position (Waveform)	CALCulate:WAVEform:MARKer<n>:X (See 5.62)
Read marker Y-axis position (Waveform)	CALCulate:WAVEform:MARKer<n>:Y? (See 5.63)
Marker State (Waveform)	CALCulate:WAVEform:MARKer<n>[:STATe] (See 5.64)
Display marker table (Spectrum)	DISPlay:TABLE:MARKer:SPECTrum (See 5.65)

Display marker table (Waveform) [DISPlay:TABLE:MARKer:WAVEform](#)(See 5.66)

Read / Save

See Also: [I/Q Capture](#)

Store CSV file [MMEMory:STORe:FDATa](#)(See 5.274)

Store MAT file [MMEMory:STORe:MAT](#)(See 5.279)

Store SDF file [MMEMory:STORe:SDF](#)(See 5.280)

Store TXT file [MMEMory:STORe:TXT](#)(See 5.283)

Reads the trace data (IMAGinary) [TRACe:IMAGinary:DATA?](#)(See 5.577)

Reads the trace data (PHASe) [TRACe:PHASe:DATA?](#)(See 5.584)

Reads the trace data (POLar) [TRACe:POLar:DATA?](#)(See 5.589)

Reads the trace data (REAL) [TRACe:REAL:DATA?](#)(See 5.592)

Reads the trace data (SPECTrum) [TRACe:SPECTrum<n>:DATA?](#)(See 5.606)

Reads the raw I/Q data (SPECTrum) [TRACe:SPECTrum:RAWiq?](#)(See 5.600)

Returns the trace data (UPHase) [TRACe:UPHase:DATA?](#)(See 5.608)

Reads the trace data (RF Envelope) [TRACe:WAVEform<n>:DATA?](#)(See 5.622)

Reads the raw I/Q data (WAVEform) [TRACe:WAVEform:RAWiq?](#)(See 5.616)

I/Q Capture

See Also: [Read / Save](#)

Initiate I/Q capture [INITiate:IQCapture](#)(See 5.241)

Device storage (i.e., INT, USB, or SD) [MMEMory:STORe:IQCapture:DEVIce](#)(See 5.256)

File count [MMEMory:STORe:IQCapture:FCOunt](#)(See 5.257)

File count mode [MMEMory:STORe:IQCapture:FCOunt:MULTiple](#)(See

5.258)

File name	MMEMory:STORe:IQCapture:FNAME (See 5.259)
File type (i.e., CSV, TXT, SDF, or MAT)	MMEMory:STORe:IQCapture:FTYPE (See 5.260)
Start data capture	MMEMory:STORe:IQCapture:START (See 5.261)
Stop data capture	MMEMory:STORe:IQCapture:STOP (See 5.262)
Capture length	[:SENSe]:MEASure:CAPTure:LENGth (See 5.427)
Capture time	[:SENSe]:MEASure:CAPTure:TIME (See 5.428)
Reads the I/Q data	TRACe:IQCapture:DATA? (See 5.583)
Trigger Settings	
Auto trigger time	TRIGger[:SEQuence]:ATRigger (See 5.628)
Auto trigger ON/OFF	TRIGger[:SEQuence]:ATRigger:STATe (See 5.629)
Trigger Delay (EXTeRnal)	TRIGger[:SEQuence]:EXTeRnal:DELay (See 6.13)
Trigger Delay ON/OFF (EXTeRnal)	TRIGger[:SEQuence]:EXTeRnal:DELay:STATe (See 6.14)
Trigger slope (Pos/Neg) - (EXTeRnal)	TRIGger[:SEQuence]:EXTeRnal:SLOPe (See 5.632)
Trigger Delay (RFBurst)	TRIGger[:SEQuence]:RFBurst:DELay (See 5.633)
Trigger Delay ON/OFF (RFBurst)	TRIGger[:SEQuence]:RFBurst:DELay:STATe (See 5.634)
Glitch Mask (RFBurst)	TRIGger[:SEQuence]:RFBurst:GLIMask (See 5.635)
Trigger Level (RFBurst)	TRIGger[:SEQuence]:RFBurst:LEVel (See 5.636)
Trigger slope (Pos/Neg) - (RFBurst)	TRIGger[:SEQuence]:RFBurst:SLOPe (See 5.637)
Trigger type (Freerun/External/Video/RF Burst)	TRIGger[:SEQuence]:SOURce (See 5.652)
Trigger Delay (VIDeo)	TRIGger[:SEQuence]:VIDeo:DELay (See 5.653)
Trigger Delay ON/OFF (VIDeo)	TRIGger[:SEQuence]:VIDeo:DELay:STATe (See 5.654)

Trigger Level (VIDeo)	TRIGger[:SEQuence]:VIDeo:LEVel(See 6.15)
Trigger slope (Pos/Neg) - (VIDeo)	TRIGger[:SEQuence]:VIDeo:SLOPe(See 5.656)
FFT (Spectrum)	
FFT analysis length	[:SENSe]:SPECtrum:FFT:ANALysis:LENGth(See 5.466)
FFT window length control (Enable/Disable)	[:SENSe]:SPECtrum:FFT:LENGth:AUTO(See 5.467)
FFT window	[:SENSe]:SPECtrum:FFT:WINDow(See 5.468)
Sample	
Sample period	[:SENSe]:MEASure:SPERiod(See 5.423)
Sample rate	[:SENSe]:MEASure:SRATe(See 5.424)
Waveform	
Start time	[:SENSe]:WAVEform:STARt(See 5.491)
Stop time	[:SENSe]:WAVEform:STOP(See 5.492)

Last Modified:

01nov2017 Added I/Q Mode (10.1x)

4.6 PM Mode

Set relative Power Meter measurements	CALCulate:RELative[:MAGNitude]:AUTO(See 5.27)
Performs external power meter zeroing.	CALibration:ZERO:TYPE:EXT(See 5.148)

Set Minimum scale value	<code>DISPlay[:WINDow]:ANALog:LOWer</code> (See 5.220)
Set Maximum scale value	<code>DISPlay[:WINDow]:ANALog:UPPer</code> (See 5.221)
Set PM resolution	<code>DISPlay[:WINDow][:NUMeric]:RESolution</code> (See 5.222)
Query USB sensor for serial number & model	<code>:DISPlay:MODEl:DATA?</code> (See 6.21)
Set number of sweep averages.	<code>[:SENSe]:AVERage:COUNt</code> (See 5.333)
Set averaging mode	<code>[:SENSe]:AVERage[:MODE]</code> (See 5.335)
Set Step Detection	<code>[:SENSe]:AVERage:SDETECT</code> (See 5.337)
Set Offset value.	<code>[:SENSe]:CORRection:GAIN2[:INPut][:MAGNitude]</code> (See 5.386)
Set Offset ON OFF state	<code>[:SENSe]:CORRection:GAIN2:STATe</code> (See 5.387)
Set frequency	<code>[:SENSe]:FREQuency</code> (See 5.407)
Read measurement data	<code>[:SENSe]:TRACe[:DATA]?</code> (See 5.484)
Set the minimum (lower) limit value.	<code>[:SENSe]:TRACe:LIMit:LOWer</code> (See 5.485)
Set the lower ON OFF State.	<code>[:SENSe]:TRACe:LIMit:LOWer:STATe</code> (See 5.486)
Set the maximum (upper) limit value.	<code>[:SENSe]:TRACe:LIMit:UPPer</code> (See 5.487)
Set the upper ON OFF State.	<code>[:SENSe]:TRACe:LIMit:UPPer:STATe</code> (See 5.488)
Set Source Enable	<code>SOURce:ENABle</code> (See 5.493)
Set Source power level	<code>SOURce:POWer</code> (See 5.502)
Set PM units	<code>UNIT:POWer</code> (See 5.660)

FOPS (Option 208) unique commands

- `Normalization`(See 4.6)
- `Setup`(See 4.6)

- [Display Annotation and Scaling](#)(See 4.6)
- [Markers](#)(See 4.6)
- [Trace Math](#)(See 4.6)

See Also: [Example Program](#)(See 3.6)

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](#)(See 5.242)
3. Send [INITiate\[:IMMediate\]](#)(See 5.243)
4. Send [SOURce:POWer:MEMorize](#)(See 5.507) to store the data trace to memory.
5. Send [\[:SENSe\]:TRACe:MEASurement](#)(See 5.490) to display your measurement choice.

FOPS Setup

Description	Command
Specify swept frequency	[:SENSe]:SWEep:TYPE (See 5.477)
Center frequency	SOURce:FREQuency:CENTer (See 5.495)
Frequency span	SOURce:FREQuency:SPAN (See 5.497)
Start frequency	SOURce:FREQuency:START (See 5.498)
Stop frequency	SOURce:FREQuency:STOP (See 5.499)
Offset frequency	SOURce:RECeiver:OFFSet (See 5.510)
Number of points	[:SENSe]:SWEep:POINTs (See 5.473)
Frequency step size	[:SENSe]:FREQuency:STEP (See 5.418)
Set dwell time	[:SENSe]:POINT:DWELL (See 5.438)
Receiver sweep direction	[:SENSe]:SWEep:RX (See 5.474)
Power sensor	[:SENSe]:TOL (See 5.483)

tolerance

Max number of PS readings [:SENSe]:POINT:READ:MAX(See 5.439)

Display Annotation and Scaling

Description	Command
Grid ON/OFF	DISPlay:GRID (See 5.195)
Method used to annotate frequency	DISPlay:ANNotation:FREQuency (See 5.191)
Autoscale the trace	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:AUTO (See 5.231)
Scaling – per division	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:PDIVision (See 5.233)
Scaling – reference position	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:RPOSition (See 5.235)
Scaling – reference level	DISPlay:WINDow:TRACe{1:4}:Y[:SCALe]:RLEVel (See 5.234)

Markers

Description	Command
Select a marker	CALCulate[:SELected]:MARKer:ACTivate (See 5.93)
Marker ON/OFF	CALCulate[:SELected]:MARKer[:STATe] (See 5.112)
Move a marker	CALCulate[:SELected]:MARKer:X (See 5.114)
Read marker amplitude	CALCulate[:SELected]:MARKer:Y? (See 5.115)
Set marker to Max	CALCulate[:SELected]:MARKer:FUNCTion:MAXimum (See 5.101)
Set marker to Min	CALCulate[:SELected]:MARKer:FUNCTion:MINimum (See 5.102)
Amp.	CALCulate[:SELected]:AMPLitude:MARKer:STATe (See 5.68)

markers

ON/OFF

Amp. marker 1 [CALCulate\[:SElected\]:AMPLitude:MARKer:Y1|Y](#)(See 5.69)

Amp. marker 2 [CALCulate\[:SElected\]:AMPLitude:MARKer:Y2](#)(See 5.70)

Delta Amp. markers ON/OFF [CALCulate\[:SElected\]:AMPLitude:MARKer:DELTA:STATE](#)(See 5.67)

Trace Math

Description	Command
Store a data trace to memory	CALCulate[:SElected]:MATH:MEMorize (See 5.117)
Read data trace	CALCulate[:SElected]:TRACe:DATA (See 5.126)
Read memory trace	CALCulate[:SElected]:FMEM:DATA? (See 5.85)
Show Data /Mem trace	DISPlay:WINDow:TRACe (See 5.225)

4.7 CPM (Built-in PN) Mode

[Frequency and Power](#)(See 4.7)

- [Radio Standards](#)(See 4.7)
- [Read Data](#)(See 4.7)
- [Alignments \(InstAlign\)](#)(See 4.7)
- [Display](#)(See 4.7)
- [Limit Lines](#)(See 4.7)

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Status Registers](#)(See 4.15)

Frequency and Power

Description	Command
-------------	---------

Set frequency	<code>[[:SENSe]:FREQuency]</code> (See 5.407)
Step size for up/down keys	<code>[[:SENSe]:FREQuency:CENTer:STEP]</code> (See 5.410)
Freq span	<code>[[:SENSe]:FREQuency:SPAN]</code> (See 5.413)
Attenuation value	<code>[[:SENSe]:POWer[:RF]:ATTenuation]</code> (See 5.440)
Radio Standard	
Channel number center	<code>[[:SENSe]:RADio:CHANnel:CENTer]</code> (See 5.446)
Uplink or Downlink	<code>[[:SENSe]:RADio:CHANnel:DIRection]</code> (See 5.447)
Channel step size	<code>[[:SENSe]:RADio:CHANnel:STEP]</code> (See 5.449)
Select standard	<code>[[:SENSe]:RADio:STANdard[:SELect]]</code> (See 5.452)
Freq or Chan	<code>[[:SENSe]:RADio:TEUNit]</code> (See 5.453)
Read Data	
Read measurement data	<code>[[:SENSe]:TRACe[:DATA]]?</code> (See 5.484)
Alignments (InstAlign)	
Align all now (coupled to all individual alignments)	<code>[[:SENSe]:ALIGnment:ALL:NOW]</code> (See 6.2)
Align all state (coupled to all individual alignments)	<code>[[:SENSe]:ALIGnment:ALL[:STATe]]</code> (See 6.1)
Align now	<code>[[:SENSe]:ALIGnment:AMPLitude:NOW]</code> (See 6.4)
InstAlign state	<code>[[:SENSe]:ALIGnment:AMPLitude[:STATe]]</code> (See 6.3)
Display	
Display units	<code>[[:SENSe]:AMPLitude:UNIT]</code> (See 5.331)
Set Minimum scale value	<code>DISPlay[:WINDow]:ANALog:LOWer]</code> (See 5.220)
Set Maximum scale	<code>DISPlay[:WINDow]:ANALog:UPPer]</code> (See 5.221)

value

Set PM resolution [DISPlay\[:WINDow\]\[:NUMeric\]:RESolution](#)(See 5.222)

Enable averaging [\[:SENSe\]:AVERage\[:ENABLE\]](#)(See 5.334)

Set number of sweep averages. [\[:SENSe\]:AVERage:COUNt](#)(See 5.333)

Make relative measurements [CALCulate:RELative\[:MAGNitude\]:AUTO](#)(See 5.27)

Set Offset value. [\[:SENSe\]:CORRection:GAIN2\[:INPut\]\[:MAGNitude\]](#)(See 5.386)

Set Offset ON | OFF state [\[:SENSe\]:CORRection:GAIN2:STATe](#)(See 5.387)

Limit Lines

Set the minimum (lower) limit value. [\[:SENSe\]:TRACe:LIMit:LOWer](#)(See 5.485)

Set the lower ON | OFF State. [\[:SENSe\]:TRACe:LIMit:LOWer:STATe](#)(See 5.486)

Set the maximum (upper) limit value. [\[:SENSe\]:TRACe:LIMit:UPPer](#)(See 5.487)

Set the upper ON | OFF State. [\[:SENSe\]:TRACe:LIMit:UPPer:STATe](#)(See 5.488)

Last Modified:

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

4.8 VVM Mode

See Also:

[VVM Cable Trimming Example](#)(See 3.2)

[Commands that are Common to All Modes](#)(See 4.13)

Description	Command
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Create measurement	CALCulate:PARameter:DEFine (See 5.25)
Averaging	[:SENSe]:AVERage:COUNT (See 5.333)
Zeroing	[:SENSe]:CORRection:ZERO:STATe (See 5.401) [:SENSe]:CORRection:ZERO:REFerence (See 5.400)
Set frequency	[:SENSe]:FREQuency:CENTer (See 5.409)
Read points (always 2)	[:SENSe]:SWEep:POINTs (See 5.473)
Set power	SOURce:POWer (See 5.502)
Read data	TRACe:DATA (See 5.575)
IF Bandwidth	[:SENSe]:BWID (See 5.346)
Resolution	DISPlay[:WINDow][:NUMeric]:RESolution (See 5.222)

4.9 Pulse Measurements

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

- [Select a Measurement / Trace](#)(See 4.9)
- [Time / Frequency](#)(See 4.9)
- [Average and Bandwidth Video](#)(See 4.9)
- [Scale](#)(See 4.9)
- [Display](#)(See 4.9)
- [Trigger](#)(See 4.9)
- [Markers](#)(See 4.9)
- [Limits](#)(See 4.9)
- [Read / Save Data](#)(See 4.9)

See Also

- [USB PM Mode Commands](#)(See 4.6)
- [Commands that are Common to All Modes](#)(See 4.13)
- [Status Registers](#)(See 4.15)

Select a Measurement / Trace

Description	Command
-------------	---------

Set measurement. **CALCulate:FEED:MODE**(See 5.4)

Time / Frequency

Description	Command
Center time of zoom window	CALCulate[:SElected]:TIME:AUX:CENTer (See 5.120)
Time/div of zoom window	CALCulate[:SElected]:TIME:AUX:PDIVision (See 5.121)
Center time of trace graph	CALCulate[:SElected]:TIME:CENTer (See 5.122)
Span time of trace graph	CALCulate[:SElected]:TIME:LENGth (See 5.123)
Time/div of trace graph	CALCulate[:SElected]:TIME:PDIVision (See 5.124)
Start time of trace graph	CALCulate[:SElected]:TIME:STARt (See 5.125)
Frequency of meas	[:SENSe]:FREQuency (See 5.407)
Number of points	[:SENSe]:RESolution (See 5.454)

Average and Bandwidth Video

Description	Command
Number of averages	[:SENSe]:AVERage:COUNT (See 5.333)
Averaging Auto, Man, Off	[:SENSe]:AVERage[:MODE] (See 5.335)
Step detection mode	[:SENSe]:AVERage:SDETect (See 5.337)
Video bandwidth	[:SENSe]:BWIDth:VIDeo (See 5.342)

Scale

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

Description	Command
Meter - Relative ON/OFF	CALCulate:RELative[:MAGNitude]:AUTO (See 5.27)
Meter - Min Scale	DISPlay:WINDow:ANALog:LOWer (See 5.220)
Meter - Max Scale	DISPlay:WINDow:ANALog:UPPer (See 5.221)

Meter - Resolution	DISPlay:WINDow[:NUMeric]:RESolution(See 5.222)
TG - Autoscale	None
TG - Scale	None
TG - Ref Lv	None
TG - Ref Pos	None
Both - Scale Offset ON/OFF	[[:SENSe]:CORRection:GAIN2:STATe(See 5.387)
Both - Scale Offset value	[[:SENSe]:CORRection:GAIN2[:INPut][:MAGNitude](See 5.386)

Display

Description	Command
Grid ON/OFF	DISPlay:GRID(See 5.195)
Marker Table ON/OFF	DISPlay:TABLE:MARKer(See 5.211)
Auto Analysis ON/OFF	DISPlay:TABLE:RESults(See 5.213)
Read Auto Analysis data	DISPlay:TABLE:RESults:DATA(See 5.212)
Zoom window ON/OFF	DISPlay:WINDow:ZOOM(See 5.226)

Trigger

Description	Command
Internal, External, Freerun	TRIGger:SOURce(See 5.638)
Trigger delay value	TRIGger:DELay(See 5.624)
Trigger level value	TRIGger:LEVel(See 5.626)
Auto or Manual level	TRIGger:LEVel:AUTO(See 5.625)
Pos or Neg edge	TRIGger:SLOPe(See 5.657)

Markers

Description	Command
Select a marker	CALCulate[:SElected]:MARKer:ACTivate (See 5.93)
Marker ON/OFF	CALCulate[:SElected]:MARKer[:STATe] (See 5.112)
Move a marker	CALCulate[:SElected]:MARKer:X (See 5.114)
Read marker amplitude	CALCulate[:SElected]:MARKer:Y? (See 5.115)
Set markers to Falltime	CALCulate[:SElected]:MARKer:FUNCTion:FALLtime (See 5.100)
Set markers to Risetime	CALCulate[:SElected]:MARKer:FUNCTion:RISetime (See 5.106)
Set marker to Max	CALCulate[:SElected]:MARKer:FUNCTion:MAXimum (See 5.101)
Set marker to Min	CALCulate[:SElected]:MARKer:FUNCTion:MINimum (See 5.102)
Peak Excursion value	CALCulate[:SElected]:MARKer:FUNCTion:PEXCursion (See 5.103)
Peak Threshold value	CALCulate[:SElected]:MARKer:FUNCTion:PTHReshold (See 5.105)
Find Next Peak	CALCulate[:SElected]:MARKer:FUNCTion:PNEXT (See 5.104)
Find Target value	CALCulate[:SElected]:MARKer:FUNCTion:TARGET (See 5.107)
Marker search - Wrap/No Wrap	CALCulate[:SElected]:MARKer:FUNCTion:TDIRection (See 5.108)
Set marker tracking	CALCulate[:SElected]:MARKer:FUNCTion:TRACKing (See 5.109)
Search zoom window or primary trace.	CALCulate[:SElected]:MARKer:FUNCTion:ZONE (See 5.110)
Delta Amp. markers ON/OFF	CALCulate[:SElected]:AMPLitude:MARKer:DELTa:STATe (See 5.67)
Amp. markers ON/OFF	CALCulate[:SElected]:AMPLitude:MARKer:STATe (See 5.68)

Amp. marker 1 **CALCulate[:SElected]:AMPLitude:MARKer:Y1|Y**(See 5.69)

Amp. marker 2 **CALCulate[:SElected]:AMPLitude:MARKer:Y2**(See 5.70)

Pulse top **[SENSe]:TRACe:MEASurement:REFerence**(See 5.489)

Read / Save Data

Description	Command
Read trace graph data.	CALCulate[:SElected]:TRACe:DATA (See 5.126)
Read Meter-style data	[[:SENSe]:TRACe[:DATA]?] (See 5.484)
Save to *.csv file	MMEMory:STORe:FDATa (See 5.274)

Limits (Meter-style ONLY)

Description	Command
Lower limit value	[[:SENSe]:TRACe:LIMit:LOWer] (See 5.485)
Lower limit state	[[:SENSe]:TRACe:LIMit:LOWer:STATe] (See 5.486)
Upper limit value	[[:SENSe]:TRACe:LIMit:UPPer] (See 5.487)
Upper limit state	[[:SENSe]:TRACe:LIMit:UPPer:STATe] (See 5.488)

4.10 ERTA Mode

ONLY ERTA specific commands are shown here.

Use **SA Mode Commands**(See 4.3) 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] (See 5.430)
Verify the identified partner is ERTA capable.	[[:SENSe]:MEASurement:ERTA:PVERify?] (See 5.432)
Set ERTA stimulus-response role.	[[:SENSe]:MEASurement:ERTA:ROLE?] (See 5.433)
Set and read Partnership status.	[[:SENSe]:MEASurement:ERTA:PSTatus] (See 5.431)

Trace Receiver Input, valid during ERTA partnership [TRACe:ERTA:RINPut](#)(See 5.576)

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Status Registers](#)(See 4.15)

4.11 Channel Scanner Mode

In this topic:

- [Data](#)(See 4.11)
- [Display](#)(See 4.11)
- [Edit Llst](#)(See 4.11)
- [Range](#)(See 4.11)
- [Log and Recording](#)(See 4.11)
- [File Commands](#)(See 4.11)
- [Search Channels](#)(See 4.11)
- [Alignments \(InstAlign\)](#)
- [Channel Power](#)(See 4.11)
- [Sweep](#)(See 4.11)
- [SA Listen](#)(See 4.11)
- Related [MMEMory](#) commands

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Correction Methods Explained](#)(See 2.2)
- [New Programming Commands](#)(See 5.1)
- [Status Registers](#)(See 4.15)

Data

Returns a set of values [:CHSCanner:DATA?](#)(See 5.149)

Sets the folder path to Default or System [:CHSCanner:USER:FOLDer](#)(See 5.181)

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(See 5.157)

Set integration bandwidth :CHSCanner:EDIT:RNAGE:IBW

Log and Recording

Begin recording results :CHSCanner:LOG:ACTion:RECOrd(See 5.162)

Stop recording :CHSCanner:LOG:ACTion:STOP(See 5.163)

Read and writes the distance interval :CHSCanner:LOG:CONFigure:INTerval:DISTance(See 5.164)

Enable or disable the measurement interval :CHSCanner:LOG:CONFigure:INTerval:STATe(See 5.165)

Read and write the time interval :CHSCanner:LOG:CONFigure:INTerval:TIME(See 5.166)

Set type of interval :CHSCanner:LOG:CONFigure:INTerval:TYPE(See 5.167)

Enable or disable the log file auto-save :CHSCanner:LOG:CONFigure:SAVe:AUTO(See 5.168)

Query the state :CHSCanner:LOG[:STATe]?(See 5.169)

File Commands

Sets the user folder path to default or system :CHSCanner:USER:FOLDer(See 5.181)

Search Channels

Set the number of channels to scan :CHSCanner:SEARch:COUNt(See 5.170)

Set top or bottom number of channels :CHSCanner:SEARch:TYPe(See 5.171)

Alignments (InstAlign)

Align all now (coupled to all individual alignments) [:SENSe]:ALIGnment:ALL:NOW(See 6.2)

Align all state (coupled to all individual alignments) [:SENSe]:ALIGnment:ALL[:STATe](See 6.1)

Align now [:SENSe]:ALIGnment:AMPLitude:NOW(See 6.4)

InstAlign state [:SENSe]:ALIGnment:AMPLitude[:STATe](See 6.3)

Channel Power

Set the active channel :CHSCanner[:SENSe]:CHANnel:SElect(See 5.172)

Set the RF attenuator value manually :CHSCanner[:SENSe]:POWeR[:RF]:ATTenuation(See 5.173)

Set the RF attenuator to Auto :CHSCanner[:SENSe]:POWeR[:RF]:ATTenuation:AUTO(See 5.174)

Set the external Gain :CHSCanner[:SENSe]:POWeR[:RF]:EXTGain(See 5.175)

Enable or disable the Gain state :CHSCanner[:SENSe]:POWeR[:RF]:GAIN[:STATe](See 5.176)

Sweep

Set the averaging count :CHSCanner:SWEEp:AVERage:COUNT(See 5.177)

Enable or Disable the averaging state :CHSCanner:SWEEp:AVERage[:STATe](See 5.178)

Set the displayed sweep type :CHSCanner:SWEEp:DISPlay:TYPE(See 5.179)

Set the sweep mode :CHSCanner:SWEEp:MODE(See 5.180)

SA Listen

Set SA Listen D type :CHSCanner[:SENSe]:SAListen:DTYPE(See 5.182)

Set SA Listen L Time value :CHSCanner[:SENSe]:SAListen:LTIMe(See 5.183)

Pause data recording	:CHSCanner[:SENSe]:SAListen:PAUSE(See 5.184)
Resume data recording	:CHSCanner[:SENSe]:SAListen:RESume(See 5.185)
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(See 5.266)
Load a *.csv custom list file	:MMEMory:LOAD:LIST(See 5.267)
Save a *.csv custom list file	:MMEMory:STATe:STORe:LIST(See 5.271)

4.12 AM/FM Metrics

In this topic:

- [Metrics](#)

See Also

- [Commands that are Common to All Modes](#)(See 4.13)
- [Correction Methods Explained](#)(See 2.2)
- [New Programming Commands](#)(See 5.1)
- [Status Registers](#)(See 4.15)

Metrics

Set the AM/FM Metrics measurement type (Select 1 of n measurement choices)	[[:SENSe]:MEASurement:ADEMod(See 5.425)
Set the AM demodulation window's Y axis--top amplitude	[:SENSe]:ADEMod:METRics:AMTY (See 5.315)
Select type of metrics AM FW wideband or narrow band	[:SENSe]:ADEMod:METRics:DTYPE (See 5.316)
Set the FM demodulation window's Y axis--top	[:SENSe]:ADEMod:METRics:FMTY (See 5.317)

amplitude

Enables/disables the Audio [\[:SENSe\]:ADEMod:METRics:LON](#) (See 5.318)
ON or OFF while metrics
enabled

Sets the Listen time for the [\[:SENSe\]:ADEMod:METRics:LTime](#) (See 5.319)
measurement

Enable display of Peak+ [\[:SENSe\]:ADEMod:METRics:MMENable](#)(See
and Peak – in the 5.320)
demodulation window

Sets the time span of the [\[:SENSe\]:ADEMod:METRics:STime](#)(See 5.321)
demodulation window

Sets the Tune (Center) [\[:SENSe\]:ADEMod:METRics:TFRq](#)(See 5.322)
frequency

Returns 8 doubles of the [:DISPlay:ADEMod:METRics:AM:RESults:DATA?](#)(See
AM measurement (query 6.20)
only)

Returns 8 doubles of the [:DISPlay:ADEMod:METRics:FM:RESults:DATA?](#)(See
FM measurement (query 5.189)
only)

4.13 Commands that are Common to All Modes

In this topic:

- [Lockout Front-Panel Operation](#)(See 4.13)
- [Preset / User Preset](#)(See 4.13)
- [Display Control](#)(See 4.13)
- [Triggering](#)(See 4.13)
- [Data Transfer Format and Order](#)(See 5.240)
- [Catalog and Select Mode](#)(See 4.13)
- [Mass Memory - Files](#)(See 4.13)
- [External Reference Source](#)(See 4.13)
- [Status Registers](#)(See 4.13)
- [System](#)(See 4.13)
- [Battery information](#)(See 4.13)

- [GPS](#)(See 4.13)
- [Voltage Source](#)(See 4.13)
- [Power OFF / ON](#)(See 4.13)
- [IEEE - Common Commands](#)(See 4.13)

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](#)(See 4.1)
- [NA Mode Commands](#)(See 4.2)
- [PM Mode Commands](#)(See 4.6)
- [SA Mode Commands](#)(See 4.3)
- [VVM Mode Commands](#)(See 4.8)
- [ERTA Mode Commands](#)(See 4.10)
- [Pulse Measurements Mode Commands](#)(See 4.9)
- [Status Registers](#)(See 4.15)

Lockout Front-Panel Operation

Lockout [INSTrument:GTR](#)(See 5.249)
keypresses

Return local [INSTrument:GTL](#)(See 5.248)
control

Preset / User Preset

Preset all modes to Factory [SYSTem:PRESet](#)(See 5.552)
settings.

Preset the current mode only [SYSTem:PRESet:MODE](#)(See 5.553)
to Factory settings.

Preset all modes to User [SYSTem:UPReset](#)(See 5.564)
settings.

Preset the current mode only [SYSTem:UPReset:MODE](#)(See 5.562)
to User settings.

Save User Preset settings [SYSTem:UPReset:SAVE](#)(See 5.563)

Display Control

Description	Command
Display OFF	DISPlay:ENABle (See 5.194)
Set brightness	DISPlay:BRIGhtness (See 5.192)
Set date format	DISPlay:DATE:FMT (See 5.193)
Change keywords	DISPlay:KEYWOrd[:DATA] (See 5.196)
Reset default keywords	DISPlay:KEYWOrd:DEFault (See 5.197)
Display marker table	DISPlay:TABLE:MARKer (See 5.211)
Set time format	DISPlay:TIME:FMT (See 5.214)
Set title string	DISPlay:TITLe:DATA (See 5.215)
Display title	DISPlay:TITLe:STATe (See 5.216)
Triggering	
Continuous triggering	INITiate:CONTInuous (See 5.242)
Single trigger	INITiate[:IMMediate] (See 5.243)
Data Transfer Format and Order	
Format	FORMat[:DATA] (See 5.240)
Byte Order	FORMat:BORDer (See 5.239)
Catalog and Select Mode	
Read available modes	INSTrument:CATalog? (See 5.247)
Set mode	INSTrument[:SElect] (See 5.250)
Mass Memory - Files	
Read files	MMEMory:CATalog? (See 5.251)
Change folder	MMEMory:CDIRectory (See 5.252)
Copy files	MMEMory:COPY (See 5.253)
Read any file	MMEMory:DATA (See 5.254)
Delete file	MMEMory:DELeTe (See 5.255)

Recall an instrument state file	MMEMory:LOAD:STATe (See 5.265)
Make a new folder	MMEMory:MDIRectory (See 5.268)
Rename a file	MMEMory:MOVE (See 5.269)
Remove a folder	MMEMory:RDIRectory (See 5.270)
Save a picture file	MMEMory:STORe:IMAGe (See 5.275)
Save an instrument state file	MMEMory:STORe:STATe (See 5.282)

See Also (Mode-specific MMEM commands)

Save data trace to csv file	MMEMory:STORe:FDATa (See 5.274)
Save SNP data	MMEMory:STORe:SNP[:DATA] (See 5.281)
Recall antenna data	MMEMory:LOAD:ANTenna (See 5.263)
Recall cable data	MMEMory:LOAD:CABLe (See 5.264)
Save antenna data	MMEMory:STORe:ANTenna (See 5.272)
Recall cable data	MMEMory:STORe:CABLe (See 5.273)

External Reference Source

Set external reference source	[:SENSe]:ROSCillator:SOURce (See 5.455)
Read external source status	[:SENSe]:ROSCillator:STATus? (See 5.456)

Status Registers

Read RecordPlayback status	STATus:OPERation:SAMode:CONDition? (See 5.511)
Read external source status	STATus:QUEStionable:FREQuency:CONDition? (See 5.512)
Read ADC Overrange errors.	STATus:QUEStionable:INTegrity:CONDition? (See 5.513)
Read limit line failure	STATus:QUEStionable:LIMit:CONDition? (See 5.514)

Battery Information

Read presence of battery	SYSTem:BATTery (See 5.517)
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Read absolute charge	SYSTem:BATTery:ABSCharge? (See 5.518)
Read average current flow	SYSTem:BATTery:ACURrent? (See 5.519)
Read remaining run time	SYSTem:BATTery:ARTTe? (See 5.520)
Read chemistry type	SYSTem:BATTery:CHEMistry? (See 5.521)
Read current flow	SYSTem:BATTery:CURRent? (See 5.522)
Read number of charge cycles the battery has experienced	SYSTem:BATTery:CYCLes? (See 5.523)
Read manufacture date of the battery.	SYSTem:BATTery:DATE? (See 5.524)
Read capacity	SYSTem:BATTery:FCAPacity? (See 5.525)
Read accuracy of the battery gauge	SYSTem:BATTery:MAXError? (See 5.526)
Read manufacturer name	SYSTem:BATTery:MFGname? (See 5.527)
Read remaining battery capacity	SYSTem:BATTery:RCAPacity? (See 5.528)
Read current charge compared to full capacity	SYSTem:BATTery:RELCharge? (See 5.529)
Read remaining run time	SYSTem:BATTery:RTTE? (See 5.530)
Set and read battery saver state. OFF leaves the source ON between sweeps.	SYSTem:BATTery:SAVer (See 5.531)
Read serial number of the battery.	SYSTem:BATTery:SN? (See 5.532)
Read use status	SYSTem:BATTery:STATus (See 5.533)
Read battery temperature	SYSTem:BATTery:TEMPerature? (See 5.534)
Read vendor / distributor of the battery.	SYSTem:BATTery:VENDor? (See 5.535)
Read battery voltage.	SYSTem:BATTery:VOLTage? (See 5.536)

System

Set and read the system date	SYSTem:DATE (See 5.537)
Set and read the system time	SYSTem:TIME (See 5.565)
Immediately erase all user data	SYSTem:ERASe (See 5.539)
Immediately erase the error log	SYSTem:ERRor:LOG:ERASe (See 6.40)
Read the FieldFox error queue	SYSTem:ERRor[:NEXT]? (See 5.540)
Reset default preferences	SYSTem:PREFerences:DFLT (See 5.550)
Save system preferences	SYSTem:PREFerences:SAVE (See 5.551)
Set time zone.	SYSTem:TZONE (See 5.566)
Catalog time zones.	SYSTem:TZONE:CATalog? (See 5.567)
Set and read system volume	SYSTem:AUDio:VOLume (See 5.516)
Set and read system volume mute state	SYSTem:AUDio:MUTe (See 5.515)
Read the SCPI version	SYSTem:VERSion? (See 5.568)
GPS	
Set and read GPS ON OFF state.	SYSTem:GPS[:STATe] (See 5.548)
Query returns a string containing Carrier to Noise (C/No dBHz) data.	SYSTem:GPS:CNOise? (See 5.541)
Read the locked state.	SYSTem:GPS:LSTate? (See 5.547)
Set and read the display state.	SYSTem:GPS:DISPlay:STATe (See 5.546)
Set and read the clock sync state.	SYSTem:GPS:SYNChronize (See 5.549)
Set and read the lat/long format.	SYSTem:GPS:DISPlay:COORDinate:FORMat (See 5.544)

Set and read the distance units. **SYSTem:GPS:DISPlay:DISTance:UNIT**(See 5.545)

Read the last locked reading. **SYSTem:GPS:DATA:LAST?**(See 5.543)

Read the current GPS data **SYSTem:GPS:DATA?**(See 5.542)

Voltage Source

Enable Voltage Source **SYSTem:VVS:ENABLE**(See 5.570)

Set voltage **SYSTem:VVS:VOLTag**(See 5.574)

Read state (On/ Off/ Tripped) **SYSTem:VVS:[STATe]?**(See 5.573)

Read measured voltage **SYSTem:VVS:MVOLtag**(See 5.572)

Current draw **SYSTem:VVS:CURREnt?**(See 5.569)

Max current draw **SYSTem:VVS:MAXCurrent?**(See 5.571)

Power OFF / ON

Automatically turns the FieldFox ON when power is applied. **SYSTem:PWR:AUTO**(See 5.554)

Turns the FieldFox OFF **SYSTem:PWR:SHUTdown**(See 5.555)

Sets delay before turning the FieldFox OFF. **SYSTem:PWR:SHUTdown:DLY**(See 5.556)

Set time to wait before rebooting the FieldFox **SYSTem:PWR:SHUTdown:DURation**(See 5.557)

Reads whether the DC supply is connected **SYSTem:DCSupply?**(See 5.538)

IEEE - Common Commands

Clear status ***CLS**(See 5.3)

Event Status Enable ***ESE**(See 5.3)

Event Status Enable Query ***ESR?**(See 5.3)

Identify ***IDN?**(See 5.3)

Operation complete command	*OPC (See 5.3)
Operation complete query	*OPC? (See 5.3)
Identify Options Query	*OPT? (See 5.3)
Reset	*RST (See 5.3)
Wait	*WAI (See 5.3)

Last Modified:

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

4.14 Calibration Commands

See Also

- [Correction Methods Explained](#)(See 2.2)
- [Calibration Examples](#)(See 3.4)
- [Status Registers](#)(See 4.15)

Set and read error term data [\[:SENSe\]:CORRection:COEFFicient\[:DATA\]](#)(See 5.353)

Read number of cal steps [\[:SENSe\]:CORRection:COLLect:GUIDed:SCOUNt](#)(See 5.364)

Measure step number [\[:SENSe\]:CORRection:COLLect:GUIDed:STEP:ACQuire](#)(See 5.365)

Prompt for step number [\[:SENSe\]:CORRection:COLLect:GUIDed:STEP:PROMpt](#)(See 5.366)

Measure Quick Cal [\[:SENSe\]:CORRection:COLLect\[:ACQuire\]:INT](#)(See 5.354)

Measure [\[:SENSe\]](#)(See 5.355):CORRection:COLLect[:ACQuire]:LOAD(See

load	5.356)
Measure open	[:SENSe]:CORRection:COLLect[:ACQuire]:OPEN (See 5.356)
Measure short	[:SENSe]:CORRection:COLLect[:ACQuire]:SHORT (See 5.357)
Measure thru	[:SENSe]:CORRection:COLLect[:ACQuire]:THRU (See 5.358)
Set Cal Kit	[:SENSe]:CORRection:COLLect:CKIT:LABel (See 5.359)
Catalog all cal kits	[:SENSe]:CORRection:COLLect:CKIT:LABel:CATalog? (See 5.360)
Set connectors	[:SENSe]:CORRection:COLLect:CONNector (See 5.361)
Select method - Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:ERES (See 5.367)
Select method - QuickCal	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:CALibrate (See 5.369)
Select method - QuickCal Enhanced Response	[:SENSe]:CORRection:COLLect:METHod:QCALibrate:ERESponse (See 5.370)
Select method - Simple Open response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:OPEN (See 5.372)
Select method - Simple Short response	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:SHORT (See 5.373)
Select	[:SENSe]:CORRection:COLLect:METHod[:RESPonse]:THRU (See

method - Thru response	5.374)
Select method - Short response	[:SENSe]:CORRection:COLLect:METHod:SRESponse (See 5.377)
Select method - Open response	[:SENSe]:CORRection:COLLect:METHod:ORESponse (See 5.368)
Select method - 1-port SOLT	[:SENSe]:CORRection:COLLect:METHod:SOLT1 (See 5.375)
Select method - TRL	[:SENSe]:CORRection:COLLect:METHod:TRL (See 5.378)
Read method	[:SENSe]:CORRection:COLLect:METHod:TYPE? (See 5.379)
Set AutoOrient for ECal	[:SENSe]:CORRection:COLLect:ECAL:AORient (See 5.362)
Set simple ECal	[:SENSe]:CORRection:COLLect:ECAL:SIMPle (See 5.363)
Omit Isolation	[:SENSe]:CORRection:COLLect:OISolation (See 5.381)
Select Medium	[:SENSe]:CORRection:MEDIum (See 5.391)
Set Waveguid e cutoff	[:SENSe]:CORRection:WGCutoff (See 5.399)
Select Waveguid e standard (CAT only)	[:SENSe]:CORRection:WAVEguide:STANdard (See 5.398)

Finish Cal	[:SENSe]:CORRection:COLLect:SAVE (See 5.382)
Turn ALL Correction ON and OFF	[:SENSe]:CORRection[:STATe] (See 5.393)
Turn User Correction ON and OFF	[:SENSe]:CORRection:USER[:STATe] (See 5.396)
Set system impedance	[:SENSe]:CORRection:IMPedance[:INPut][:MAGNitude] (See 5.388)
Set CalReady type	[:SENSe]:CORRection:CALReady:TYPE (See 5.351)

Last Modified:

11sep2017 Added this topic

4.15 Status Registers

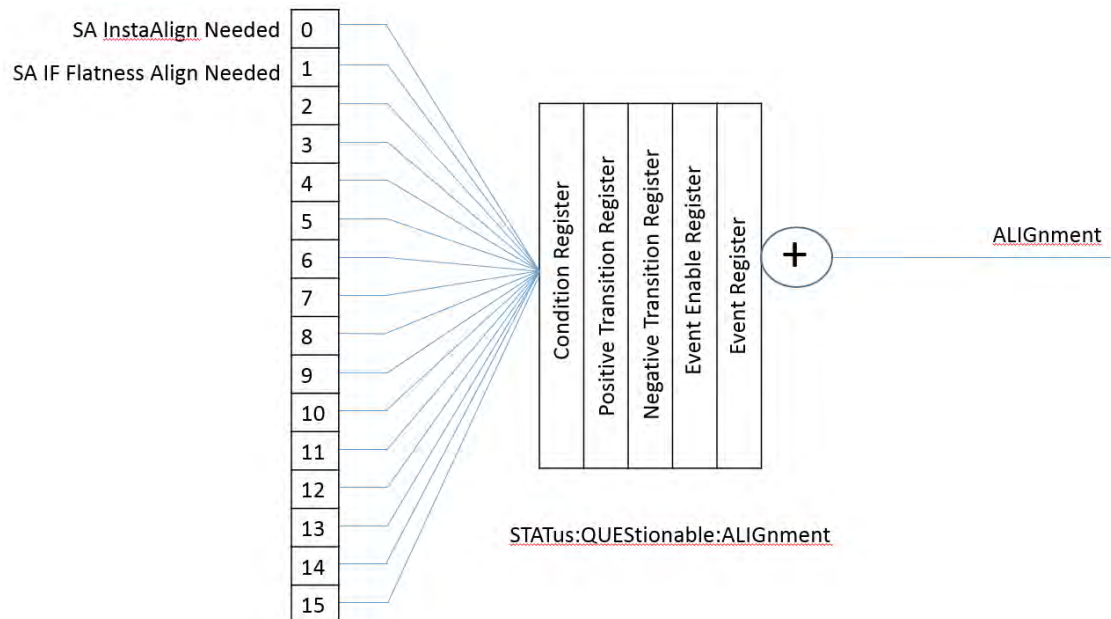
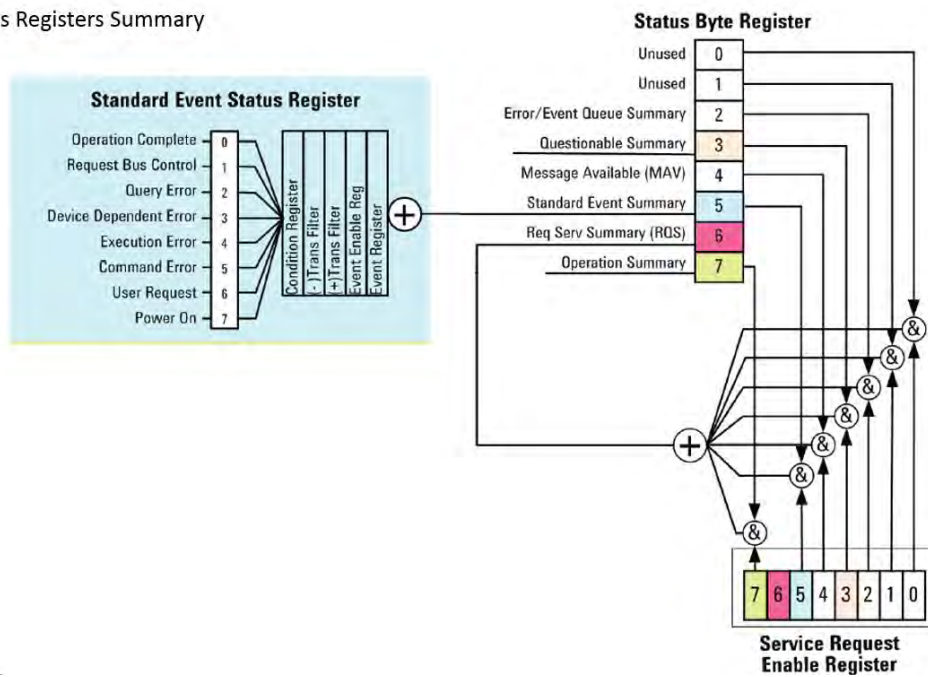
This topic contains images of the FieldFox status registers.

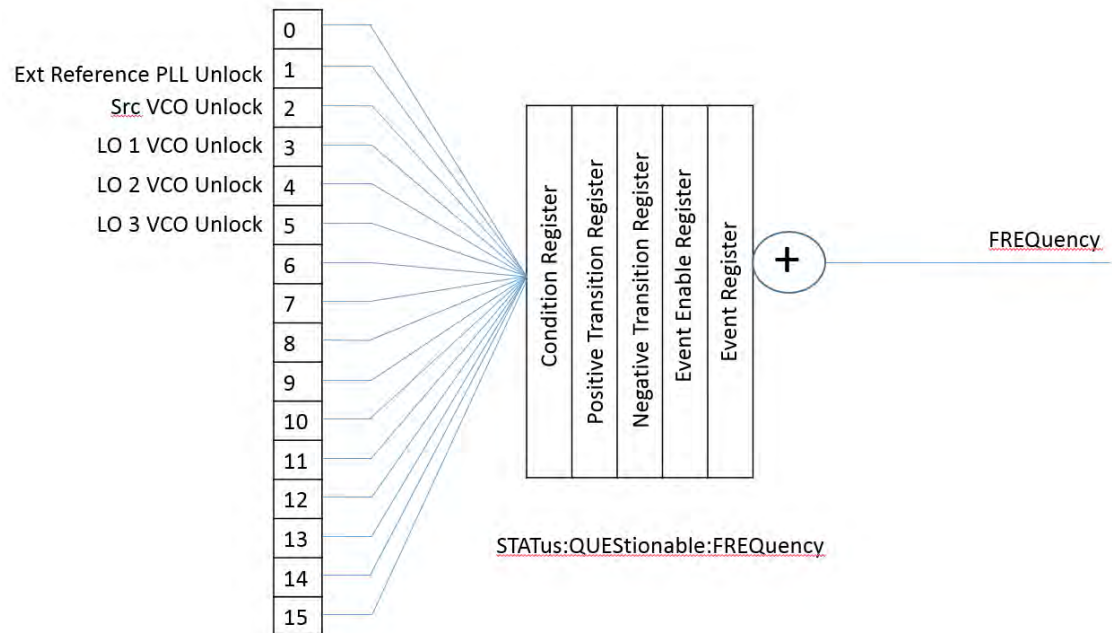
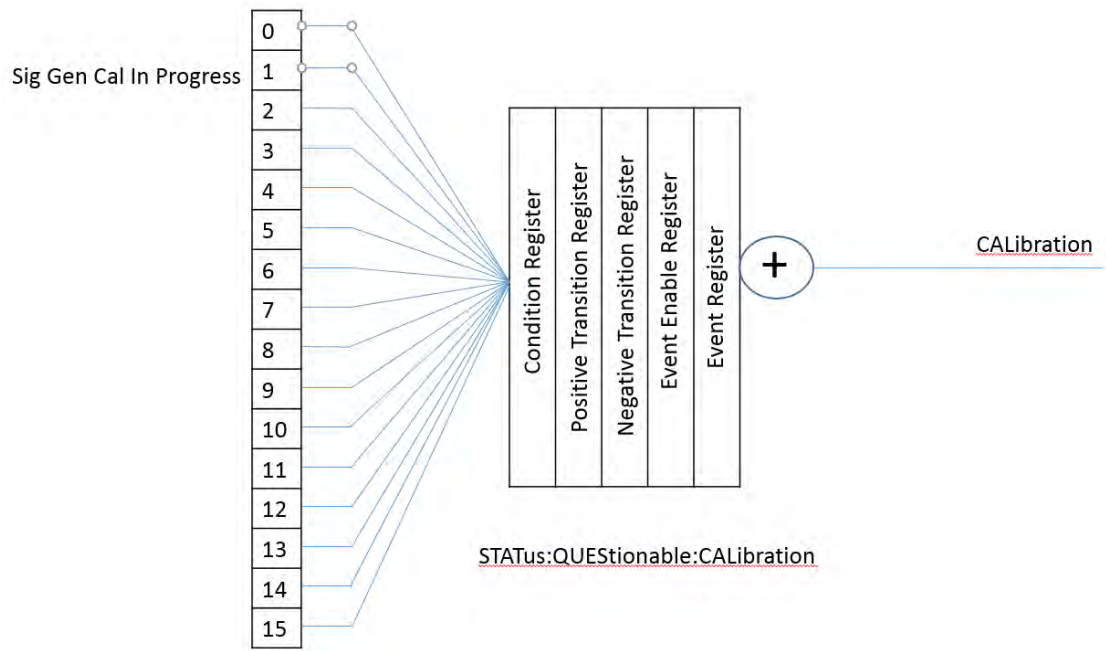
This topic contains the following registers:

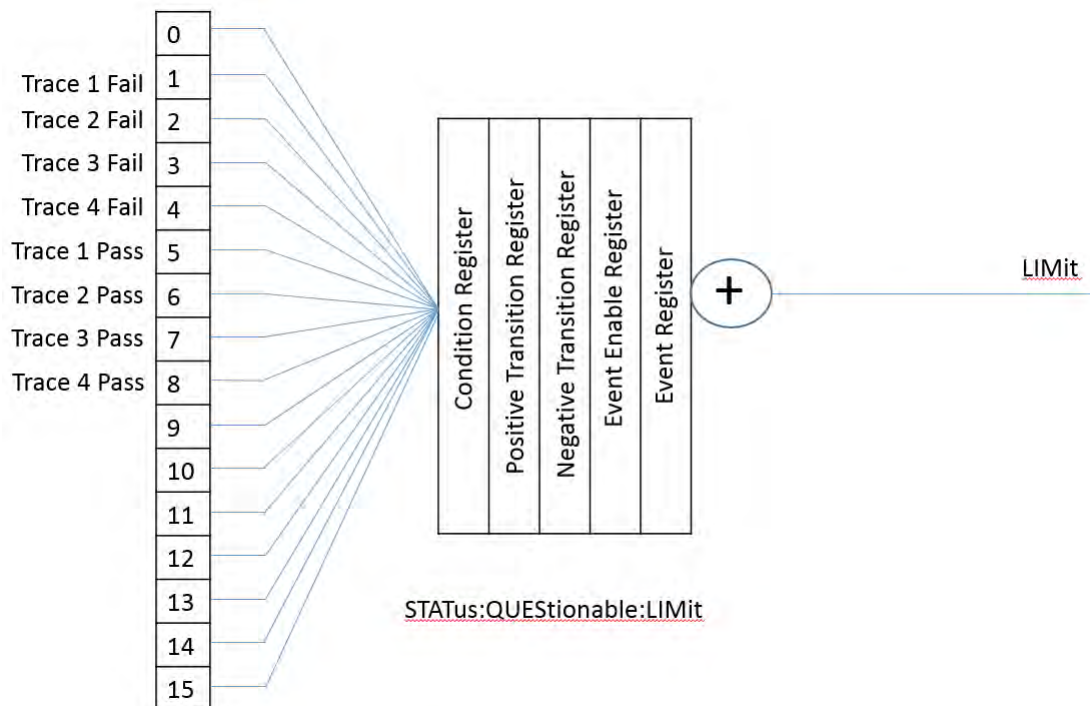
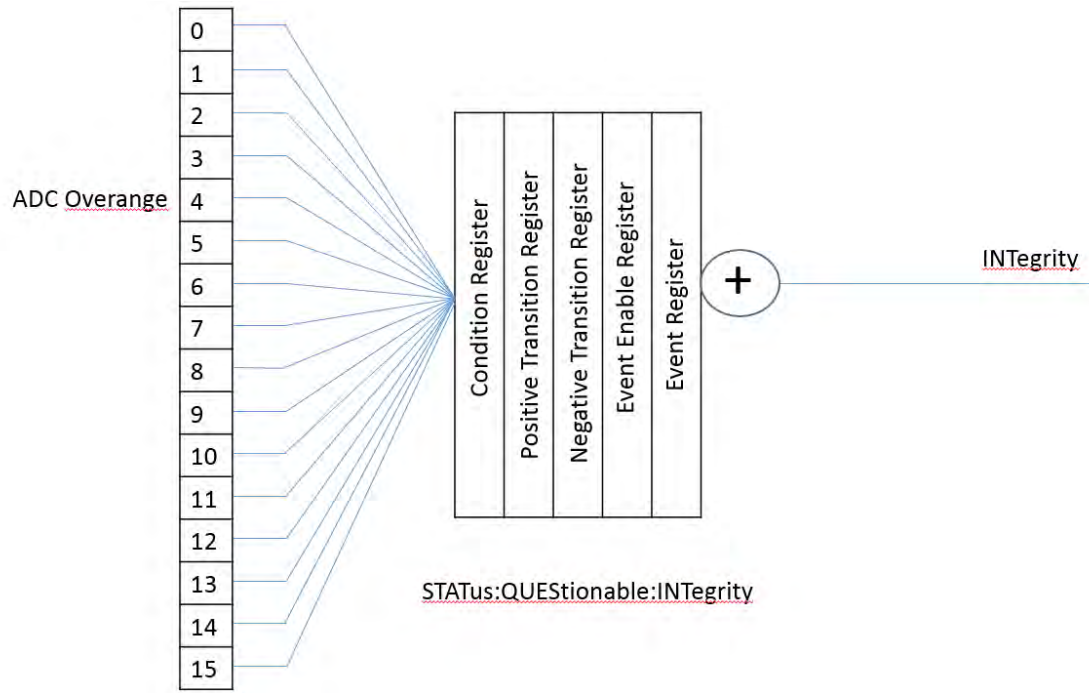
- [Summary Status](#)
- [Status Questionable Alignment](#)
- [Status Questionable Calibration](#)
- [Status Questionable Frequency](#)
- [Status Questionable Integrity](#)
- [Status Questionable Limit](#)
- [Status Questionable](#)
- [Status Operation SA Mode](#)

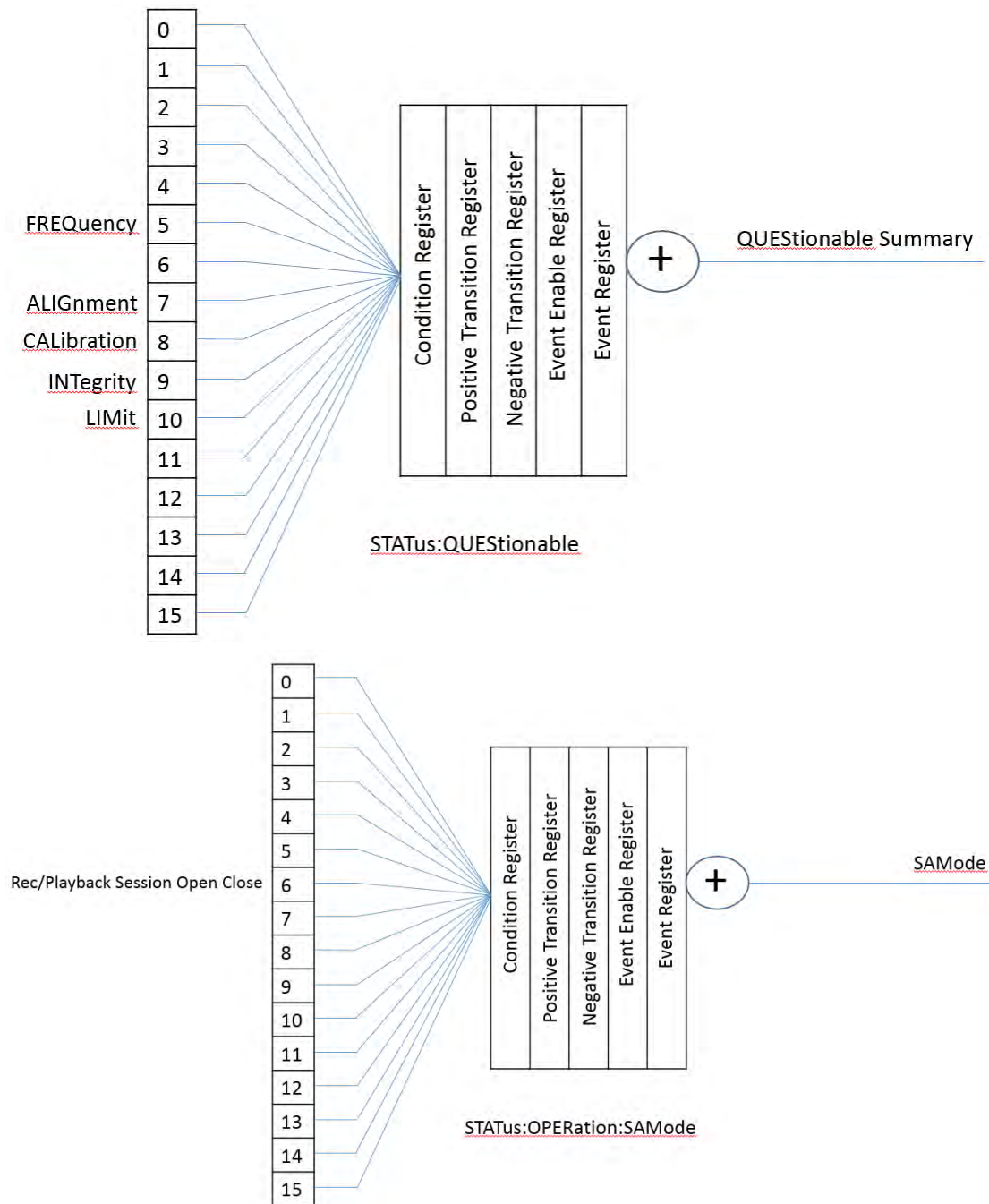
- Status Operation

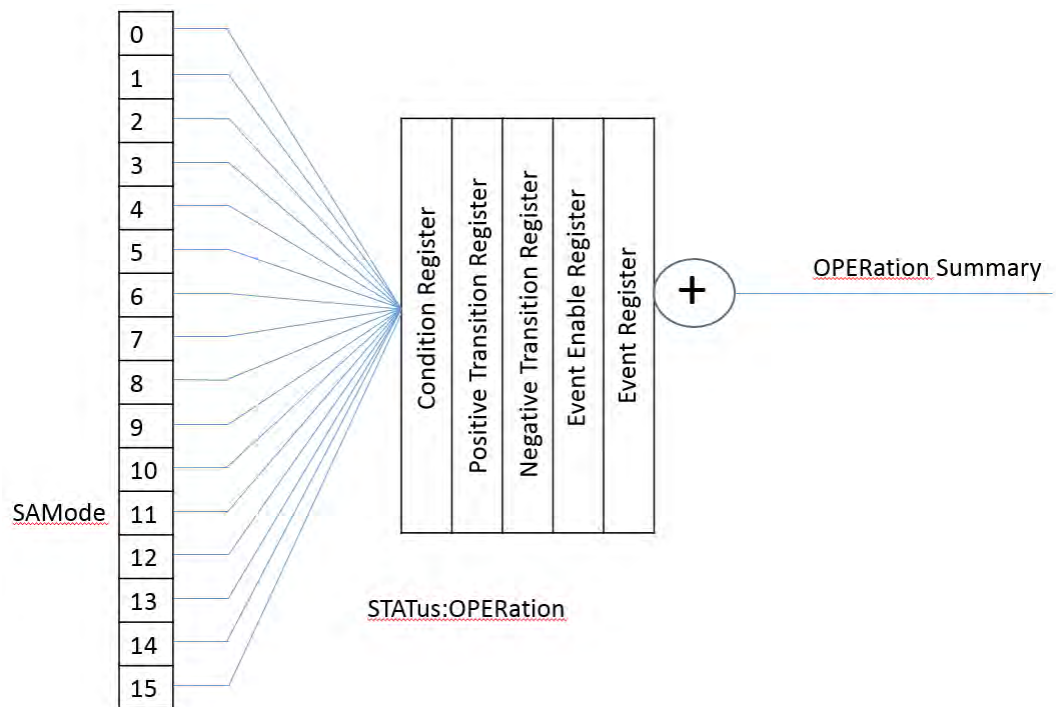
Field Fox Status Registers Summary











Last Modified:

22oct2017 Added this topic

5. Command Reference

5.1 New Programming Commands

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

A.10.1x

See [IQA Mode Commands](#)(See 4.5) **NEW!**

See also [Status Registers](#)(See 4.15)

See also [Memory Command Examples](#)(See 3.9)

A.09.53

[CALCulate:MARKer:STRack](#)(See 5.20)

A.09.50

[\[:SENSE\]:ACQuisition:TIME](#)(See 5.313)

[\[:SENSE\]:ACQuisition:TIME:AUTO](#)(See 5.314)

[\[:SENSE\]:DENSity:BPLLevel](#)(See 5.403)

[:SENSe]:DENSity:RPLevel(See 5.404)
 [:SENSe]:DETECTOR:TRACe{1:4}:FUNCTion(See 5.406)
 [:SENSe]:FREQuency:SPAN:BANDwidth[:RESoulution]:RATio?(See 5.414)
 [:SENSe]:IFFLatness:ALIGNment[:STATe](See 5.420)
 [:SENSe]:MEASure(See 5.422)
 [:SENSe]:SPECtrogram:TPDivision(See 5.461)
 :DISPlay:VIEW:DENSity:PERsistence(See 5.218)
 :DISPlay:VIEW:DENSity:PERsistence:INFinite(See 5.219)
 :DISPlay:VIEW:DENSity:STATe(See 5.217)
 :TRACe:PRESet:ALL(See 5.627)
 :TRIGger[:SEQuence]:FRAME:OFFSet(See 5.644)
 :TRIGger[:SEQuence]:FRAME:OFFSet:DISPlay:RESet(See 5.645)
 :TRIGger[:SEQuence]:FRAME:PERiod(See 5.646)
 :TRIGger[:SEQuence]:HOLDoff(See 5.647)
 :TRIGger[:SEQuence]:LEVel(See 5.648)
 See also, RTSA Mode Commands(See 4.4)

A.09.25

:CHSCanner:USER:FOLDer(See 5.181)
 :DISPlay:SCREen:GEOMetry(See 5.210)
 :INPut:LAN:IDENTify:SNUMber(See 5.245)
 :INPut:LAN:IDENTify:TYPE(See 5.246)
 :MMEMory:STOReIMAGe:NOKeys(See 5.276)

A.08.15 and A.09.15

AM/FM Metrics

[:SENSe]:MEASurement:ADEMod(See 5.425)
 [:SENSe]:ADEMod:METRics:AMTY (See 5.315)
 [:SENSe]:ADEMod:METRics:DTYPE(See 5.316)
 [:SENSe]:ADEMod:METRics:FMTY (See 5.317)
 [:SENSe]:ADEMod:METRics:LON (See 5.318)

[\[:SENSe\]:ADEMod:METRics:LTIMe](#) (See 5.319)

[\[:SENSe\]:ADEMod:METRics:MMENable](#)(See 5.320)

[\[:SENSe\]:ADEMod:METRics:STIMe](#)(See 5.321)

[\[:SENSe\]:ADEMod:METRics:TFRq](#)(See 5.322)

[:DISPlay:ADEMod:METRics:AM:RESults:DATA?](#)(See 6.20)

[:DISPlay:ADEMod:METRics:FM:RESults:DATA?](#) (See 5.189)

Channel Scanner

[:CHSCanner:DATA?](#)(See 5.149)

[:CHSCanner:DISPlay:SORT](#)(See 5.150)

[:CHSCanner:DISPlay:SORT:ORder](#)(See 5.151)

[:CHSCanner:DISPlay:WINDow:TRACe:Y\[:SCALe\]:PDIVision](#) (See 5.152)

[:CHSCanner:DISPlay:WINDow:TRACe:Y\[:SCALe\]:RLEVel](#) (See 5.153)

[:CHSCanner:EDIT:LIST?](#)(See 5.154)

[:CHSCanner:EDIT:LIST:ADD](#)(See 5.155)

[:CHSCanner:EDIT:LIST:CLear](#)(See 5.156)

[:CHSCanner:EDIT:RANGe:COUNt](#)(See 5.157)

[:CHSCanner:EDIT:RNAGE:IBW](#)(See 5.158)

[:CHSCanner:EDIT:RANGe:SPAN](#)(See 5.159)

[:CHSCanner:EDIT:RANGe:STARt](#)(See 5.160)

[:CHSCanner:EDIT:RANGe:STEP](#) (See 5.161)

[:CHSCanner:LOG:ACTion:RECORD](#)(See 5.162)

[:CHSCanner:LOG:ACTion:STOP](#)(See 5.163)

[:CHSCanner:LOG:CONFigure:INTerval:DISTance](#) (See 5.164)

[:CHSCanner:LOG:CONFigure:INTerval:STATe](#) (See 5.165)

[:CHSCanner:LOG:CONFigure:INTerval:TIMe](#)(See 5.166) (See 5.167)

[:CHSCanner:LOG:CONFigure:INTerval:TYPE](#) (See 5.167)

[:CHSCanner:LOG:CONFigure:SAVe:AUTO\[:STATe\]](#)(See 5.168)

[:CHSCanner:LOG\[:STATe\]](#) (See 5.169)

[:CHSCanner:SEARch:COUNt](#) (See 5.170)

[:CHSCanner:SEARch:TYPE](#)(See 5.171)

[:CHSCanner\[:SENSe\]:CHANnel:SElect](#)(See 5.172)

[:CHSCanner\[:SENSe\]:POWer\[:RF\]:ATTenuation](#)(See 5.173)

[:CHSCanner\[:SENSe\]:POWer\[:RF\]:ATTenuation:AUTO](#) (See 5.174)

[:CHSCanner\[:SENSe\]:POWer\[:RF\]:EXTGain](#) (See 5.175)

:CHSCanner[:SENSe]:POWer[:RF]:GAIN[:STATe] (See 5.176)
:CHSCanner:SWEp:AVERAge:COUNT(See 5.177)
:CHSCanner:SWEp:AVERAge[:STATe] (See 5.178)
:CHSCanner:SWEp:DISPlay:TYPE (See 5.179)
:CHSCanner:SWEp:MODE(See 5.180)
:CHSCanner:USER:FOLDer(See 5.181)
:CHSCanner[:SENSe]:SAListen:DTYPE (See 5.182)
:CHSCanner[:SENSe]:SAListen:LTIME(See 5.183)
:CHSCanner[:SENSe]:SAListen:PAUSe(See 5.184)
:CHSCanner[:SENSe]:SAListen:RESume (See 5.185)
:MMEMory:STORe:LOG:CSV (See 5.277)
:MMEMory:STORe:LOG:KML(See 5.278)
:MMEMory:LOAD:LOG(See 5.266)
:MMEMory:LOAD:LIST(See 5.267)
:MMEMory:STATe:STORe:LIST(See 5.271)

A.08.04

ERTA Mode

:SENSe:MEASurement:ERTA:PNID(See 5.430)
:SENSe:MEASurement:ERTA:PVERify?(See 5.432)

GPS Mode

SYSTem:GPS:CNOise?(See 5.541)

A.08.00

All Modes

SYSTem:PREFerences:SNP(See 6.41)

CAT Mode

CALCulate[:SELected]:SMOothing:APERture(See 5.118)
CALCulate[:SELected]:SMOothing[:STATe](See 5.119)

CAT - TDR

CALCulate:PARAmeter:DEFine(See 5.25)
CALCulate[:SELected]:MARKer:TDR:FORMat(See 6.17)
[:SENSe]:SWEp:TDR:AUTO:FREQuency:STOP:MAXimum(See 6.35)
[:SENSe]:SWEp:TDR:RES(See 6.36)

NA Mode

CALCulate[:SElected]:OFFSet:SLOPe(See 6.19)

CALCulate[:SElected]:OFFSet[:MAGNitude](See 6.18)

ERTA Mode

[:SENSe]:MEASurement:ERTA:PIP(See 6.33)

[:SENSe]:MEASurement:ERTA:VIP?(See 6.34)

[:SENSe]:MEASurement:ERTA:ROLE?(See 5.433)

[:SENSe]:MEASurement:ERTA:PStatus(See 5.431)

TRACe:ERTA:RINPut(See 5.576)

SA Mode

Source Tracking Offset

SOURce:TOFFset:ENABLE(See 6.37)

SOURce:TOFFset:FREQuency(See 6.38)

SOURce:TOFFset:REVerse(See 6.39)

Reverse sweep (Opt. 209 only)

[:SENSe]:SWEep:FREVerse(See 6.32)

Select freq axis annotation

[:SENSe]:FREQuency:ANNotation[:SElect](See 5.408)

Read ADC over-range status

CALCulate:MEASurement:WAOR?(See 6.16)

Source-side corrections

MMEMory:LOAD:SANTenna(See 6.23)

MMEMory:LOAD:SCABle(See 6.24)

MMEMory:STORE:SANTenna(See 6.25)

MMEMory:STORE:SCABle(See 6.26)

[:SENSe]:AMPLitude:CORRections:SANTenna:DEFault(See 6.27)

[:SENSe]:AMPLitude:CORRections:SANTenna[:STATe](See 6.28)

[:SENSe]:AMPLitude:CORRections:SCABle:DEFault(See 6.29)

[:SENSe]:AMPLitude:CORRections:SCABle[:STATe](See 6.30)

A.07.75

All Modes

INSTRument:GTL(See 5.248)

INSTRument:GTR(See 5.249)

NA Mode

Big Marker Display States (A and B)(See 4.2)

VVM Mode

[[:SENSe]:CORRection:ZERO:REFerence(See 5.400)

A.07.50

Frequency Offset Power Sensor (FOPS) commands(See 4.6)

Built-in Power Meter (CPM) Mode Commands(See 4.7)

MMEMory:RDIRectory(See 5.270) - Added optional argument

SA Mode

[[:SENSe]:SWEep:MTIME?(See 5.472)

Renamed commands:

SOURce:ENABle(See 5.494)

SOURce:FREQuency[:CW](See 5.496)

SOURce:MODE(See 5.500)

SOURce:NORMAlize(See 5.501)

SOURce:POWer(See 5.503)

SOURce:POWer:MAXimum(See 5.506)

NA Mode

CALCulate:PARAmeter:DEFine(See 5.25) (New arguments)

CALCulate[:SELected]:CONVersion:FUNction(See 5.71)

CAT Mode

[[:SENSe]:CORRection:WAVEguide:STANdard(See 5.398)

CAT and NA Mode

[[:SENSe]:CORRection:COLLect:METHod:SRESponse(See 5.377)

[[:SENSe]:CORRection:COLLect:METHod:ORESponse(See 5.368)

A.07.25

Pulse Measurement Mode(See 4.9) Commands

CAT and NA modes

[\[:SENSe\]:CORRection:COLLect:CKIT:LABel](#)(See 5.359) <ECal module>

[\[:SENSe\]:CORRection:COLLect:ECAL:AORient](#)(See 5.362)

[\[:SENSe\]:CORRection:COLLect:ECAL:SIMPle](#)(See 5.363)

[\[:SENSe\]:CORRection:COLLect:METHod:TRL](#)(See 5.378)

[\[:SENSe\]:CORRection:COLLect:OISolation](#)(See 5.381)

[\[:SENSe\]:CORRection:MEDIum](#)(See 5.391)

[\[:SENSe\]:CORRection:WGCutoff](#)(See 5.399)

SA Mode

[CALCulate:MARKer:TZERo:FIXed](#)(See 5.21)

USB Power Meter Mode

[SOURce:ENABle](#)(See 5.493)

[SOURce:POWer](#)(See 5.502)

Common to ALL Modes

[FORMat:BORDer](#)(See 5.239)

User Preset

[SYSTem:UPReset](#)(See 5.564)

[SYSTem:UPReset:FPANel\[:STATe\]](#)(See 5.561)

[SYSTem:UPReset:MODE](#)(See 5.562)

[SYSTem:UPReset:SAVE](#)(See 5.563)

A.07.00

NA mode

[TRIGger:SOURce](#)(See 5.658)

[TRIGger:SLOPe](#)(See 5.657)

[CALCulate\[:SELected\]:MARKer:FORMat](#)(See 5.98)

SA mode

[TRIGger\[:SEQuence\]:SOURce](#)(See 5.652) (New argument)

[CALCulate:MEASurement:QAMPLitude](#)(See 5.23)

[\[:SENSe\]:BURSt:ALIGnment:NOW](#)(See 5.345)

[\[:SENSe\]:BURSt:ALIGnment\[:STATe\]](#)

[TRIGger\[:SEQuence\]:POSition](#)(See 5.649)

[TRIGger\[:SEQuence\]:POSition:STATe](#)(See 5.650)

[TRIGger\[:SEQuence\]:DELay:STATe](#)(See 5.631)

[TRIGger\[:SEQuence\]:FGATe:DELay](#)(See 5.639)

[TRIGger\[:SEQuence\]:FGATe:VIEW:TIME](#)(See 5.642)

[TRIGger\[:SEQuence\]:FGATe:VIEW\[:STATe\]](#)(See 5.641)

[TRIGger\[:SEQuence\]:FGATe:WIDTh](#)(See 5.643)

[TRIGger\[:SEQuence\]:FGATe\[:STATe\]](#)(See 5.640)

Multiple modes

[CALCulate\[:SElected\]:LIMit:SOUNd](#)(See 5.90)

A.06.17

Multiple modes

[SYSTem:PWR:AUTO](#)(See 5.554)

[SYSTem:DCSupply?](#)(See 5.538)

CAT / NA mode

[\[:SENSe\]:CORRection:CALReady:TYPE](#)(See 5.351)

[\[:SENSe\]:CORRection:COLLect:GUIDed:STEP:ACQuire](#)(See 5.365)

[\[:SENSe\]:CORRection:COLLect:GUIDed:SCOUNt](#)(See 5.364)

[\[:SENSe\]:CORRection:COLLect:GUIDed:STEP:PROMpt](#)(See 5.366)

A.06.00

Multiple modes

[CALCulate:LIMit:LLData](#)(See 5.89)

[STATus:QUESTionable:LIMit:CONDition?](#)(See 5.514)

[SYSTem:VVS:CURREnt?](#)(See 5.569)

[SYSTem:VVS:ENABLE](#)(See 5.570)

[SYSTem:VVS:MAXCurrent?](#)(See 5.571)

SYSTem:VVS:MVOLTage?(See 5.572)

SYSTem:VVS[:STATe]?(See 5.573)

SYSTem:VVS:VOLTage(See 5.574)

SYSTem:DCSupply?(See 5.538)

NA mode

[[:SENSe]:AVERage:MODE(See 5.336)

Time Domain Transform

CALCulate[:SElected]:FILTer[:GATE]:TIME:CENTer(See 5.78)

CALCulate[:SElected]:FILTer[:GATE]:TIME:SHAPE(See 5.79)

CALCulate[:SElected]:FILTer[:GATE]:TIME:SPAN(See 5.80)

CALCulate[:SElected]:FILTer[:GATE]:TIME:START(See 5.81)

CALCulate[:SElected]:FILTer[:GATE]:TIME:STATe(See 5.82)

CALCulate[:SElected]:FILTer[:GATE]:TIME:STOP(See 5.83)

CALCulate[:SElected]:FILTer[:GATE]:TIME[:TYPE](See 5.84)

CALCulate[:SElected]:TRANSform:TIME: [TYPE](See 5.147)

CALCulate[:SElected]:TRANSform:TIME:CENTer(See 5.137)

CALCulate[:SElected]:TRANSform:TIME:IMPulse:WIDTh(See 5.138)

CALCulate[:SElected]:TRANSform:TIME:KBESsel(See 5.139)

CALCulate[:SElected]:TRANSform:TIME:LPFRequency(See 5.140)

CALCulate[:SElected]:TRANSform:TIME:SPAN(See 5.141)

CALCulate[:SElected]:TRANSform:TIME:START(See 5.142)

CALCulate[:SElected]:TRANSform:TIME:STATe(See 5.143)

CALCulate[:SElected]:TRANSform:TIME:STEP:RTIME(See 5.144)

CALCulate[:SElected]:TRANSform:TIME:STIMulus(See 5.145)

CALCulate[:SElected]:TRANSform:TIME:STOP(See 5.146)

CAT mode

CALCulate:PARAmeter:SElect(See 5.26)

DISPlay:WINDow:SPLit(See 5.224)

CALCulate:MARKer:COUPle(See 5.97)

SA mode

[[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault(See 5.325)

[[:SENSe]:AMPLitude:CORRections:CABLE:DEFault(See 5.327)

[[:SENSe]:AMPLitude:ALIGNment[:STATe](See 5.324)

[[:SENSe]:AMPLitude:ALIGNment:NOW(See 5.323)

[[:SENSe]:BANDwidth:IF:OUT(See 5.339)

Power Meter Mode

[[:SENSe]:AVERage:SDETect(See 5.337)

A.05.50

DISPlay:WINDow:TRACe:Y:DLINe <level>(See 5.227)

DISPlay:WINDow:TRACe:Y:DLINe:STATe <ON/OFF>(See 5.228)

CALCulate:MARKer:BWIDth:DATA(See 5.95)

CALCulate:MARKer:BWIDth[:STATe](See 5.96)

CALCulate:MARKer:FUNCTion:BWIDth:THReshold(See 5.99)

CALCulate:MARKer:FUNCTion:TRACking(See 5.109)

CALCulate:MARKer:FUNCTion:TARGet(See 5.107)

SYSTem:AUDio:MUTe(See 5.515)

SYSTem:AUDio:VOLume(See 5.516)

[[:SENSe]:RADio:STANdard[:SElect](See 5.452)

[[:SENSe]:AVERage:CLEar(See 5.332)

A.05.30

CALCulate:MARKer:FUNCTion(See 5.10)

CALCulate:MARKer:FUNCTion:BAND:SPAN(See 5.11)

CALCulate:MARKer:FUNCTion:BAND:SPAN:AUTO(See 5.12)

CALCulate:MARKer:SET(See 5.111)

CALCulate[:SElecteD]:SMOothing:APERture(See 5.118)

CALCulate[:SElecteD]:SMOothing[:STATe](See 5.119)

DISPlay[:WINDow][:NUMeric]:RESolution(See 5.222)

[[:SENSe]:BWID(See 5.346)

[[:SENSe]:CORRection:EXTension:PORT1(See 5.383)

[[:SENSe]:CORRection:EXTension:PORT2(See 5.384)

[[:SENSe]:CORRection:EXTension[:STATe](See 5.385)

[\[:SENSe\]:ISource:ENABle](#)(See 5.494)

[\[:SENSe\]:ISource:FREQuency\[:CW\]](#)(See 5.496)

[\[:SENSe\]:ISource:MODE](#)(See 5.500)

[\[:SENSe\]:ISource:POWer](#)(See 5.505)

[SYSTem:TZONE](#)(See 5.566)

[SYSTem:TZONE:CATalog?](#)(See 5.567)

5.2 Superseded 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] (See 5.17)	CALCulate:MARKer:FUNCTion (See 5.10)
RECPlayback:CONFig:FMTRigger:DATA (See 5.290)	RECPlayback:CONFig:FMTRigger:LLData (See 5.292)
CALCulate[:SElected]:LIMit:DATA (See 5.88)	CALCulate:LIMit:LLData (See 5.89)
CALCulate[:SElected]:LIMit:BEEP (See 5.87)	CALCulate[:SElected]:LIMit:SOUNd (See 5.90)
[:SENSe]:AMPLitude:ALIGNment:NOW (See 5.323)	[:SENSe]:ALIGNment:AMPLitude:NOW (See 6.4)
[:SENSe]:AMPLitude:ALIGNment[:STATe] (See 5.324)	[:SENSe]:ALIGNment:AMPLitude[:STATe] (See 6.3)
[:SENSe]:BURSt:AMPLitude:ALIGNment:NOW (See 5.345)	[:SENSe]:ALIGNment:BURSt:NOW (See 6.6) (See 6.4)
[:SENSe]:BURSt:AMPLitude:ALIGNment[:STATe] (See 6.31)	[:SENSe]:ALIGNment:BURSt[:STARt] (See 6.5) (See 6.4)
[:SENSe]:IFFLatness:AMPLitude:ALIGNment	[:SENSe]:ALIGNment:CHEQ:NOW (

:NOW (See 5.421)	See 6.8) (See 6.4)
[:SENSe]:IFFLatness:AMPLitude:ALIGNment["STATe"] (See 5.420)	[:SENSe]:ALIGNment:CHEQ[:STATe] (See 6.7) (See 6.4)

OBSOLETE commands

These commands will NOT continue to work in existing programs.

Obsolete command	Replacement command
[:SENSe]:TAListen:AVOLume (See 5.478) (A.05.50)	SYSTem:AUDio:VOLume (See 5.516)
[:SENSe]:RADio:STANdard (See 5.451) (A.05.50)	[:SENSe]:RADio:STANdard[:SElect] (See 5.452)

Last Modified:

22nov2017 New alignment commands (A.10.15)

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

5.3 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.

5.4 CALCulate:FEED:MODE

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

Relevant Modes

Parameters Pulse Measurements(See 4.9)

<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

5.5 CALCulate:IREJection:LEVel

(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

5.6 CALCulate:MARKer:AUDio:BEEP

(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>** (See 5.516).

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

5.7 CALCulate:MARKer:DREF:FIXed

(Read-Write) Set and query the state of fixed delta / reference markers. Created delta markers using CALCulate:MARKer[:STATe](See 5.112)

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

5.8

CALCulate:MARKer:FCOunt[:STATe]

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

Use CALCulate:MARKer[:STATe](See 5.112) to first create a marker.

Use CALCulate:MARKer:X(See 5.114) to move the marker to the frequency of interest.

Use CALCulate:MARKer:FCOunt:X?(See 5.9) 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

5.9 CALCulate:MARKer:FCOunt:X?

(Read-only) Read the frequency of the frequency counter marker in Hz. Use **CALCulate:MARKer:FCOunt[:STATe]** (See 5.8) 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

5.10 CALCulate:MARKer:FUNctIon

(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**(See 5.11) and
- **CALCulate:MARKer:FUNction:BAND:SPAN:AUTO**(See 5.12).

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**(See 5.11) and
- **CALCulate:MARKer:FUNction:BAND:SPAN:AUTO**(See 5.12).

Examples	CALC:MARK1:FUNC NOIS
Query Syntax	CALCulate:MARKer<n>:FUNction?
Default	OFF

5.11

CALCulate:MARKer:FUNction:BAND:SPAN

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

Set **CALCulate:MARKer:FUNction:BAND:SPAN:AUTO**(See 5.12) 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.

5.12

CALCulate:MARKer:FUNCtion:BAND:SPAN:AUTO

(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(See 5.11)

Examples	CALC:MARK:FUNC:BAND:SPAN:AUTO 1
Query Syntax	CALCulate:MARKer<n>:FUNCtion:BAND:SPAN:AUTO?
Default	ON

5.13

CALCulate:MARKer:FUNCtion:INTERval:SPAN

(Read-Write) Set and read the time interval for ALL SA mode Interval Markers.

Set CALCulate:MARKer:FUNCtion:INTERval:SPAN:AUTO(See 5.14) 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.

5.14

CALCulate:MARKer:FUNCTion:INTERval:SPAN:AUTO

(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(See 5.13)

Examples

CALC:MARK:FUNC:INT:SPAN:AUTO 1

Query Syntax CALCulate:MARKer<n>FUNCTion:INTERval:SPAN:AUTO?

Default ON

5.15

CALCulate:MARKer: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 SA, RTSA

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

5.16

CALCulate:MARKer: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 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:

10-june-2016 Added RTSA mode (9.50)

5.17

CALCulate:MARKer:NOISe[:STATe]

Note: This command is replaced with CALCulate:MARKer:FUNction(See 5.10).

(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

5.18 CALCulate:MARKer: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 (See 5.111) performs the same operation.

Relevant Modes 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

5.19 CALCulate:MARKer:SET:REFLevel

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

CALCulate:SElected:MARKer:SET (See 5.111) performs the same operation.

Relevant Modes 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

5.20 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

5.21 CALCulate:MARKer:TZERo:FIXed

(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

5.22 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.

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

5.23

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](See 5.324)

Default Not Applicable

Last Modified:

28-Mar-2013 New command

5.24 CALCulate:PARAmeter:COUNT

(Read-Write) Sets and returns the number of traces on the screen. All traces are displayed in separate windows. Use DISPLAY:WINDow:SPLit(See 5.224) to set overlay (traces in same window) configurations.

Change the measurement parameter using CALCulate:PARAmeter:DEFine(See

5.25).

Relevant Modes NA**Parameters**

<n> Number of traces.

For NA mode, choose from 1 to 4.

Examples

CALC:PAR:COUN 2

Query Syntax

CALCulate:PARameter:COUNT?

Default 1

5.25 CALCulate:PARameter:DEFine

5.26 CALCulate:PARameter: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(See 5.25).

Relevant Modes CAT, NA**Parameters**

<tr> Trace number.

For NA mode, choose from 1 to 4.

For CAT and Pulse modes, choose from 1 or 2.

Examples

CALC:PAR2:SEL

Query Syntax

Not Applicable

Default 1

5.27

CALCulate:RELative[:MAGNitude]:AUTO

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

Relevant Modes Power Meter(See 4.6), Pulse Measurements(See 4.9), CPM(See 4.7)

Parameters

<bool> Choose from:

0 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

5.28

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)

5.29

CALCulate:SPECtrum:MARKer:CPSearch[:STATe]

(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)

5.30

CALCulate:SPECtrum:MARKer:DREF:FI Xed

(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.
Couplings	N/A
Examples	CALC:SPEC:MARK:DREF:FIX ON CALC:SPEC:MARK:DREF:FIX 0
Query Syntax	CALC:SPEC:MARK:DREF:FIX?
Default	ON (1)

5.31

CALCulate:SPECtrum:MARKer:FUNCTi on:PEXCursion

(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

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:SPEC:MARK:FUNC:PTHR**(See 5.32)) 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

5.32

CALCulate:SPECtrum:MARKer:FUNCTion:PTHReshold

(**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**(See 5.31)) 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

5.33

CALCulate:SPECtrum:MARKer<n>:FUN Ction

(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: <ul style="list-style-type: none"> CALC:SPEC:MARK:FUNC:BAND:SPAN(See 5.34) and CALC:SPEC:MARK:FUNC:BAND:SPAN:AUTO(See 5.35) |

Examples	CALC:SPEC:MARK1:FUNC NOIS
Query Syntax	CALC:SPEC:MARK<n>:FUNC?
Default	OFF

5.34

CALCulate:SPECTrum:MARKer<n>:FUNCTION:BAND:SPAN

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

Set CALCulate:MARKer:FUNCTION:BAND:SPAN:AUTO(See 5.35) to OFF.

Relevant Modes IQA (Spectrum only)

Parameters

<frequency> Frequency span value.

Couplings If CALCulate:MARKer:FUNCTION:BAND:SPAN:AUTO(See 5.35) 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

5.35

CALCulate:SPECTrum:MARKer<n>: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(See 5.34)

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

Query Syntax CALCulate:SPECTrum:MARKer:FUNCTION:BAND:SPAN:AUTO?

Default ON

5.36

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)

5.37

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

5.38

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

5.39

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

5.40

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 $\pm\pi$ or ± 3.14 . If the marker is inactive or outside the range of the trace, a value of $-9.9\text{E}+37$ 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 $9.91\text{E}+37$ if marker is inactive.

Resolution 0.01 radians

Examples CALC:SPEC:MARK3:PHAS?

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

Default Returns $9.91\text{E}+37$ if marker inactive or on the IQ trace.

5.41

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

5.42

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.

Couplings N/A

Examples	CALC:SPEC:MARK3:SET:RLEV
Query Syntax	N/A
Default	N/A

5.43

CALCulate:SPECtrum:MARKer<n>:TRACe

(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 number> 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

5.44

CALCulate:SPECtrum:MARKer<n>:X

(Read-Write) Set and query the X-axis location for the specified marker. See [To Create and Move a Delta Marker](#) (See 5.112).

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.

5.45

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

5.46

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

(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>** (See 5.44)
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>** (See 5.44)

Examples	CALC:SPEC:MARK1 NORM
Query Syntax	CALC:SPEC:MARKer<n>?
Return Type	Character
Default	OFF

5.47

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)

5.48

CALCulate:WAVEform:MARKer:COUPle
:X

(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]** (See 5.49).

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)

5.49

CALCulate:WAVEform:MARKer:COUPle
[:STATe]

(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>:Y(See 5.63)ive markers X value still keep their own value.

See also CALC:WAV:MARK:COUP:X(See 5.48).

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)

5.50

CALCulate:WAVEform:MARKer:CPSear
ch[:STATe]

(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 continuous peak search.
OFF (0) - Disables continuous 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)

5.51

CALCulate:WAVEform:MARKer:DREF:FIXed

(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)

5.52

CALCulate:WAVEform:MARKer:FUNCTion:PEXCursion

(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 (See 5.53)) 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

5.53

CALCulate:WAVEform:MARKer:FUNCTION:PTHReshold

(**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 (See 5.52)) 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

5.54

CALCulate:WAVeform:MARKer<n>:DATA

(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** (See 5.623).

Relevant Modes IQA (Waveform only)

Parameters

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

<char> Marker function. Choose from:

WAV - Marker is assigned to a waveform trace.

POL - Marker is assigned to a polar trace.

PHAS - Marker is assigned to a phase trace.

UPH - Marker is assigned to an unwrapped phase trace.

REAL - Marker is assigned to an real trace.

IMAG - Marker is assigned to an imaginary trace.

Examples

```
CALC:WAV:MARK3:DATA POL
```

```
CALC:WAV:MARK4:DATA IMAG
```

Query Syntax CALC:WAV:MARK<n>:DATA?

Return Type character

Default WAV

5.55

CALCulate:WAVeform:MARKer<n>:FUNCTIONction

(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**(See 5.34) and
- **CALC:WAV:MARK:FUNC:INT:SPAN:AUTO**(See 5.35).

Examples CALC:WAV:MARK1:FUNC NOIS

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

Default OFF

5.56

CALCulate:WAVeform:MARKer:FUNCTION:INTERval:SPAN

(Read-Write) Set and read the waveform maker span for the selected IQA marker.

Set **CALC:WAV:MARK:FUNC:INT:SPAN:AUTO**(See 5.57) to OFF.

Relevant Modes IQA

Parameters

<numeric> Assign a waveform span.

Couplingslf **CALC:WAV:MARK:FUNC:INT:SPAN:AUTO**(See 5.57) 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

5.57

CALCulate:WAVEform:MARKer:FUNCTi on: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](#) (See 5.56).

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](#) (See 5.56)

Examples	CALC:WAV:MARK:FUNC:INT:SPAN:AUTO 1
Query Syntax	CALCulate:WAVEform:MARKer:FUNCTION:INT:SPAN:AUTO?
Default	ON

5.58

CALCulate:WAVEform:MARKer<n>:FU Nction: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)

5.59

CALCulate:WAVEform:MARKer<n>:FU NCtion:MINimum

(Write-only) Sets the frequency of the frequency counter marker in Hz. See also **CALC:MARK:FUNC:Mn:MAX**(See 5.59).

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:Mn: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

5.60

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.

Couplings N/A

Examples CALC:WAV:MARK3:FUNC:PNEX

Query Syntax N/A

Default N/A

5.61

CALCulate:WAVEform:MARKer<n>:TRACE

(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

5.62

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](#) (See 5.112).

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

5.63

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)

5.64

CALCulate:WAVEform:MARKer<n>[:ST ATe]

(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>(See 5.62)
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>(See 5.62)

Examples	CALC:WAV:MARK2 NORM CALC:WAV:MARK2 DELT
Query Syntax	CALC:WAV:MARK<n>?
Return Type	Character
Default	Off

5.65

DISPlay:TABLE:MARKer:SPECtrum

(Read-Write) Set and query the display of the marker table.

Relevant Modes IQA (Spectrum only)

Parameters

<boolean> Marker table display state. Choose from:
0 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

5.66

DISPlay:TABLE:MARKer:WAVEform

(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

5.67

CALCulate[:SElected]:AMPLitude:MARKer:DELTA:STATe

(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**(See 5.68).

Relevant Modes **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

Parameters

<bool> Choose from:

OFF or 0 - Delta Amplitude markers OFF

ON or 1 - Delta Amplitude markers ON

Examples	CALC:AMPL:MARK:DELT:STAT 1
Query Syntax	CALCulate[:SElected]:AMPLitude:MARKer:DELTA:STATe?
Return Type	Boolean
Default	Off

5.68

CALCulate[:SElected]:AMPLitude:MARKer:STATe

(Read-Write) Set or query the state of the two Amplitude Markers.

Relevant Modes **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

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

5.69

CALCulate[:SElected]:AMPLitude:MARKer:Y1|Y

(Read-Write) Set or query the Y-axis location of the Amplitude Marker 1.

Relevant Modes **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

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

5.70

CALCulate[:SElected]:AMPLitude:MARKer:Y2

(Read-Write) Set or query the Y-axis location of the Amplitude Marker 2.

Relevant Modes **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

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

5.71

CALCulate[:SElected]:CONVersion:FU Nction

(Read-Write) Set and query measurement conversion function for the selected measurement.

First select a measurement using CALCulate:PARameter:SElect(See 5.26).

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

5.72

CALCulate[:SElected]:CORRection:ED ELay:TIME

(Read-Write) Set and query the electrical delay for the selected trace. Use CALCulate:PARAmeter:SElect(See 5.26) 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

5.73

CALCulate[:SElected]:CORRection:OFFSet:PHASe

(Read-Write) Set and query the phase offset for the selected trace. Use **CALCulate:PARAmeter:SElect** (See 5.26) 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

5.74

CALCulate[:SElected]:DATA:FDATa

(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** (See 5.26)

Set format with **CALCulate:FORMat** (See 5.86)

Relevant Modes	NA
Parameters	CAT – Read-only

<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

5.75

CALCulate[:SElected]:DATA:FMEM

(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(See 5.26)

Set format with CALCulate:FORMat(See 5.86)

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(See 5.117)

If correction is ON, then the returned data is corrected.

Return Type Comma-separated numeric

Default Not Applicable

5.76

CALCulate[:SElected]:DATA:SDATa

(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(See 5.26)

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

5.77

CALCulate[:SElected]:DATA:SMEM

(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(See 5.26)

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(See 5.117)

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

5.78

CALCulate[:SElected]:FILTer[:GATE]:TIME:CENTer

(Read-Write) Set and query the gate filter center time.

Relevant Modes NA(See 4.2)

Parameters

<num> Center time in seconds. Choose any number between: \pm (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

5.79

CALCulate[:SElected]:FILTer[:GATE]:TIME:SHAPE

(Read-Write) Set and query the gating filter shape.

Relevant Modes NA(See 4.2)

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

5.80

CALCulate[:SElected]:FILTer[:GATE]:TIME:SPAN

(Read-Write) Set and query the gate filter span time.

Relevant Modes NA(See 4.2)

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

5.81

CALCulate[:SElected]:FILTer[:GATE]:TIME:START

(Read-Write) Set and query the gate filter start time.

Relevant Modes NA(See 4.2)

Parameters

<num> Start time in seconds. Choose any number between:

$\pm (number\ of\ points - 1) / frequency\ span$

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

5.82

CALCulate[:SElected]:FILTer[:GATE]:TIME:STATE

(Read-Write) Set and query the ON | OFF gating state for the active trace. Select a trace using CALCulate:PARAmeter:SElect(See 5.26).

Relevant Modes NA(See 4.2)

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

5.83

CALCulate[:SElected]:FILTer[:GATE]:TIME:STOP

(Read-Write) Set and query the gate filter Stop time.

Relevant Modes NA(See 4.2)

Parameters

<num> Stop time in seconds. Choose any number between:

$\pm (\text{number of points}-1) / \text{frequency span}$

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

5.84

CALCulate[:SElected]:FILTer[:GATE]:TIME[:TYPE]

(Read-Write) Set and query the gate filter type.

Relevant Modes NA(See 4.2)

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

5.85

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(See 5.117).

Relevant Modes FOPS(See 4.6)

Parameters None

Examples

CALC:FMEM:DATA?

Return Type

Numeric

Default

Not Applicable

Last Modified:

21-Mar-2014 New command

5.86 CALCulate[:SElected]:FORMat

(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)

5.87 CALCulate[:SElected]:LIMit:BEEP

This command is replaced with **CALCulate[:SElected]:LIMit:SOUNd**(See 5.90). Learn about **superseded commands**(See 5.2).

(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**(See 5.26).

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

5.88 CALCulate[:SElected]:LIMit:DATA

This command is replaced with **CALCulate:LIMit:LLData**(See 5.89) 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**(See 5.26).

For **ACP** measurements, use

CALCulate:ACPower:OFFSet:LIST:LIMit:NEGative[:UPPer]:DATA(See 5.312) and **CALCulate:ACPower:OFFSet:LIST:LIMit:POSitive[:UPPer]:DATA**.(See 5.310)

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

5.89

CALCulate[:SElected]:LIMit:LLData

This command replaces **CALCulate:LIMit:DATA**(See 5.88) 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**(See 5.26).

For ACP measurements, use

CALCulate:ACPower:OFFSet:LIST:LIMit:NEGative[:UPPer]:DATA(See 5.312) and **CALCulate:ACPower:OFFSet:LIST:LIMit:POSitive[:UPPer]:DATA**.(See 5.310)

Relevant Modes SA, CAT, NA

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:LLDATA 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

5.90

CALCulate[:SElected]:LIMit:SOUNd

Note: This command replaces CALCulate[:SElected]:LIMit:BEEP(See 5.87).

(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(See 5.26).

Relevant Modes CAT, NA, 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

5.91

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(See 5.26).

Relevant Modes CAT, NA, 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

5.92

CALCulate[:SElected]:LIMit:WARN

(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(See 5.26).

Relevant Modes CAT, NA, 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

5.93

CALCulate[:SElected]:MARKer: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(See 5.26).

Relevant Modes CAT, NA, SA, RTSA **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

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:

10-june-2016 Added RTSA mode (9.50)
 20-Mar-2014 Added FOPS
 29-Oct-2013 Added Pulse
 16-Aug-2012 New command

5.94

CALCulate[:SElected]:MARKer:AOff

(Write-Only) Turns OFF all markers.

Relevant Modes CAT, NA, 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:

10-june-2016 Added RTSA mode (9.50)

5.95

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\[:STATe\]](#) (See 5.96) to create bandwidth markers.

This command operates on the selected trace. First select a trace using [CALC:PAR<tr>:SElect](#) (See 5.26).

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

5.96

CALCulate[:SElected]:MARKer:BWIDth
[:STATe]

(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](#) (See 5.26).

Use [CALCulate:MARKer:FUNCTION:BWIDth:THReshold](#) (See 5.99) to set the bandpass or notch value to be used in the search.

Use [CALCulate:MARKer:BWIDth:DATA](#) (See 5.95) 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** (See 5.94) 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)

5.97

CALCulate[:SElected]:MARKer:COUPled

(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

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:

10-Aug-2012 Edited Coupled

30-Mar-2012 Removed marker specific

5.98

CALCulate[:SElected]:MARKer:FORMa
t

(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?** (See 5.115) 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.

5.99

CALCulate[:SElected]:MARKer:FUNCTion:BWIDth:THReshold

(Read-Write) Set or return the value used to find the bandwidth of a bandpass or notch filter response.

Use CALCulate:MARKer:BWIDth[:STATe](See 5.96) to turn BW search On/Off.

Use CALCulate:MARKer:BWIDth:DATA(See 5.95) 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)

5.100

CALCulate[:SElected]:MARKer:FUNCTi
on:FALLtime

(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(See 5.114)?

Relevant Modes Pulse Measurements(See 4.9)

Parameters

<num> Pulse Fall in dBm.

Examples CALC:MARK:FUNC:FALL -5

Query Syntax CALCulate[:SElected]:MARKer<n>:FUNCTion:FALLtime?

Default -3 dBm

5.101

CALCulate[:SElected]:MARKer:FUNCTi
on:MAXimum

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

Relevant Modes CAT, NA, SA, RTSA, Pulse Measurements(See 4.9), FOPS(See 4.6)

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:

10-june-2016 Added RTSA mode (9.50)

21-Mar-2014 Added FOPS

29-Oct-2013 Added Pulse

5.102

CALCulate[:SElected]:MARKer:FUNCTi
on: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(See 5.26).

Relevant Modes CAT, NA, SA, RTSA, Pulse Measurements(See 4.9), FOPS(See 4.6)

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:

10-june-2016 Added RTSA mode (9.50)

21-Mar-2014 Added FOPS

29-Oct-2013 Added Pulse

5.103

CALCulate[:SElected]:MARKer:FUNCTi
on:PEXCursion

(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**(See 5.26).

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, SA, RTSA, **Pulse Measurements**(See 4.9)

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

Parameters

<num> Excursion value in dB.

Examples **CALC:MARK:FUNC:PEXC 1**

Query Syntax CALCulate[:SElected]:MARKer:FUNcti:PEXCursion?

Return Type Numeric

Default 0.5 dB

Last Modified:

10-june-2016 Added RTSA mode (9.50)

29-Oct-2013 Added Pulse

5.104

CALCulate[:SElected]:MARKer:FUNCTi on: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**(See 5.101) 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**(See 5.26).

Relevant Modes CAT, NA, SA, RTSA **Pulse Measurements**(See 4.9)

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:

10-june-2016 Added RTSA mode (9.50)

29-Oct-2013 Added Pulse

5.105

CALCulate[:SElected]:MARKer:FUNCTion:PTHReshold

(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 and CAT mode, this command operates on the selected trace. First select a trace using **CALC:PAR<tr>:SElect**(See 5.26).

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, SA, RTSA **Pulse Measurements**(See 4.9)

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:

10-june-2016 Added RTSA mode (9.50)

29-Oct-2013 Added Pulse

5.106

CALCulate[:SElected]:MARKer:FUNCTion:RISetime

(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(See 5.114)?

Relevant Modes Pulse Measurements(See 4.9)

Parameters

<num> Pulse Rise in dBm.

Examples CALC:MARK:FUNC:RIS 5

Query Syntax CALCulate[:SElected]:MARKer<n>:FUNCTion:RISetime?

Default dBm

5.107

CALCulate[:SElected]:MARKer:FUNCTion:TARGet

(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(See 5.26).

Then activate a marker using CALCulate[:SElected]:MARKer:ACTivate(See 5.93)

Relevant Modes NA, Pulse Measurements(See 4.9)

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:

17-Dec- Active marker
2013

29-Oct- Added Pulse
2013

23-Jan- Removed CAT
2013

2-Aug- New command
2011

5.108

CALCulate[:SElected]:MARKer:FUNCTi on:TDIRection

(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**(See 5.26).
2. Then activate a marker using **CALCulate[:SElected]:MARKer:ACTivate**(See 5.93)
3. Then start a search using **CALCulate[:SElected]:MARKer:FUNCTion:TARGet**(See 5.107).

Relevant Modes NA, **Pulse Measurements**(See 4.9)

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

5.109

CALCulate[:SElected]:MARKer:FUNCTi
on:TRACking

(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(See 5.26).

Relevant Modes NA, **Pulse Measurements**(See 4.9)

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>:FUNCTi

Return Type Boolean

Default OFF

Last Modified:

29-Oct-2013 Added Pulse

2-Aug-2011 New command (5.50)

5.110

CALCulate[:SElected]:MARKer:FUNCTi
on:ZONE

(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**(See 4.9)

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

5.111

CALCulate[:SElected]:MARKer:SET

(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(See 5.26).

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
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.
- TLFFrequency - 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

5.112

CALCulate[:SElected]:MARKer[:STATe]

(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** (See 5.26).

Relevant Modes CAT, NA, SA, RTSA, **Pulse Measurements** (See 4.9), **FOPS** (See 4.6)

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**(See 5.114)
3. Change the marker to a delta marker using this command.
4. Move the delta marker to the delta position using **CALCulate:MARKer:X**(See 5.114)

Examples	CALC:MARK1 NORM
Query Syntax	CALCulate[:SElected]:MARKer<n>[:STATe]?
Return Type	Character
Default	Off

Last Modified:

10-june-2016 Added RTSA mode (9.50)

20-Mar-2014 Added FOPS

29-Oct-2013 Added Pulse

5.113

CALCulate[:SElected]:MARKer:TRACe

(Write-Only) 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**(See 5.26).

Relevant Modes CAT, NA, 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 and NA:

- 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

5.114 CALCulate[:SElected]:MARKer:X

(Read-Write) Set and query the X-axis location for the specified marker. See [To Create and Move a Delta Marker](#) (See 5.112)

For NA and CAT mode, this command operates on the selected trace. First select a trace using [CALC:PAR<tr>:SElect](#) (See 5.26).

Relevant Modes CAT, NA, SA, RTSA [Pulse Measurements](#) (See 4.9), [FOPS](#) (See 4.6)

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:

10-june-2016 Added RTSA mode (9.50)

20-Mar-2014 Added FOPS

5.115

CALCulate[:SElected]:MARKer: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**(See 5.26).

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

Relevant Modes CAT - Two values are returned: Magnitude and zero.

NA - Format depends on

CALCulate[:SElected]:MARKer:FORMat(See 5.98)

SA & RTSA - One value is returned: Magnitude

FOPS - Two values are returned: Magnitude and zero.

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:

10-june-2016 Added RTSA mode (9.50)

20-Mar-2014 Added FOPS

4-Jun-2013 Added NA mode format (A.07.00)

5.116

CALCulate[:SElected]:MATH:FUNCTion

(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** (See 5.26).

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

5.117

CALCulate[:SElected]:MATH:MEMorize

(Write-Only) Stores the current data trace into memory.

This command operates on the selected trace. First select a trace using **CALC:PAR<tr>:SElect** (See 5.26).

Relevant Modes NA, CAT, **FOPS** (See 4.6)

Examples CALC:MATH:MEM

Query Syntax Not Applicable

Default Not Applicable

Last modified:

19-Mar-2014 Added FOPS

5.118

CALCulate[:SElected]:SMOothing:APERture

(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**(See 5.26).

Use **CALCulate[:SElected]:SMOothing[:STATe]**(See 5.119) 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)

5.119

CALCulate[:SElected]:SMOothing[:STATe]

(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**(See 5.26).

Use **CALCulate[:SElected]:SMOothing:APERture**(See 5.118) 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)

5.120

CALCulate[:SElected]:TIME:AUX:CENTER

(Read-Write) Set and query the center time of the zoom window.**Relevant Modes** **Pulse Measurements**(See 4.9)**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

5.121

CALCulate[:SElected]:TIME:AUX:PDIVision

(Read-Write) Set and query the Time per division of the zoom window.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.122

CALCulate[:SElected]:TIME:CENTer

(Read-Write) Set and query the center time of the primary trace graph window.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.123

CALCulate[:SElected]:TIME:LENGth

(Read-Write) Set and query the time span of the primary trace graph window.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.124

CALCulate[:SElected]:TIME:PDIVision

(Read-Write) Set and query the Time per division of the primary trace graph window.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.125

CALCulate[:SElected]:TIME:STARt

(Read-Write) Set and query the start time of the primary trace graph window.

Relevant Modes	Pulse Measurements(See 4.9)
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

5.126

CALCulate[:SElected]:TRACe:DATA

(Read-only) Read the data from a Trace Graph measurement.

Relevant Modes Pulse Measurements(See 4.9), FOPS(See 4.6)

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

5.127

CALCulate[:SElected]:TRANSform:DIS Tance:BANDpass

(Read-Write) Set and query Bandpass mode for Distance to Fault measurements.
This command performs the same function as

CALCulate:TRANSform:FREQuency[:TYPE](See 5.136).

Relevant Modes CAT

Parameters

<bool> Bandpass mode. Choose from:

0 or OFF - Lowpass mode

1 or ON - Bandpass mode

Examples

CALC:TRAN:DIS: BAND 1

Query Syntax CALCulate[:SElected]:TRANSform:DISTance:BANDpass?

Return Type Boolean

Default 1 - ON

5.128

CALCulate[:SElected]:TRANSform:DIS Tance:FREQuency:CENTer

(Read-Write) Set and query the bandpass center frequency for Distance to Fault measurements. Set Bandpass mode using **CALC:TRAN:DIS: BANDpass ON**(See 5.127).

Relevant CAT

Modes

Parameters

<num> Bandpass center frequency in Hz.

Examples

CALC:TRAN:DIS:FREQ:CENT 1e9

Query Syntax CALCulate[:SElected]:TRANSform:DISTance:FREQuency:Center?

Return Type Numeric

Default Dependent on DTF distance.

5.129

CALCulate[:SElected]:TRANSform:DIS Tance:FREQuency:SPAN:MAXimum

(Read-Write) Set and query the bandpass maximum frequency span for Distance to Fault measurements. Set Bandpass mode using **CALC:TRAN:DIS: BANDpass ON**(See 5.127).

Relevant CAT

Modes	
Parameters	
s	
<num>	Bandpass maximum frequency span in Hz.
Examples	CALC:TRAN:DIST:FREQ:SPAN:MAX 100e6
Query	CALCulate[:SElected]:TRANSform:DISTance:FREQuency:SPAN:MAXi
Syntax	mum?
Return	Numeric
Type	
Default	Dependent on DTF distance.

5.130

CALCulate[:SElected]:TRANSform:DISTance:FREQuency:STARt:MINimum

5.131

CALCulate[:SElected]:TRANSform:DISTance:FREQuency:STOP:MAXimum

5.132

CALCulate[:SElected]:TRANSform:DISTance:STARt

(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

5.133

CALCulate[:SElected]:TRANSform:DIS
Tance:STOP

(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

5.134

CALCulate[:SElected]:TRANSform:DIS
Tance:UNIT

(Read-Write) Set and query the X-axis units in Distance to Fault measurement.

Note: DTF **Start**(See 5.132) and **Stop**(See 5.133) 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

5.135

CALCulate[:SElected]:TRANSform:DIS Tance:WINDow

5.136

CALCulate[:SElected]:TRANSform:FRE Quency[:TYPE]

(Read-Write) Set and query the DTF Frequency mode. This command performs the same function as **CALCulate:TRANSform:DISTance:BANDpass**(See 5.127).

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

5.137

CALCulate[:SElected]:TRANSform:TIM E:CENTer

(Read-Write) Set and query the center time for time domain measurements.

Relevant Modes NA(See 4.2)

Parameters

<num> Center time in seconds. Choose any number between: \pm (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

5.138

CALCulate[:SElected]:TRANSform:TIME:IMPulse:WIDTh

(Read-Write) Set and query the impulse width for the transform window.**Relevant Modes** NA(See 4.2)**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

5.139

CALCulate[:SElected]:TRANSform:TIME:KBESsel

(Read-Write) Set and query the width for the Kaiser Bessel window.**Relevant Modes** NA(See 4.2)**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

5.140

CALCulate[:SElected]:TRANSform:TIME:LPFRequency

(Write-only) Sets the start frequencies in LowPass Mode.

Relevant Modes NA(See 4.2)

Parameters None

Examples CALC:TRAN:TIME:LPFR

Query Syntax Not applicable

Default Not applicable

Last Modified:

24-Jan-2012 New command

5.141

CALCulate[:SElected]:TRANSform:TIME:SPAN

(Read-Write) Set and query the span (stop - start) time for time domain measurements. Use CALCulate[:SElected]:TRANSform:TIME:CENTer(See 5.137) to set the center time.

Relevant Modes NA(See 4.2)

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

5.142

CALCulate[:SElected]:TRANSform:TIME:START

(Read-Write) Set and query the start time for time domain measurements. Use CALCulate[:SElected]:TRANSform:TIME:STOP(See 5.146) to set the stop time.

Relevant Modes NA(See 4.2)

Parameters

<num> Start time in seconds. Choose any number between: \pm (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

5.143

CALCulate[:SElected]:TRANSform:TIME:STATe

(Read-Write) Set and query the ON |OFF Time Domain transform state for the active trace. Select a trace using CALCulate:PARAmeter:SElect(See 5.26).

Relevant Modes NA(See 4.2)

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).

5.144

CALCulate[:SElected]:TRANSform:TIME:STEP:RTIME

(Read-Write) Set and query the step rise time for the transform window.

Relevant Modes NA(See 4.2)

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

5.145

CALCulate[:SElected]:TRANSform:TIME:STIMulus

(Read-Write) Set and query the type of simulated stimulus that will be incident on the DUT.

Relevant Modes NA(See 4.2)

Parameters

<char> Choose from:

- STEP – simulates a step DUT stimulus (will automatically set CALC:TRAN:TIME:TYPE(See 5.147) to LPASSs)
- IMPulse – simulates a pulse DUT stimulus.

Examples

CALC:TRAN:TIME:STIM STEP

Query Syntax CALCulate[:SElected]:TRANSform:TIME:STIMulus?

Return Type Character

Default IMPulse

5.146

CALCulate[:SElected]:TRANSform:TIME:STOP

(Read-Write) Set and query the stop time for time domain measurements. Use **CALCulate[:SElected]:TRANSform:TIME:START**(See 5.142) to set the start time.

Relevant Modes **NA**(See 4.2)

Parameters

<num> Stop time in seconds. Choose any number between: \pm (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

5.147

CALCulate[:SElected]:TRANSform:TIME: [TYPE]

(Read-Write) Set and query the transform type.

Relevant Modes **NA**(See 4.2)

Parameters

<num> Type of measurement. Choose from:

- LPASs - Lowpass; Must also send **CALC:TRAN:TIME:LPFRequency**(See 5.144) before calibrating.
- BPASs - Bandpass; can only be used when **CALC:TRAN:TIME:STIM**(See 5.145) is set to IMPulse.

Examples **CALC:TRAN:TIME:STEP:TYPE LPAS**

Query Syntax **CALCulate[:SElected]:TRANSform:TIME:TYPE?**

Return Type Character

Default BPASs

5.148 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

5.149 :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:

5.150 :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:

5.151

: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

5.152

:CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision**(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]:PDIVision 5**

Query Syntax :CHSCanner:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision?

Return Type

Default Not Applicable

Last Modified:

5.153

: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

5.154 :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:

5.155 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

5.156 :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:

5.157

: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:

5.158 :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:

5.159 :CHSCanner:EDIT:RANGe:SPAN

(Read-Write) Sets the frequency span of each channel item in Range mode.

Relevant Modes Channel Scanner

Parameters n/a

Examples :CHSCanner:EDIT:RANGe:SPAN <val>

Query Syntax :CHSCanner:EDIT:RANGe:SPAN?

Return Type Numeric

Default Not Applicable

Last Modified:

5.160 :CHSCanner:EDIT:RANGe:STARt

(Read-Write) Sets the center frequency of the first channel in Range mode.

Relevant Modes Channel Scanner

Parameters n/a

Examples :CHSCanner:EDIT:RANGe:STARt 3GHZ

Query Syntax :CHSCanner:EDIT:RANGe:STARt?

Return Type Numeric

Default Not Applicable

Last Modified:

5.161 :CHSCanner:EDIT:RANGe:STEP

(Read-Write) Sets the frequency separation between channels in Range mode.

Relevant Modes Channel Scanner

Parameters n/a

Examples :CHSCanner:EDIT:RANGe:STEP 5e6 'Sets the "CF Step Size" between channels to 5 MHz.

Query Syntax :CHSCanner:EDIT:RANGe:STEP?

Return Type Numeric

Default Not Applicable

Last Modified:

5.162

: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:

5.163 :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:

5.164

: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

5.165

: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

5.166

: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:

5.167

: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

5.168

:CHSCanner:LOG:CONFigure:SAVe:AUT To[: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:

5.169 :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:

5.170 :CHSCanner: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:

5.171 :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

5.172

: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:

5.173

: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:

5.174

:CHSCanner[: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.

5.175

: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:

5.176

: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**

5.177

: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:

5.178

: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**

5.179

: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	<pre>:CHSCanner:SWEep:DISPlay:TYPE BARC :CHSCanner:SWEep:DISPlay:TYPE OVER</pre>
Query Syntax	:CHSCanner:SWEep:DISPlay:TYPE?
Return Type	character
Default	

5.180 :CHSCanner:SWEep:MODE

(Read-Write) Sets the sweep mode.

Relevant Modes Channel Scanner

Parameters

<val>Choose from:

RANG - Range

CLIST - Custom List

Examples	<pre>:CHSCanner:SWEep:MODE RANG :CHSCanner:SWEep:MODE CLIST</pre>
Query Syntax	:CHSCr:SWE:MODE?
Return Type	character
Default	

Last Modified:

5.181 :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	

5.182

:CHSCanner[: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	

5.183

:CHSCanner[: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:

5.184

:CHSCanner[: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:

5.185

:CHSCanner[:SENSe]:SAListen:RESume

(Read) Resumes the data recording.

Relevant Modes Channel Scanner

Parameters
 <bool>

Examples	<code>[[:SENSe]:SAListen:RESume</code>
Query Syntax	
Return Type	boolean
Default	

Last Modified:

5.186 :CONFigure?

(Query only) Queries the IQA configuration (Spectrum or Waveform).

Relevant Modes	IQA
Parameters	n/a
Examples	<code>:CONF?</code>
Query Syntax	<code>:CONF?</code>
Return Type	character
Default	SPECtrum

Last Modified:

22Oct2017 Added IQA mode (10.1x)

5.187 :CONFigure:SPECtrum

(Write Only) Sets the measurement to Spectrum.

Relevant Modes	IQA
Parameters	n/a
Examples	<code>CONF:SPEC</code>
Query Syntax	n/a
Return Type	Character
Default	n/a

Last Modified:

22Oct2017

New IQA mode (10.1x)

5.188 :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)

5.189

:DISPlay:ADEMod:METRics:AM: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)

5.190

: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)

5.191 DISPlay:ANNotation:FREQuency

(Read-Write) Set and query the method used to annotate frequency on the screen.

Relevant Modes FOPS(See 4.6)

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)

5.192 DISPlay:BRIGhtness

(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

5.193 DISPlay:DATE:FMT

(Read-Write) Set and query the format of the system date. Set the date using **SYST:DATE**(See 5.537).

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

5.194 DISPlay:ENABLE

(Read-Write) Turns the FieldFox display ON and OFF. The OFF (0) setting causes faster SCPI operation.

Relevant Modes ALL

Parameters

<bool> Choose from:

0 or OFF - Display OFF. Send **Preset**(See 5.552) 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)

5.195 DISPlay:GRID

(Read-Write) Set and query the visibility of the 10 x 10 grid on trace graph measurements.

Relevant Modes USB PM: **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

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

5.196 DISPlay:KEYWord[:DATA]

(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**(See 5.197)

5.197 DISPlay:KEYWord:DEFault

(Read-Only) Reset the FieldFox keywords to their default settings (listed below).

Relevant Modes All

Parameters

Parameters None

Examples DISPlay:KEYWord:DEFault

Query Not Applicable

Syntax

Default "FILE","SITE","TOWER","TRACE","DATE","ANTENNA1","ANTENNA2","COMPANY1","COMPANY2","COMPANY3"

5.198 DISPlay:MARKer:LARGe:STATe

(Read-Write) Set and query the display state of large marker readouts.

Relevant Modes NA(See 4.2)

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

5.199

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:FORMat

(Read-Write) Set and query the format for the specified readout line on the large marker display state.

Relevant Modes NA(See 4.2)

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

5.200

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:MARKer:STATe

(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

5.201

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:MNUMber

(Read-Write) Set and query the marker number to assign to the specified marker readout line.

Relevant Modes NA(See 4.2)

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.

5.202

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:STATe

(Read-Write) Set and query the ENABLE state for the specified readout line.

Relevant Modes NA(See 4.2)

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.

5.203

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:TNUMber

(Read-Write) Set and query the trace number to assign to the specified marker readout line.

Relevant Modes **NA**(See 4.2)

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)

5.204

DISPlay:MARKer:LARGe:<x>:DEFine:LINE:TRACking

(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**(See 4.2) commands.

Relevant Modes NA(See 4.2)

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

5.205

DISPlay:MARKer:LARGe:<x>:DEFine:TRACE:BWIDth:STATe

(Read-Write) Set and query the marker bandwidth search state for the specified trace.

Relevant Modes NA(See 4.2)

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

5.206

DISPlay:MARKer:LARGe:<x>:DEFine:TRACe:FORMat

(Read-Write) Set and query the display format for the specified trace.

Relevant Modes **NA**(See 4.2)

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

5.207

DISPlay:MARKer:LARGe:<x>:DEFine:TRACe:MEASurement

(Read-Write) Set and query the measurement to display for the specified trace.

Relevant Modes **NA**(See 4.2)

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

5.208

DISPlay:MARKer:LARGe:<x>:FONT

(Read-Write) Set and query the font size for the large marker readouts.

Relevant Modes NA(See 4.2)

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

5.209

DISPlay:MARKer:LARGe:<x>:TRACe:CO
UNt

(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

5.210 :DISPlay:SCReen:GEOMetry

(Read-Write) Set and query the visibility of the 10 x 10 grid on trace graph measurements.

Relevant Modes USB PM: **Pulse Measurements**(See 4.9), **FOPS**(See 4.6)

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

5.211 DISPlay:TABLE:MARKer

(Read-Write) Set and query the display of the marker table.

Relevant Modes CAT, NA, RTSA, SA, **Pulse Measurements**(See 4.9)

Parameters

<bool> Marker table display state. Choose from:

0 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

5.212 DISPlay:TABLE:RESults:DATA

(Read-Only) Read the 10 Auto Analysis results.

Relevant Modes **Pulse Measurements**(See 4.9)

Parameters None

Examples DISP:TABLE:RES:DATA?

Default N/A

Last modified:

31-Oct-2013 New command

5.213 DISPlay:TABLE:RESults

(Read-Write) Set and query the visibility of the of both the Marker table and the Auto Analysis table.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.214 DISPlay:TIME:FMT

(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

5.215 DISPlay:TITLe:DATA

(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**(See 5.216).

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"

5.216 DISPlay:TITLe:STATe

(Read-Write) Set and query display state of the title string. Change the title using **DISPlay:TITLe**(See 5.215)

Relevant Modes ALL

Parameters

<bool> Choose from:

0 or OFF - Title OFF

1 or ON - Title ON

Examples

DISP:TITL 1

Query Syntax

DISPlay:TITLe[:STATe]?

Return Type

Boolean

Default

0 - Off

5.217 :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)

5.218

: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)

5.219

:DISPlay:VIEW:DENSity:PERStistence: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)

5.220

DISPlay[:WINDow]:ANALog:LOWer

(Read-Write) Set and query the Minimum scale value of the Power Meter display.

Relevant Modes **Power Meter**(See 4.6), **Pulse Measurements**(See 4.9), **CPM**(See 4.7)

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

5.221

DISPlay[:WINDow]:ANALog:UPPer

(Read-Write) Set and query the Maximum scale value of the Power Meter display.

Relevant Modes **Power Meter**(See 4.6), **Pulse Measurements**(See 4.9), **CPM**(See 4.7)

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

5.222

DISPlay[:WINDow][:NUMeric]:RESolution

(Read-Write) Set and query the number of digits of resolution to display after the decimal point.

Relevant Modes VVM(See 4.8), Power Meter(See 4.6), Pulse Measurements(See 4.9), CPM(See 4.7)

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)

5.223 DISPlay:WINDow[:SElect]

(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(See 5.238)) keys are used to modify layout of view, the Data (DISP:WIND:DATA(See 5.237)) 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

5.224 DISPlay:WINDow:SPLit

(Read-Write) Set and query the multi-trace configuration.

Select a trace using :CALCulate:PARAmeter:SElect(See 5.26)

Change the measurement in each plot using:CALCulate:PARAmeter:DEFine(See 5.25)

Change the format in each plot using CALCulate SElected FORMat(See 5.86)

Relevant Modes NA

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:

1-Nov-2012 removed CAT for (6.06)

26-Apr-2012 Modified for CAT (6.0)

5.225 DISPlay:WINDow:TRACe

(Read-Write) Set and query the trace to show on the screen after storing a memory trace.

Relevant Modes FOPS(See 4.6)

Parameters

<value> Choose from the following:

DATA - Meas Data only

MEM - Memory only

DAM - Data and memory

DDM - Data divided by Memory (Data/Mem)

Examples `DISPlay:WINDow:TRACe dam`

Query Syntax `DISPlay:WINDow:TRACe?`

Return Type Character

Default DATA

5.226 DISPlay:WINDow:ZOOM

(Read-Write) Set and query the zoom window ON / OFF state.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.227

DISPlay:WINDow:TRACe:Y:DLINe

(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`(See 5.228).

Relevant Modes SA, RTSA

Parameters

<numeric> Y-axis amplitude level. Units depend on the selected setting.

See [\[:SENSe\]:AMPLitude:UNIT](#)(See 5.331)

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:

10-june-2016 Added RTSA mode (9.50)

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

5.228

DISPlay:WINDow:TRACe:Y:DLINe:STAT e

([Read-Write](#)) Set and query the ON/OFF state of the Display Line. Use [DISPlay:WINDow:TRACe:Y:DLINe](#)(See 5.227) to set the display level.

Relevant Modes IQA, 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:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

1-Aug-2011 New command

5.229

DISPlay:WINDow:TRACe<n>:MEMory:STATe

(Read-Write) Set and query the display state of a memory trace. A memory trace must already be stored using **CALC:MATH:MEMorize**(See 5.117).

To display both data and memory, set both to ON.

DISPlay:WINDow:TRACe:STATe(See 5.230) sets the data trace ON.

Relevant Modes CAT, NA

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:

0 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

5.230

DISPlay:WINDow:TRACe<n>:STATe

(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{1:4}:MEMory[:STATe](See 5.229) sets the memory trace ON.

Relevant Modes CAT, NA

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:

0 or OFF - Data trace NOT displayed

1 or ON - Data trace displayed

Examples

DISPlay:WINDow:TRAC1:STAT 1

Query Syntax

DISPlay:WINDow:TRACe<n>:STATe?

Default

1 -Displayed

5.231

DISPlay:WINDow:TRACe<n>:Y[:SCALE] :AUTO

(Write-Only) Autoscale the trace.

Relevant Modes CAT, NA, SA, FOPS(See 4.6)

CAT mode: this command always acts on the selected trace.
Select a trace using CALCulate:PARAmeter:SElect(See 5.26)

SA mode: this command autoscales all displayed traces.

Parameters

<n> For NA mode Only: Specify the displayed trace number.
Choose from 1 to 4.

If unspecified, value is set to 1.

Examples

DISPlay:WINDow:TRAC1:Y:AUTO

Query Syntax

Not Applicable

Default

Not Applicable

Last Modified:

19-Mar-2014 Added FOPS

23-Jan-2013 Modified again for CAT

26-Apr-2012 Modified for CAT (5.75)

5.232

DISPlay:WINDow:TRACe<n>:Y[:SCALe]
:BOTTom

(Read-Write) Set and query the bottom (lower) Y-axis scale value.

Relevant Modes CAT, NA, SA

CAT mode: this command always acts on the selected trace.
Select a trace using **CALCulate:PARAmeter:SElect**(See 5.26)

SA - Read ONLY

Parameters

<n> NA mode Only: Specify the displayed trace number.

Choose from 1 to 4.

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:

23-Jan-2013 Modified again for CAT

26-Apr-2012 Modified for CAT (5.75)

5.233

DISPlay:WINDow:TRACe<n>:Y[:SCALe]
:PDIVision

(Read-Write) Set and query the Y-axis scale per division value. Use this command with **DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition**(See 5.235) and **DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel**(See 5.234) which establish the reference position and level.

Relevant Modes CAT, NA, SA, RTSA, **FOPS**(See 4.6)

CAT mode: This command always acts on the selected trace.
Select a trace using **CALCulate:PARAmeter:SElect**(See 5.26)

SA mode: Applicable ONLY when
[:SENSe]:AMPLitude:SCALe(See 5.330) = LOG; (Units are always "dB")

Parameters

<n> NA mode Only: Specify the displayed trace number. Choose from 1 to 4.

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:

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)

5.234

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RLEVel

(Read-Write) Set and query the Y-axis value of the reference line. Use this command with **DISPlay:WINDow:TRACe:Y[:SCALe]:RPOSition**(See 5.235) which sets the position of the reference.

Relevant Modes CAT, NA, SA, RTSA, **FOPS**(See 4.6)

CAT mode: This command always acts on the selected trace.
Select a trace using **CALCulate:PARAmeter:SElect**(See 5.26)

SA mode: This command acts on all displayed traces.

Parameters

<n> NA mode Only: Specify the displayed trace number. Choose

from 1 to 4.

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:

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)

5.235

DISPlay:WINDow:TRACe<n>:Y[:SCALe]:RPOSitioN

(Read-Write) Set and query the position of the Y-axis reference line. Use this command with **RLEVel**(See 5.234) which sets the Y-axis value of the reference line.

Relevant Modes CAT, NA, SA, RTSA, **FOPS**(See 4.6)

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.

If unspecified, value is set to 1.

<num> Reference position. Choose a value from 0 to 10.

Examples DISP:WIND:TRAC1:Y:BOTT -50

Query Syntax DISPlay:WINDow:TRACe<n>:Y[:SCALe]:BOTTOm?

Return Type Numeric

Default Depends on Mode

Last Modified:

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)

5.236

DISPlay:WINDow:TRACe<n>:Y[:SCALe] :TOP

(Read-Write) Set and query the top (upper) Y-axis scale value.

Relevant Modes CAT, NA, SA

CAT mode: this command always acts on the selected trace.

SA mode: Read ONLY

Parameters

<n> NA mode Only: Specify the displayed trace number.

Choose from 1 to 4.

If unspecified, value is set to 1.

<num> Top scale value. Units depend on the selected format.

Examples DISPlay:WIND:TRAC1:Y:TOP 0

Query Syntax DISPlay:WINDow:TRACe<n>:Y[:SCALe]:TOP?

Return Type Numeric

Default Depends on Mode

Last Modified:

23-Jan-2013 Modified again
26-Apr-2012 Modified for CAT (5.75)

5.237 DISPlay:WINDow<n>:DATA

(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**(See 5.223)) and Win State (**DISP:WIND:STAT**(See 5.238)) 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

5.238 DISPlay:WINDow<n>|:STATe

(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**(See 5.223)) and Win State commands are used to modify layout of view, the Data (**DISP:WIND:DATA**(See 5.237)) 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

5.239 FORMat:BORDER

(Read-Write) Set the byte order used for data transfer. This command is only implemented if **FORMAT:DATA**(See 5.240) 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#.(See 3.11)

Query Syntax FORMat:BORDER?

Default NORMAl

5.240 FORMat[:DATA]

(Read-Write) Set and query the format (binary or ASCII) by which FieldFox data is read.

Data is read using the following commands:

- SA Mode: **TRACe:DATA?**(See 5.575)
- NA and CAT modes: **CALCulate:DATA:FDATa?**(See 5.74),
CALCulate:DATA:FMEM(See 5.75)?, **CALCulate:DATA:SDATa**(See 5.76)?,
CALCulate:DATA:SMEM(See 5.77)?
- Calibration data (NA, CAT, and VVM modes):
[[:SENSe]:CORRection:COEFFicient[:DATA](See 5.353)
- To change the byte order, refer to **:FORM:BORD**(See 5.239).

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

Relevant ALL

Modes

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:

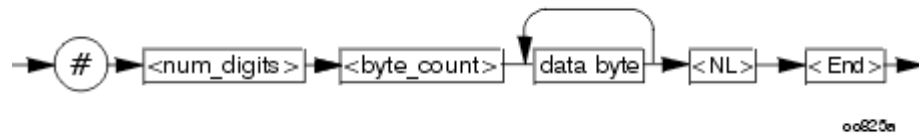
- The REAL,32 and REAL,64 arguments transfer data in block format. The byte order is little endian. FORM:BORDER, which reverses the byte order, is NOT supported.
- If the I/Q data format is set to ASCII,0, the maximum I/Q data length is 50k.

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 $1001 \times 2 \times 8 = 16016$ 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 $5 \times 1 \times 4 = 20$ byte block, so it would be: #220 followed by 20 bytes of data.

Examples	FORM REAL,32 See example parsing program in C#. (See 3.11)
Query Syntax	FORMat[:DATA]?
Default	ASCIi,0

Last Modified:

28-Oct-2011	Added more
30-Nov-2010	Added explanations
22-Oct-2010	New command (5.30)

5.241 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?**(See 5.3) 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**(See 5.242).

Relevant Modes	IQA
Examples	INIT:IQC;*OPC?
Query Syntax	Not Applicable
Default	Not Applicable

5.242 INITiate:CONTinuous

(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?**(See 5.3) to cause the FieldFox to wait before

accepting subsequent commands.

See also, **INITiate:IQCapture**(See 5.241).

Relevant Modes ALL

Parameters

<boolean> Acquisition mode. Choose from:

0 or OFF - Single acquisition mode. Use **INIT:IMM**(See 5.243) to trigger a acquisition.

1 or ON - Continuous acquisition mode

Examples

INIT:CONT 0;*OPC?

See example in VVM mode(See 3.2)

Query Syntax INITiate:CONTinuous?

Return Type Boolean

Default ON - Continuous

5.243 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**(See 5.242) 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?**(See 5.3) to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes ALL

Examples

INIT;*OPC?

Query Syntax Not Applicable

Default Not Applicable

5.244 INITiate:REStart

(Write-Only) 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?**(See 5.3) to cause the FieldFox to wait before accepting subsequent commands.

Relevant Modes	IQA, SA, RTSA
Examples	INIT:REST;*OPC?
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

5.245 :INPut:LAN:IDENtify:SNUMber

(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

5.246 INPut:LAN:IDENtify:TYPE

(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

5.247 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

5.248 INSTrument:GTL

(Write-Only) Returns front panel key press control. To lockout front panel operation, send **INST:GTR**(See 5.249).

Relevant Modes ALL

Examples **INST:GTR**

Query Syntax Not Applicable

Default Not Applicable

 Last Modified:

20-Nov-2014 New command (7.75)

5.249 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**(See 5.248).

Relevant Modes ALL

Examples **INST:GTR**

Query Syntax Not Applicable

Default Not Applicable

 Last Modified:

20-Nov-2014 New command (7.75)

5.250 INSTrument[:SElect]

(Read-Write) Set and query the current operating mode. Use **Inst:CAT?**(See 5.247) 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?**(See 5.3) 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

5.251 MMEMory:CATalog?

(Read-Only) Returns a comma-separated string of file names.

See **ALL MMEM commands**.(See 4.13)

Relevant Modes ALL

Parameters

[string] String. Optional argument. FieldFox drive/folder to catalog.

If unspecified, the active drive/folder is cataloged.

Use **MMEMory:CDIRectory**(See 5.252) 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

5.252 MMEMory:CDIRectory

(Read-Write) Change the active drive/folder. All subsequent MMEM commands will use this drive/folder as the default.

See ALL MMEM commands.(See 4.13)

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 MMEMemory:CDIRectory?

Folders on the active drive are shown in brackets as [My Folder]

Return Type String

Default "[INTERNAL]:"

5.253 MMEMemory:COPY

(Write-Only) Copies file1 to file2. Extensions must be specified.

See [MMEM:CDIR](#)(See 5.252) to learn how to set the active drive and how to specify a drive/folder.

See [ALL MMEM commands](#).(See 4.13)

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

5.254 MMEMemory: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](#)(See 5.252) to learn how to set the active drive and how to specify a drive/folder.

See [ALL MMEM commands](#) (See 4.13)and [Memory Command Examples](#)(See 3.9).

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.(See 3.12)

Query Syntax MMEMory:DATA? <filename>

Default Not Applicable

Last Modified:

17-Dec-2013 Added link to example

23-Apr-2012 Major modifications

5.255 MMEMory:DElete

(Write-Only) Deletes the specified file.

See **MMEM:CDIR**(See 5.252) to learn how to set the active drive and how to specify a drive/folder.

See **ALL MMEM commands**.(See 4.13)

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

5.256

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**(See 5.260) to set the data capture file type.

Use **MMEM:STOR:IQC:FCO**(See 5.257) 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).

5.257

MMEMory:STORe:IQCapture:FCOunt

(Read-Write) Set and query number of data capture files.

Use **MMEM:STOR:IQC:FCO:MULT**(See 5.258) 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

5.258

MMEMory:STORe:IQCapture:FCOunt:MULTiple

(Read-Write) Set and query to enable or disable multiple (continuous) IQA file captures.

Use **MMEMory:STORe:IQCapture:FCOunt**(See 5.257) 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 (continuous) 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).

5.259

MMEMory:STORe:IQCapture:FNAME

(Read-Write) Set and query the filename for IQA data capture.

Use **MMEM:STOR:IQC:FTYP** (See 5.260) to set the data capture file type.

Relevant Modes IQA

Parameters

<"string"> Data capture filename.

Examples **MMEM:STOR:IQC:FNAME "filename"**

Query Syntax **MMEM:STOR:IQC:FNAME?**

Return Type character

Default IQDataFile

Last Modified:

22-Oct-2017 Added new IQA mode content (10.1x).

5.260

MMEMory:STORe:IQCapture:FTYPE

(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** (See 5.257) to manually set the IQA file capture count.

Use **MMEM:STOR:IQC:DEV** (See 5.256) 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).

5.261

MMEMory:STORe:IQCapture:STARt

(Write Only) Starts the IQA data capture.

Use **SENS:MEAS:CAPT:TIME**(See 5.428) to set the data capture time or use **MEAS:CAPT:LENGth**(See 5.427) 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).

5.262

MMEMory:STORe:IQCapture:STOP

(Write Only) Stops the IQA data capture.

Use **SENS:MEAS:CAPT:TIME**(See 5.428) to set the data capture time or use **MEAS:CAPT:LENGth**(See 5.427) 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).

5.263 MMEMory:LOAD:ANTenna

(Write-only) Load a receiver antenna file from the specified device. If using only one antenna file, use this command.

To load a source antenna file, use **MMEMory:LOAD:SANTenna**(See 6.23).

- All 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**.(See 4.13)

Relevant Modes 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:

26-Jan-2015 Modified for source

16-Dec-2014 Fixed .ant recall

29-Oct-2010 New command (5.30)

5.264 MMEMory:LOAD:CABLe

(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**(See 6.24)

- 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**.(See 4.13)

Relevant Modes CAT, SA

Parameters

<string> Filename of the cable file WITHOUT 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
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

26-Jan-2015 Modified for source

29-Oct-2010 New command (5.30)

5.265 MMEMory:LOAD:STATe

(Write-Only) Loads an instrument state file.

This command CAN be used with *OPC?(See 5.3).

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?

5.266 :MMEMory:LOAD:LOG

(Write-only) Load a *.csv or *.kml log file.

See ALL MMEM commands.(See 4.13)

Relevant Modes Channel Scanner

Parameters

<string> For *.csv files, provide filename of the antenna file WITHOUT

an 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

5.267 :MMEMory:LOAD:LIST

(Write-only) Load a *.csv custom file.

See **ALL MMEM commands**. (See 4.13)

Relevant Modes Channel Scanner

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

5.268 MMEMory:MDIRectory

(Write-Only) Makes a new folder.

See **MMEM:CDIR** (See 5.252) to learn how to set the active drive/folder and how to specify a drive/folder.

See ALL MMEM commands.(See 4.13)

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

5.269 MMEMory:MOVE

(Write-Only) Renames <file1> to <file2>. File extensions must be specified.

See MMEM:CDIR(See 5.252) to learn how to set the active drive/folder and how to specify a drive/folder.

See ALL MMEM commands.(See 4.13)

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

5.270 MMEMory:RDIRectory

(Write-Only) Removes the specified folder if it is empty. If the folder is NOT empty, a 'Media Protected' message appears.

See MMEM:CDIR(See 5.252) to learn how to set the active drive/folder and how to specify a drive/folder.

See ALL MMEM commands.(See 4.13)

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

5.271 :MMEMory:STATe:STORe:LIST

(Write-only) Save a csv custom list file.

See ALL MMEM commands.(See 4.13)

Relevant Modes Channel Scanner

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

5.272 MMEMory:STORe:ANTenna

(Write-only) Saves the currently-loaded receiver antenna table to a file on the specified device.

- All 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, 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.(See 4.13)

Relevant Modes 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:

16-Dec-2014 Edit to *.ant files

22-Aug-2012 Fixed example

22-Oct-2010 New command (5.30)

5.273 MMEMory:STORe:CABLe

(Read-Write) Saves the currently-loaded receiver cable table to a file at the specified location and device.

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**.(See 4.13)

Relevant Modes CAT (DTF), SA

Parameters

<string> Filename of the cable file WITHOUT an extension.
 <char> Memory device where the file is to be stored. Choose from:

- **INT**ernal - internal storage device
- **USB** - first USB device
- **SD** - SD storage card

Examples MMEM:STOR:CABL "MyCable",INT

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

26-Jan-2015 Modified for source

22-Aug-2012 Fixed example

22-Oct-2010 New command (5.30)

5.274 MMEMory:STORe:FDATa

(Write-only) Saves the selected formatted trace to a CSV file. (i.e., this is a screen capture from the currently displayed trace.)

See also, **MMEM:STOR:MAT**(See 5.279), **MMEM:STOR:SDF**(See 5.280), and **MMEM:STOR:TXT**(See 5.283).

Relevant Modes CAT, IQA, NA, RTSA, SA, **Pulse Measurements**(See 4.9)

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:

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

5.275 MMEMory:STORe:IMAGe

(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.](#)(See 3.12)

Query Syntax Not Applicable

Default Not Applicable

5.276

:MMEMory:STORe:IMAGe:NOKeys

(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.](#)(See 3.12)

Query Syntax Not Applicable

Default Not Applicable

5.277 :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 Channel Scanner

Parameters

<filename>

Examples

:MMEMory:STORe:LOG:CSV 'samplefile'

Query Syntax :MMEMory:STORe:LOG:CSV?

Return Type character

Default

Last Modified:

5.278 :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 Channel Scanner

Parameters

<filename>

Examples :MMEMory:STORe:LOG:KML 'samplefile'

Query Syntax :MMEMory:STORe:LOG:KML?

Return Type character

Default

Last Modified:

5.279 MMEMory:STORe:MAT

(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](#)(See 5.274), [MMEM:STOR:SDF](#)(See 5.280), and [MMEM:STOR:TXT](#)(See 5.283).

Relevant Modes IQA

Parameters

<string> Filename of the mat file.

Examples MMEM:STOR:MAT "MyMatFile"

Query Syntax N/A

Default N/A

Last Modified:

29-Nov-2017 New command

5.280 MMEMory:STORe:SDF

(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](#) (See 5.274), [MMEM:STOR:TXT](#) (See 5.283), and [MMEM:STOR:MAT](#) (See 5.279).

Relevant Modes IQA

Parameters

<string> Filename of the sdf file.

Examples `MMEM:STOR:SDF "MySdfFile"`

Query Syntax N/A

Default N/A

Last Modified:

29-Nov-2017 New command

5.281 MMEMory:STORe:SNP[:DATA]

(Write-only) Saves the selected trace to an SNP file.

See [ALL MMEM commands](#). (See 4.13)

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

5.282 MMEMory:STORe:STATe

(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

5.283 MMEMory:STORe:TXT

(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](#) (See 5.274), [MMEM:STOR:SDF](#) (See 5.280), and [MMEM:STOR:MAT](#) (See 5.279).

Relevant Modes IQA

Parameters

<string> Filename of the txt file.

Examples MMEM:STOR:TXT "MyTxtFile"

Query Syntax N/A

Default N/A

Last Modified:

29-Nov-2017 New command

5.284 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 SA, RTSA

Parameters None

Examples RECP:SESS:PAUS

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

5.285 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	SA, RTSA
Parameters	None
Examples	RECP:SESS:PLAY
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

5.286 RECPlayback:ACTion:RECORD

(Write-Only) Begins or resumes recording into the current Record/Playback session. (Opt 236). A session must first be opened and stopped or paused during a recording. Otherwise, this command is ignored.

Relevant Modes	SA, RTSA
Parameters	None
Examples	RECP:SESS:REC
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

5.287 RECPlayback:ACTion:SPOStion

(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:SESS:SPOS 2
Query Syntax	:RECPlayback:ACTion:SPOSition?
Default	Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

5.288 RECPlayback:ACTion:STOP

(Write-Only) Stops recording or playback of 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:SESS:STOP
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

10-june-2016 Added RTSA mode (9.50)

5.289 RECPlayback:ACTion:TPOSition

(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

5.290

RECPlayback:CONFig:FMTRigger:DATA

Note: This command is replaced by **RECPlayback:CONFig:FMTRigger:LLData**(See 5.292) 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**(See 5.312) and **CALC:ACP:OFFS:LIST:LIM:POS[:UPPer]:DATA**(See 5.310).

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

5.291

RECPlayback:CONFig:FMTRigger:ENABLE

(Read-Write) Set and return the state of Frequency Mask Triggering. Use RECPlayback:CONFig:FMTRigger:DATA(See 5.290) 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

5.292

RECPlayback:CONFig:FMTRigger:LLData

Note: This command replaces RECPlayback:CONFig:FMTRigger:DATA(See 5.290) 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(See 5.312) and CALC:ACP:OFFS:LIST:LIM:POS[:UPPer]:DATA(See 5.310).

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

5.293 RECPlayback:CONFig:PTInterval

(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

5.294

RECPlayback:CONFig:RSCLength

(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**(See 5.284) or **Record**(See 5.286) to capture another <num> traces, or **Stop**(See 5.288) 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.

5.295 RECPlayback:CONFig:RSOource

(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)

5.296 RECPlayback:CONFig:RTINerval

(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)

5.297

RECPlayback:CONFig:RTLSeconds

(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.

5.298

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)

5.299 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?**(See 5.301)

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)

5.300 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)

5.301 RECPlayback:SESSion:OPEN?

(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

5.302 RECPlayback:SESSion:SDEVice

(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)

5.303 RECPlayback:SESSion:TRLimit

(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 RECPlay:SESS:TRL 100

Query Syntax RECPlayback:SESSion:TRLimit?

Default Not Applicable

5.304 [:SENSe]:ACPower:LIMit[:STATe]

(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(See 5.310) (Lower limit)

[:SENSe]:ACPower:OFFSet:ULIMit(See 5.312) (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

5.305 [:SENSe]:ACPower:MREFerence

(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](#) (See 5.306)

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

5.306

[:SENSe]:ACPower:MREFerence:AUTO

(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:**

1 or 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](#) (See 5.305) to enter a value.

Examples ACP:MREF:AUTO 1

Query Syntax [:SENSe]:ACPower:MREFerence:AUTO?

Return Type Boolean

Default ON

5.307 [:SENSe]:ACPower:MTYPE

(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

5.308

[:SENSe]:ACPower:OFFSet:BWIDth

(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

5.309

[:SENSe]:ACPower:OFFSet:FREQuency

(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

5.310

[:SENSe]:ACPower:OFFSet:LLIMit

(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](See 5.304).

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

5.311

[:SENSe]:ACPower:OFFSet:STATe

(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

5.312

[:SENSe]:ACPower:OFFSet:ULIMit

(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](See 5.304).

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

5.313 [: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).

5.314

[:SENSe]:ACQuisition:TIME:AUTO

(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).

5.315

[[: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)

5.316

[[: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)

5.317

[::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)

5.318 [::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)

5.319

[[: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)

5.320

[[: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)

5.321

[[: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)

5.322

[:SENSe]:ADEMod:METRics:TFRReq

(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)

5.323

[:SENSe]:AMPLitude:ALIGnment:NOW

This command has been replaced by [:SENSe]:ALIGnment:AMPLitude:NOW(See 6.4). Learn about superseded [commands](#)(See 5.2).

(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 IQA,SA, CPM(See 4.7), 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)

5.324

[:SENSe]:AMPLitude:ALIGNment[:STATe]

This command has been replaced by [\[:SENSe\]:ALIGNment:AMPLitude\[:STATe\]](#) (See 6.3). Learn about superseded [commands](#) (See 5.2).

(Read-Write) Set and query the alignment amplitude (InstAlign) state.

Relevant Modes IQA, SA, **CPM** (See 4.7), 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)

5.325

[: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(See 6.27)

Relevant Modes SA

Parameters	None
Examples	AMPL:CORR:ANT:DEF
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

26-Jan-2015	Modified for Src/Rec
17-Jul-2012	New command (6.00)

5.326

[:SENSe]:AMPLitude:CORRections:ANTenna[:STaTe]

(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](See 6.28)

Relevant Modes 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:

26-Jan-2015 Modified for Src/Rec

17-Jul-2012 New command (6.00)

5.327

[: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(See 6.29)

Relevant Modes SA

Parameters None

Examples AMPL:CORR:CABL:DEF

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

26-Jan-2015 Modified for Src/Rec

17-Jul-2012 New command (6.00)

5.328

[:SENSe]:AMPLitude:CORRections:CABLe[:STATe]

(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](See 6.30)

Relevant Modes 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:

26-Jan-2015 Modified for source.

20-Oct-2010 New command (5.30)

5.329

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

(Read-Write) Set and query the SA mode corrections ON/OFF state.

This setting is labeled "Apply Corrections" on the FieldFox softkeys.

See all corrections commands(See 4.3)

Relevant Modes SA(See 4.3)

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

5.330 [:SENSe]:AMPLitude:SCALe

(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

5.331 [:SENSe]:AMPLitude:UNIT

(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?**(See 5.575) return values.

Antenna correction units are available ONLY by loading an Antenna file that contains the desired units setting. Use **MMEMory:LOAD:ANTenna**(See 5.263).

Relevant Modes SA,CPM(See 4.7)

Parameters

<char> Display Units with Antenna correction OFF, choose from:

- W - watts
- DBM - dBm

The following are 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:

24-Mar-2014 Added CPM

20-Oct-2010 New command (5.30)

5.332 [: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

5.333 [:SENSe]:AVERage:COUNT

(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

5.334 [:SENSe]:AVERage[:ENABLE]

(Read-Write) Set and query the averaging state.

Relevant Modes CPM(See 4.7)

Parameters

<value> (Boolean) Choose from:

ON (or 1) - Averaging ON. Set the number of averages using
[:SENSe]:AVERage:COUNT(See 5.333)

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

5.335 [:SENSe]:AVERage[:MODE]

(Read-Write) Set and query the averaging mode for Power Meter measurements.

Relevant Modes Power Meter, Pulse Measurements(See 4.9)

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(See 5.333)

OFF - Performs NO averaging.

Examples	AVER MAN
Query Syntax	[::SENSe]:AVERage[:MODE]?
Return Type	Character
Default	AUTO

5.336 [::SENSe]:AVERage:MODE (NA)

(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

5.337 [::SENSe]:AVERage:SDETect

(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:SDetTest?

Return Type

Boolean

Default

ON

5.338 [::SENSe]:AVERage:TYPE

(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

5.339 [:SENSe]:BANDwidth:IF:OUT

(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

5.340

[:SENSe]:BANDwidth[:RESolution]

(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.

5.341

[:SENSe]:BANDwidth[:RESolution]:AUTO

(Read-Write) Set and query the automatic resolution bandwidth state.

Relevant Modes SA, RTSA

Parameters

<bool> Choose from:

0 or OFF - Set Resolution BW manually using **BAND:RES**
<num> (See 5.340)

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.

5.342 [:SENSe]:BWIDth:VIDeo

(Read-Write) Set and query the video bandwidth for the measurement.

Relevant Modes **Pulse Measurements** (See 4.9)

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

5.343 [:SENSe]:BANDwidth:VIDeo

(Read-Write) Set and query the video bandwidth. Also set **BAND:VID:AUTO OFF**(See 5.344).

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

5.344

[:SENSe]:BANDwidth:VIDeo:AUTO

(Read-Write) Set and query the ON | OFF state of Video Bandwidth.

Relevant Modes SA

Parameters

<bool> Choose from:

0 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

5.345

[:SENSe]:BURSt:ALIGnment:NOW

This command has been replaced by **[:SENSe]:ALIGnment:BURSt[:STATe]**(See 6.5). Learn about superseded **commands**(See 5.2).

(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)

5.346 [:SENSe]:BWID

(Read-Write) Set and query the IF Bandwidth for the measurement.

Relevant Modes	NA
	CAT (Read-only)
	VVM
Parameters	
<num>	Bandwidth in Hz. Choose a value between 300 (min) and 30 kHz.
Examples	BWID 1e3
Query Syntax	SENSe:BWID?
Return Type	Numeric
Default	30 kHz for NA and CAT
	1 kHz for VVM

Last modified:

3-Aug-2010	Added VVM mode (A.05.30)
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5.347

[:SENSe]:CMEasurement:AVERage:ENABle

(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

5.348 [:SENSe]:CMEasurement:IBW

(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

5.349

[:SENSe]:CMEasurement:RRCFilter

(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

5.350

[:SENSe]:CMEasurement:RRCFilter:ALPHA

(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

5.351

[:SENSe]:CORRection:CALReady:TYPE

(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

5.352 [[:SENSe]:CORRection:COAX

(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

5.353

[[:SENSe]:CORRection:COEFFicient[: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

5.354

[:SENSe]:CORRection:COLLect[:ACQuir e]:INT

(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]` (See 5.369) for both 1-port and 2-port QuickCal.

Use `[[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD]` (See 5.355) 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?` (See 5.3) 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](#) (See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.355

`[[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD]`

(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?` (See 5.3) 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](#)(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.356

[:SENSe]:CORRection:COLLect[:ACQuir e]:OPEN

(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?**(See 5.3) 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](#)(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.357

[:SENSe]:CORRection:COLLect[:ACQuir
e]:SHORT

(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?**(See 5.3) 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(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.358

[:SENSe]:CORRection:COLLect[:ACQuir
e]:THRU

(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**(See 5.374) - both reference planes are connected.
- **Unknown THRU**(See 5.380) - any cable or adapter is used to connect both reference planes.
- **Enhanced Response**(See 5.367) - both reference planes are connected.

- **Quick Cal Enhanced Response**(See 5.370) - 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?**(See 5.3) 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(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.359

[[:SENSe]:CORRection:COLLect:CKIT:LABel

(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?**(See 5.360) to read a list of valid Cal Kits.

CORR:COLL:CKIT:LAB 1,"85052D"

See Cal examples(See 3.4)

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?](#) (See 5.360).

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](#) (See 3.5)

Query Syntax	[:SENSe]:CORRection:COLLect:CKIT:LABel? <port>
Default	Not Applicable

Last Modified:

26-Jul-2013 Added ECal

18-Oct-2012 Added new models

5.360

[: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(See 5.359).

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(See 3.4)

Default Not Applicable

Last Modified:

26-Jul-2013 Edited for ECal

18-Oct-2012 Reviewed for new models

5.361

[:SENSe]:CORRection:COLLect:CONNe
ctor

(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(See 3.4)
```

Query Syntax
Default

```
[[:SENSe]:CORRection:COLLect:CONNector? <port>
Not Applicable
```

Last Modified:

22-Oct-2012 Updated for new models

16-Feb-2011 Updated

5.362

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

(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(See 3.4)

Query Syntax [:SENSe]:CORRection:COLLect:ECAL:AORient ?

Default ON or 1

5.363

[:SENSe]:CORRection:COLLect:ECAL:SIMPl

(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(See 4.14).

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(See 3.4)
```

Query Syntax [:SENSe]:CORRection:COLLect:ECAL:SIMPle ?
Default ON or 1

5.364

[:SENSe]:CORRection:COLLect:GUIDed :SCOut

(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(See 3.7)
```

Default Not Applicable

Last Modified:

18-Oct-2012 New command

5.365

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

(Write-Only) Measures the standard for the specified step number in the guided cal. Use [:SENSe]:CORRection:COLLect:GUIDed:SCOUnt(See 5.364) 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?(See 5.3) 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(See 3.7)

Query Syntax Not Applicable

Default Not Applicable

5.366

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

(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(See 5.364) to read the number of steps required for the cal.

Use [:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire(See 5.365) 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 (See 3.7)
Query Syntax	Not Applicable
Default	Not Applicable

5.367

[:SENSe]:CORRection:COLLect:METhod:ERES

(Write-Only) Sets the Cal method to Enhanced Response.

This Cal Method requires mating (insertable) DUT connectors. Use [\[:SENSe\]:CORRection:COLLect:CONNector](#)(See 5.361) to change connector and gender.

Prompt for, then measure standards:

- [OPEN](#)(See 5.356), [SHORT](#)(See 5.357), and [LOAD](#)(See 5.355) on the <p1> (source) port.
- [THRU](#)(See 5.358) connection between the ports.

[Learn more about FieldFox Cal Methods using SCPI](#).(See 2.2)

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 (See 3.4)
Query Syntax	Not Applicable
Default	Not Applicable

5.368

[:SENSe]:CORRection:COLLect:METhod:ORESpOse

(Write-Only) During a Guided calibration, sets the Cal method to 1-port Response using an Open standard.

Prompt for, then measure standards:

- **Open**(See 5.356) on the <p1> port.

Learn more about FieldFox Cal Methods using SCPI.(See 2.2)

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(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.369

[:SENSe]:CORRection:COLLect:METhod:QCALibrate:CALibrate

(Write-Only) Sets the Cal Method to 1-port or 2-port QuickCal.

For 1-port QuickCal:

- Prompt for **INT Stds**(See 5.354) on <p1>, then optional **LOAD**(See 5.355) on <p1>

For 2-port QuickCal with Insertable connectors, performs **QSOLT**(See 2.2).

- Prompt for **INT Stds**(See 5.354) on <p1>, then optional **LOAD**(See 5.355) on <p1>, then Flush **THRU**(See 5.358)

For 2-port QuickCal with Non-Insertable connectors, performs **SOLR**(See 2.2).

- Prompt for **INT Stds**(See 5.354) on <p1> and <p2>, then optional **LOAD**(See 5.355) on <p1> and <p2>, then ANY **THRU**(See 5.358).

Learn more about FieldFox Cal Methods using SCPI.(See 2.2)

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(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.370

[:SENSe]:CORRection:COLLect:METHo d:QCALibrate:ERESponse

(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**(See 5.361) to change connector and gender.

Requires QuickCal Option.

- Prompt to "Leave ports OPEN", then use **[:SENSe]:CORRection:COLLect[:ACQuire]:INT**(See 5.354) to measure

- internal OPEN and SHORT.
- Optional - Prompt to "Connect LOAD to ports", then use `[[:SENSe]:CORRection:COLLect[:ACQuire]:LOAD` (See 5.355) to measure LOAD.
 - For 2-port Cal - Prompt to connect THRU between ports, then use `[[:SENSe]:CORRection:COLLect[:ACQuire]:THRU` (See 5.358) to measure THRU

Learn more about FieldFox Cal Methods using SCPI. (See 2.2)

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](#) (See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.371

[:SENSe]:CORRection:COLLect:METHo d:QSOLT

(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` (See 5.361) to change connector and gender.

Prompt for, then measure standards:

- `OPEN` (See 5.356), `SHORT` (See 5.357), and `LOAD` (See 5.355) on the `<p1>` (source) port. (This selection is NOT available from the user interface.)
- FLUSH `THRU` (See 5.358) connection between the ports.

This Cal Method requires mating (insertable) connectors. Use `[[:SENSe]:CORRection:COLLect:CONNector` (See 5.361) to change connector and gender.

[Learn more about FieldFox Cal Methods using SCPI.](#) (See 2.2)

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](#) (See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.372

`[[:SENSe]:CORRection:COLLect:METHo d[:RESPonse]:OPEN`

(Write-Only) Sets the Cal method to Open Response using a Mechanical Cal Kit.

Prompt for, then measure standards:

- `OPEN` (See 5.356) on the `<p1>` port.

[Learn more about FieldFox Cal Methods using SCPI.](#) (See 2.2)

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](#)(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.373

[[:SENSe]:CORRection:COLLect:METHo d[:RESPonse]:SHORT

(Write-Only) Sets the Cal method to Short Response using a Mechanical Cal Kit.

Prompt for, then measure standards:

- **SHORT**(See 5.357) on the <p1> port.
- **THRU**(See 5.358) connection between the ports.

[Learn more about FieldFox Cal Methods using SCPI.](#)(See 2.2)

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 (See 3.4)
Query Syntax	Not Applicable
Default	Not Applicable

5.374

[:SENSe]:CORRection:COLLect:METHo
d[:RESPonse]:THRU

(Write-Only) Sets the Cal method to THRU Response (also known as Normalization cal).

Prompt for, then measure standard:

- **THRU**(See 5.358) connection between the ports.

[Learn more about FieldFox Cal Methods using SCPI.](#)(See 2.2)

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](#)(See 3.4)

Query Syntax	Not Applicable
Default	Not Applicable

5.375

[:SENSe]:CORRection:COLLect:METHo
d:SOLT1

(Write-Only) Sets the Cal Method to 1-port OSL calibration.

Prompt for, then measure standards:

- **OPEN**(See 5.356), **SHORT**(See 5.357), and **LOAD**(See 5.355) on the <p1>

(source) port.

[Learn more about FieldFox Cal Methods using SCPI.](#)(See 2.2)

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](#)(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.376

[:SENSe]:CORRection:COLLect:METHod:SOLT2

(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(See 5.380) is usually a more accurate 2-port calibration. [Learn more about FieldFox Cal Methods using SCPI.](#)(See 2.2)

Prompt for, then measure standards:

- **OPEN**(See 5.356), **SHORT**(See 5.357), and **LOAD**(See 5.355) on BOTH ports.
- **THRU**(See 5.358) 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 (See 3.4)
Query Syntax	Not Applicable
Default	Not Applicable

5.377

[:SENSe]:CORRection:COLLect:METHo
d:SRESponse

(Write-Only) During a Guided calibration, sets the Cal method to 1-port Response using a Short standard.

Prompt for, then measure standards:

- **SHORT**(See 5.357) on the <p1> port.

[Learn more about FieldFox Cal Methods using SCPI.](#)(See 2.2)

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 (See 3.4)
Query Syntax	Not Applicable
Default	Not Applicable

5.378

[:SENSe]:CORRection:COLLect:METHo
d:TRL

(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](#)(See 3.7) to:

1. Select the DUT connectors:
[:SENSe]:CORRection:COLLect:CONNector(See 5.361)
2. Select a TRL Cal Kit: [:SENSe]:CORRection:COLLect:CKIT:LABel(See 5.359)
3. Query number of steps:[:SENSe]:CORRection:COLLect:GUIDed:SCOUnt(See 5.364)
4. Display prompts:
[:SENSe]:CORRection:COLLect:GUIDed:STEP:PROMpt(See 5.366)
5. Acquire standards:
[:SENSe]:CORRection:COLLect:GUIDed:STEP:ACQuire(See 5.365)

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](#)(See 3.4)

Query Syntax Not Applicable

Default Not Applicable

5.379

[: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](#)(See 3.4)

Default Depends on installed options.

Last Modified:

18-Oct-2012 Edited for new models

5.380

[:SENSe]:CORRection:COLLect:METHo
d:UTHRu

(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**(See 5.356), **SHORT**(See 5.357), and **LOAD**(See 5.355) on the <p1> and <p2> source ports.
- **THRU**(See 5.358) connection between the ports.

The Unknown Thru Standard:

- Can have up to about 40 dB of loss and long electrical length.
- Must be reciprocal: $S_{21}=S_{12}$.

Learn more about FieldFox Cal Methods using SCPI.(See 2.2)

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(See 3.4)

Query Syntax

Not Applicable

Default

Not Applicable

5.381

[:SENSe]:CORRection:COLLect:OISolat
ion**(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

5.382

[:SENSe]:CORRection:COLLect:SAVE

(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 (See 3.4)
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

18-Oct-2012 Reviewed for new models

5.383

`[[:SENSe]:CORRection:EXTension:PORT
1`

5.384

`[[:SENSe]:CORRection:EXTension:PORT
2`

5.385

`[[:SENSe]:CORRection:EXTension[:STAT
e]`

5.386

`[[:SENSe]:CORRection:GAIN2[:INPut][:
MAGNitude]`

(Read-Write) Set and query the Power Meter Offset value.

Relevant Modes [Power Meter](#)(See 4.6), [Pulse Measurements](#)(See 4.9),
[CPM](#)(See 4.7)

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

5.387

[::SENSe]:CORRection:GAIN2:STATe

(Read-Write) Set and query the ON | Off state of Power Meter Offset.

Relevant Modes **Power Meter**(See 4.6), **Pulse Measurements**(See 4.9), **CPM**(See 4.7)

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

5.388

[::SENSe]:CORRection:IMPedance[:INPut][:MAGNitude]

(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

5.389

[:SENSe]:CORRection:LOSS:COAX

(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

5.390

[:SENSe]:CORRection:LOSS:WAVeguide

Type topic text here.

5.391 [:SENSe]:CORRection:MEDium

(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 (See 3.4)

Query Syntax [:SENSe]:CORRection:MEDium?
Default COAX

5.392

[:SENSe]:CORRection:RVELocity:COAX

(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 COR: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)

5.393 [:SENSe]:CORRection[:STATe]

5.394

[:SENSe]:CORRection:USER:FREQuency:STARt:MINimum

Type topic text here.

5.395

[:SENSe]:CORRection:USER:FREQuency:STOP:MAXimum

Type topic text here.

5.396

[:SENSe]:CORRection:USER[:STATe]

5.397

[:SENSe]:CORRection:USER:WGCutoff

Type topic text here.

5.398

[:SENSe]:CORRection:WAVeguide:STANdard

(Read-Write) Set and query the waveguide standard to use for the measurement.
 See also [:SENSe]:CORRection:MEDium(See 5.391).

Relevant Modes CAT

Parameters

<char> Waveguide standard. Choose from:

USER - A predefined user standard.

WR137

WR90

WR42

WR112

Examples COR:WAV:STAN WR137

Query Syntax [:SENSe]:CORRection:WAVeguide:STANdard?

Return Type Character

Default FieldFox model dependent.

5.399 [:SENSe]:CORRection:WGCutoff

(Read-Write) Set and query the waveguide cutoff frequency. This is the minimum frequency of the waveguide. See also [:SENSe]:CORRection:MEDium(See 5.391)

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

5.400

[:SENSe]:CORRection:ZERO:REFerence

(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

5.401

[:SENSe]:CORRection:ZERO:STATe

(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

5.402 [:SENSe]:DIF:BANDwidth

(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: 100000000

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)

5.403 [: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).

5.404 [:SENSE]:DENSity:RPLLevel

(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).

5.405 [:SENSe]:DETEctor:FUNCTion

(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

5.406

[:SENSe]:DETEctor:TRACe: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

5.407 [:SENSe]:FREQuency

(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**(See 4.9), **CPM**(See 4.7)

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

5.408

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

(Read-Write) Set and query the frequency (X-axis) annotation method.

See **frequency setting commands for SA mode**.(See 4.3)

Relevant Modes **SA**(See 4.3), **ERTA**(See 4.10), **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)

5.409 [:SENSe]:FREQuency:CENTer

(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, SA, VVM, 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, SA modes - Center frequency of the FieldFox.

VVM mode - 2 MHz

Last Modified:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

5.410

[:SENSe]:FREQuency:CENTer:STEP

(Read-Write) Set and query the step size for use with the front panel up/down keys.

Use **[SENSe]:FREQuency:CENTer:STEP:AUTO**(See 5.411) to set step size manually. (Not available with CPM).

Relevant Modes SA(See 4.3), CPM(See 4.7), 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

5.411

[:SENSe]:FREQuency:CENTer:STEP:AUTO

(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**(See 5.410).

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

5.412 [: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

Parameters None

Examples `FREQ:DATA?`

Return Type Comma-separated numeric array

Default Not Applicable

Last Modified:

29-Nov-2017 New command

5.413 [:SENSe]:FREQuency:SPAN

(Read-Write) Set and query the frequency span of the trace.

Relevant Modes CAT(See 4.1), NA(See 4.2), SA(See 4.3), CPM(See 4.7), 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:

10-june-2016 Added RTSA mode (9.50)

1-April-2014 Added CPM

5.414

[:SENSe]:FREQuency:SPAN:BANDwidth
h[: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.

5.415

[: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)

5.416

[: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:

5.417 [:SENSe]:FREQuency:STARt

(Read-Write) Set and query the start frequency of the trace.

Relevant Modes CAT, NA, 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

5.418 [:SENSe]:FREQuency:STEP

(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**(See 4.6) (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)

5.419 [:SENSe]:FREQuency:STOP

(Read-Write) Set and query the stop frequency of the trace.

Relevant Modes CAT, NA, SA, RTSA

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

5.420

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

This command has been replaced by [:SENSe]:ALIGnment:CHEQ[:STATe](See 6.7). Learn about superseded [commands](#)(See 5.2).

(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)

5.421

[:SENSe]:IFFLatness:ALIGNment:NOW

This command has been replaced by [\[:SENSe\]:ALIGNment:CHEQ:NOW](#) (See 6.8). Learn about superseded [commands](#) (See 5.2).

(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)

5.422 [: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).

5.423 [:SENSe]:MEASure:SPERiod

(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)

5.424 [:SENSe]:MEASure:SRATe

(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.

$$\begin{aligned}\text{Sample Rate} &= (\text{Digital IF Bandwidth}) * (\text{Over Sample Ratio}) \\ &= (\text{Digital IF Bandwidth}) * 1.25\end{aligned}$$

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

5.425

[: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)

5.426 [: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

5.427

[: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** (See 5.428) 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).

5.428

[[: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** (See 5.260) 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).

5.429

[:SENSe]:MEASurement:CHANnel

(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

5.430

[:SENSe]:MEASurement:ERTA:PNID

(Read-Write) Set and query the partner IP address.

Relevant Modes ERTA(See 4.10)

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

5.431

[:SENSe]:MEASurement:ERTA:PSTatus

(Read-Write) Set and read Partnership status. Can only set Master (Receiver).

Relevant Modes ERTA(See 4.10)

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)

5.432

[:SENSe]:MEASurement:ERTA:PVERify?

(Read-only) Returns whether or not the partner (source) FieldFox is ERTA network capable.

Relevant Modes ERTA(See 4.10)

Parameters None

Return Type Boolean

1 - Partner is ERTA capable.

0 - Partner is NOT ERTA capable

Default Not applicable

Last Modified:

4-May-2015 New command (8.04)

5.433

[:SENSe]:MEASurement:ERTA:ROLE

(Read-only) Read the ERTA stimulus-response role.

Relevant Modes ERTA(See 4.10)

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)

5.434

[:SENSe]:MEASurement:INTerference

(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

5.435 [:SENSe]:MEASurement:PRESet

(Write-Only) Resets the currently-displayed channel measurement to its default settings. The Center Frequency, Preamplifier 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

5.436 [:SENSe]:MEASurement:TAListen

(Read-Write) Set and query the Tune and Listen demodulation type for SA Mode.

Relevant Modes	SA
Parameters	<p><char> Tune and Listen demodulation type. Choose from:</p> <p>AM - AM</p> <p>FMN - FM Narrow</p> <p>FMW - FM Wide</p> <p>NONE - Tune and Listen OFF.</p>
Examples	MEAS:TAL FMW
Query Syntax	[:SENSe]:MEAS:TAListen?
Return Type	Character
Default	NONE

5.437 [:SENSe]:OBW:PPOW

(Read-Write) Set and query the Power Percent for an Occupied Bandwidth measurement.

Relevant Modes	SA
Parameters	<p><num> Power Percent. Choose a number from 10 to 99.99.</p>
Examples	OBW:PPOW 20
Query Syntax	[:SENSe]:OBW:PPOW?
Return Type	Numeric
Default	10

5.438 [:SENSe]:POINT:DWELL

(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(See 4.6) (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)

5.439 [:SENSe]:POINT:READ:MAX

(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(See 5.483)) 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(See 4.6) (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)

5.440

[:SENSe]:POWer[:RF]:ATTenuation

(Read-Write) Set and query RF attenuation value. Also set **POW:ATT:AUTO OFF**(See 5.441).

Relevant Modes SA(See 4.3), CPM(See 4.7), 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 lowered 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:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

1-April-2014 Added CPM

5.441

[:SENSe]:POWer[:RF]:ATTenuation:AUTO

(Read-Write) Set and query the Auto RF Attenuation state. See also **:POW:ATT**(See 5.440).

Relevant Modes SA, RTSA, IQA

Parameters

<boolean> Auto RF Attenuation state. Choose from:

0 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:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

5.442 [[:SENSe]:POWer[:RF]:EXTGain

(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 SA, 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:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

5.443

[:SENSe]:POWer[:RF]:GAIN:AUTO

(Read-Write) Set and query preamplifier state. Available with Option 235.

Relevant Modes IQA

Parameters

<boolean> Preamp AUTO ON | OFF state. Choose from:

0 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)

5.444

[:SENSe]:POWer[:RF]:GAIN[:STATe]

(Read-Write) Set and query preamplifier state. Available with Option 235.

Relevant Modes SA, RTSA, IQA

Parameters

<boolean> Preamp ON | OFF state. Choose from:

0 or OFF - Preamp OFF

1 or ON - Preamp ON

AUTO - (*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**(See 5.443).

Examples	POW:GAIN 0 POW:GAIN AUTO 'RTSA Only
Query Syntax	[[:SENSe]:POWer[:RF]:GAIN[:STATe]]?
Return Type	Boolean
Default	OFF

Last Modified:

22oct2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

5.445 [: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?**(See 5.575) to read SA trace data.

Use **TRACe<n>:TYPE**(See 5.613) 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

5.446

[:SENSe]:RADio:CHANnel:CENTer

(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(See 5.451) then activate the channel frequency-drive commands by changing **[[:SENSe]:RADio:TEUNit**(See 5.453) to **CHAN**.

Relevant Modes **SA**(See 4.3), **CPM**(See 4.7)

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.

5.447

[:SENSe]:RADio:CHANnel:DIRection

(Read-Write) Set and query the frequency Uplink or Downlink direction. First select a Radio Standard [:SENSe]:RADio:STANdard(See 5.451) then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit(See 5.453) to CHAN.

NOT all Radio Standards contain Uplink and Downlink frequencies.

Relevant Modes SA(See 4.3), CPM(See 4.7)

Parameters

<char> Choose from:

UP - Uplink

DOWN - Downlink

Examples

```
RAD:CHAN:DIR UP
```

Query Syntax

```
[:SENSe]:RADio:CHANnel:DIRection?
```

Return Type

Character

Default

DOWN

5.448 [:SENSe]:RADio:CHANnel:START

(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(See 5.451) then activate the channel frequency-drive commands by changing [:SENSe]:RADio:TEUNit(See 5.453) 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)

5.449 [[:SENSe]:RADio:CHANnel:STEP

(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(See 5.451) then activate the channel frequency-drive commands by changing [[:SENSe]:RADio:TEUNit(See 5.453) to CHAN.

Relevant Modes SA(See 4.3), CPM(See 4.7)

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

5.450 [[:SENSe]:RADio:CHANnel:STOP

(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(See 5.451) then activate the channel frequency-drive commands by changing [[:SENSe]:RADio:TEUNit(See 5.453) 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)

5.451 [:SENSe]:RADio:STANdard

The command is replaced with [:SENSe]:RADio:STANdard[:SElect](See 5.452) 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

5.452

[:SENSe]:RADio:STANdard[:SElect]

This command replaces `[:SENSe]:RADio:STANdard` (See 5.451).

(Read-Write) Set and query the Radio Standard for use in channel measurements.

Relevant Modes SA(See 4.3), CPM(See 4.7)

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

5.453 [:SENSe]:RADio:TEUNit

(Read-Write) Set and query the whether channel measurements are tuned using frequency or channel numbers.

Relevant Modes SA(See 4.3), CPM(See 4.7)

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(See 5.451).

Examples RAD:TEUN CHAN

Query Syntax [:SENSe]:RADio:TEUNit?

Return Type Character

Default FREQ

5.454 [:SENSe]:RESolution

(Read-Write) Set and query the number of data points for the Pulse measurement.

Relevant Modes Pulse Measurements(See 4.9)

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

5.455 [:SENSe]:ROSCillator:SOURce

(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

5.456 [::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

5.457 [::SENSe]:SPECtrogram:BPLevel

(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 Opt 236).

See also: [::SENSe]:SPECtrogram:RPLLevel(See 5.458) (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:BPLLevel?
Return Type	Numeric
Default	-90

Last Modified:

19-sep-2016 Added RTSA as a relevant mode (A.09.50).

5.458 [:SENSe]:SPECtrogram:RPLLevel

(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 Opt 236).

See also: [:SENSe]:SPECtrogram:BPLLevel(See 5.457) (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:RPLLevel?

Return Type Numeric

Default -50

Last Modified:

19-sep-2016 Added RTSA as a relevant mode (A.09.50).

5.459

[:SENSe]:SPECtrogram:TMARker:STAT
e

(Read-Write) Set and query the state of the time and delta markers used with Waterfall and Spectrogram displays (Interference Analyzer Opt 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(See 5.460) 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

5.460

[:SENSe]:SPECtrogram:TMARker:VALue

(Read-Write) Set and query the location of the Time or Delta marker, used with Waterfall and Spectrogram displays (Interference Analyzer Opt 236).

Use [:SENSe]:SPECtrogram:TMARker:STATe(See 5.459) 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**(See 5.462) and **Spectrogram Angle**(See 5.463) settings.

Examples

```
SPEC:TMAR:VAL 10
```

Query Syntax [:SENSe]:SPECtrogram:TMARker:VALue?

Return Type Numeric

Default 0

5.461

[:SENSe]:SPECtrogram:TPDivision

(Read-Write) Set and query the Time per division of the Spectrogram trace graph window.

Relevant Modes RTSA(See 4.4)

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)

5.462 [:SENSe]:SPECtrogram:VIEW

(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 Opt 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).

5.463 [:SENSe]:SPECtrogram:WANGle

(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 Opt 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

5.464

[:SENSe]:SPECtrum:BANDwidth[:RESolution]

(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 2.000000000E+05

5.465

[[:SENSe]:SPECtrum:BANDwidth[:RESolution]:AUTO

(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**(See 5.464).

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)

5.466

[[:SENSe]:SPECtrum:FFT:ANALysis:LENGth

See also, If the **SPEC:FFT:WIND**(See 5.468) and **SPEC:FFT:LENG:AUTO**(See 5.467).

(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)

5.467

[[:SENSe]:SPECTrum:FFT:LENGth:AUTO

(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(See 5.468) and SPEC:FFT:ANAL:LENG(See 5.466).

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)

5.468

[:SENSe]:SPECtrum:FFT:WINDow

See also, If the **SPEC:FFT:LENG:AUTO**(See 5.467) and **SPEC:FFT:ANAL:LENG**(See 5.466).

(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)

5.469

[:SENSe]:SPECtrum:FREQuency:SPAN

(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(See 4.6) (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

5.470 [:SENSe]:SWEep:ACQuisition

(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(See 5.471) 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:ACQquisition?
 Return Type Numeric
 Default 1

5.471

[:SENSe]:SWEep:ACQquisition:AUTO

(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:ACQquisition(See 5.470)

Examples SWE:ACQ:AUTO 1

Query Syntax [:SENSe]:SWEep:ACQquisition:AUTO?

Return Type Boolean

Default ON or 1

5.472 [: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)

5.473 [:SENSe]:SWEep:POINts

(Read-Write) Set and query the number of data points in the trace.

Relevant Modes CAT, NA, SA, RTSA, FOPS(See 4.6)

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:

10-june-2016 Added RTSA mode (9.50)

20-Mar-2014 Added FOPS

5.474 [:SENSe]:SWEep:RX

(Read-Write) Set and query the direction in which the receivers are swept.

Relevant Modes FOPS(See 4.6)

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

5.475 [:SENSe]:SWEep:TIME

(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 (See 5.470).

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

5.476 [:SENSe]:SWEep:TYPE

(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

5.477 [:SENSe]:SWEep:TYPE

(Read-Write) Set and query the sweep type.

Relevant Modes FOPS(See 4.6) (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

5.478 [:SENSe]:TAListen:AVOLume

This command is replaced with SYSTem:AUDio:VOLume(See 5.516)

(Read-Write) Set and query the Tune and Listen volume.

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen(See 5.436)

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

5.479 [:SENSe]:TAListen:DSTate

(Read-Write) Set and query the Tune and Listen demodulation state.

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen(See 5.436)

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

5.480 [:SENSe]:TAListen:DTYPE

(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(See 5.436)

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

5.481 [:SENSe]:TAListen:LTime

(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(See 5.436)

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

5.482 [:SENSe]:TAListen:TFRReq

(Read-Write) Set and query the tune frequency for Tune & Listen. First set [:SENSe]:MEASurement:TAListen(See 5.436).

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(See 5.111)

To enable TuneListen mode, use [:SENSe]:MEASurement:TAListen(See 5.436)

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:TFRReq?

Return Type Numeric

Default 3.0 GHz

5.483 [:SENSe]:TOL

(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(See 5.439)) has been met.

The readings that were taken are averaged together to become the "settled" reading.

Relevant Modes FOPS(See 4.6) (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

5.484 [: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(See 5.126)

Relevant Modes Power Meter, Pulse Measurements(See 4.9), CPM(See 4.7)

Examples TRAC?

Query Syntax [:SENSe]:TRACe[:DATA]?

Return Type Numeric

Default Not Applicable

5.485 [:SENSe]:TRACe:LIMit:LOWer

(Read-Write) Set and query the minimum (lower) limit value. Also set :SENSe]:TRACe:LIMit:LOWer:STATE ON(See 5.486).

Relevant Modes Power Meter(See 4.6), Pulse Measurements(See 4.9), CPM(See 4.7)

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

5.486

[:SENSe]:TRACe:LIMit:LOWer:STATe

(Read-Write) Set and query the ON|OFF state for minimum (lower) limit testing.

Relevant Modes [Power Meter](#)(See 4.6), [Pulse Measurements](#)(See 4.9), [CPM](#)(See 4.7)

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	OFF

5.487 [:SENSe]:TRACe:LIMit:UPPer

(Read-Write) Set and query the maximum (upper) limit value. Also set [:SENSe\]:TRACe:LIMit:UPPer:STATe ON](#).(See 5.488)

Relevant Modes [Power Meter](#)(See 4.6), [Pulse Measurements](#)(See 4.9), [CPM](#)(See 4.7)

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

5.488

[[:SENSe]:TRACe:LIMit:UPPer:STATe

(Read-Write) Set and query the ON|Off state for maximum (upper) limit testing.

Relevant Modes **Power Meter**(See 4.6), **Pulse Measurements**(See 4.9),
CPM(See 4.7)

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 OFF

5.489

[[:SENSe]:TRACe:MEASurement:REFere nce

(Read-Write) Set and query the Pulse Top setting which adjusts the measurement reference.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.490 [:SENSe]:TRACe:MEASurement

(Read-Write) Set and query the measurement to display.

Relevant Modes **FOPS**(See 4.6)

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

5.491 [:SENSe]:WAVEform:START

(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.

$$\text{TimeDomainDisplayLength [pts]} = \text{SampleRate[pts/sec]} \times (\text{StopTime[sec]} - \text{StartTime[sec]}) + 1$$

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 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

5.492 [:SENSe]:WAVeform:STOP

(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.

$$\text{TimeDomainDisplayLength [pts]} = \text{SampleRate[pts/sec]} \times (\text{StopTime[sec]} - \text{StartTime[sec]}) + 1$$

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 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

5.493 SOURce:ENABle

(Read-Write) Set and query the Source Enable ON|OFF setting. Set the power level using **SOURce:POWer**(See 5.502).

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

5.494 SOURce:ENABleSA

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)

5.495 SOURce:FREQuency:CENTer

(Read-Write) Set and query the center frequency. Also send **SOURce:FREQuency:SPAN**(See 5.497)

Relevant Modes **FOPS**(See 4.6) (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

5.496 SOURce:FREQuency[:CW]

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**(See 5.500) to set Independent Source to CW mode.

Use **SOURce:ENABLE**(See 5.494) 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)

5.497 SOURce:FREQuency:SPAN

(Read-Write) Set and query the frequency span of the measurement. Also send **SOURce:FREQuency:CENTer**(See 5.495)

Relevant Modes **FOPS**(See 4.6) (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

5.498 SOURce:FREQuency:START

(Read-Write) Set and query the start frequency of the measurement. Also send **SOURce:FREQuency:STOP**(See 5.499)

Relevant Modes **FOPS**(See 4.6) (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

5.499 SOURce:FREQuency:STOP

(Read-Write) Set and query the stop frequency of the measurement. Also send **SOURce:FREQuency:START**(See 5.498)

Relevant Modes **FOPS**(See 4.6) (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

5.500 SOURce:MODE

Note:

IMPORTANT! This command syntax still works, but it is recommended that you use: **SOUR:TRAC**(See 6.10) 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**(See 5.494) 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]**(See 5.496) 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**(See 5.501) 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)

5.501 SOURce:NORMAlize

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**(See 5.494)) and in tracking mode **SOurce:TRACking**(See 6.10).

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)

5.502 SOURce:POWer

(Read-Write) Set and query the source power level. This command sets **SOURce:POWer:ALC[:MODE]**(See 5.504) 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.

5.503 SOURce:POWerSA

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(See 5.506) to OFF.

Use SOURce:ENABLE(See 5.494) to enable Independent Source.

Relevant Modes RTSA, SA (All models EXCEPT N9912A - See [:SENSe]:ISource:POWer:ATTenuation(See 5.505) 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)

5.504 SOURce:POWer:ALC[:MODE]

(Read-Write) Set and query the source power ALC (automatic leveling control) setting.

To set source power to a specific level, use **SOURce:POWer**(See 5.502).
(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**(See 5.502) 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**(See 5.502) 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

5.505 SOURce:POWer:ATTenuation

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**(See 5.494) to enable Independent Source.

Relevant Modes SA (N9912A ONLY - See **SOURce:POWer:MAXimum**(See 5.506) and **SOURce:POWer**(See 5.503) 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)

5.506 SOURce:POWer:MAXimum

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** (See 5.494) to enable Independent Source.

Relevant Modes SA (All models EXCEPT N9912A - See **SOURce:POWer:ATTenuation** (See 5.505) 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.

Note: IQA exceptions???

OFF (or 0) - Independent Source Power level is set using **SOURce:POWer** (See 5.503).

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)

5.507 SOURce:POWer:MEMorize

(Write-Only) Stores the current data trace into memory.

Relevant Modes FOPS(See 4.6)

Examples SOUR:POW:MEM

Query Syntax Not Applicable

Default Not Applicable

Last modified:

19-Mar-2014 New command

5.508 SOURce:POWer

(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.

5.509 SOURce:POWer (SA)

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)

5.510 SOURce:RECeiver:OFFSet

(Read-Write) Set and query the receiver offset frequency of the measurement.

Also send **SOURce:FREQuency:STARt**(See 5.498)

Relevant Modes **FOPS**(See 4.6) (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

5.511

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)

5.512

STATus:QUEStionable:FREQuency:CO
NDition?

(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

5.513

STATus:QUEStionable:INTegrity:CONDi
tion?

(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

5.514

STATus:QUEStionable:LIMit:CONDition
?

(Read-Only) Reads the status of limit line failures.

Relevant Modes ALL - Limit lines are allowed in CAT, NA, 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

5.515 SYSTem:AUDio:MUTe

(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

5.516 SYSTem:AUDio:VOLume

(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

5.517 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

5.518 SYSTem:BATTery:ABSCharge?

5.519 SYSTem:BATTery:ACURrent?

5.520 SYSTem:BATTery:ARTTe?

5.521 SYSTem:BATTery:CHEMistry?

5.522 SYSTem:BATTery:CURRent?

5.523 SYSTem:BATTery:CYCLes?

5.524 SYSTem:BATTery:DATE?

5.525 SYSTem:BATTery:FCAPacity?

5.526 SYSTem:BATTery:MAXError?

5.527 SYSTem:BATTery:MFGname?

5.528 SYSTem:BATTery:RCAPacity?

5.529 SYSTem:BATTery:RELCharge?

5.530 SYSTem:BATTery:RTTE?

5.531 SYSTem:BATTery:SAVer

(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

5.532 SYSTem:BATTery:SN?

5.533 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

5.534 SYSTem:BATTery:TEMPerature?

5.535 SYSTem:BATTery:VENDor?

5.536 SYSTem:BATTery:VOLTage?

5.537 SYSTem:DATE

(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

5.538 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)

5.539 SYSTem:ERASe

(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

5.540 SYSTem:ERRor[:NEXT]?

(Read-Only) Read the next error in the error queue.

Learn [How to Query the Error Queue](#)(See 2.3).

Relevant Modes ALL

Examples SYST:ERR?

Return Type Numeric, String

Default Not Applicable

5.541 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

5.542 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)

5.543 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

5.544

SYSTem:GPS:DISPlay:COORdinate:FORMat

(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)

5.545

SYSTem:GPS:DISPlay:DISTance:UNIT

(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)

5.546 SYSTem:GPS:DISPlay:STATe

(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)

5.547 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)

5.548 SYSTem:GPS[:STATe]

(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)

5.549 SYSTem:GPS:SYNChronize

(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)

5.550 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

5.551 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

5.552 SYSTem:PRESet

(Write-Only) Perform a full preset on the FieldFox.

Relevant Modes	ALL
Examples	SYST:PRES
Query Syntax	Not Applicable
Default	Not Applicable

5.553 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

5.554 SYSTem:PWR:AUTO

(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)

5.555 SYSTem:PWR:SHUTdown

(Write-only) Turns the FieldFox OFF. You can use with
 SYSTem:PWR:SHUTdown:DLY(See 5.556) and
 SYSTem:PWR:SHUTdown:DURation(See 5.557).

Relevant Modes ALL

Parameters

<value> 1 - Reboots the FieldFox after the specified delay, and for the specified duration.
 0 - Immediately reboot.
 -1 Shuts down the FieldFox and do NOT reboot.

Examples

Shutdown after 5 seconds, for a duration of 3 seconds, then reboot
 SYST:PWR:SHUT:DLY 5
 SYST:PWR:SHUT:DUR 3
 SYST:PWR:SHUT 1

Query Syntax Not Applicable

Default Not Applicable

5.556 SYSTem:PWR:SHUTdown:DLY

(Read-Write) Sets the time to delay before turning the FieldFox OFF.

Use SYSTem:PWR:SHUTdown(See 5.555) to turn the FieldFox OFF.

Use SYSTem:PWR:SHUTdown:DURation(See 5.557) 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

5.557

SYSTem:PWR:SHUTdown:DURation

(Read-Write) Sets the time to wait before rebooting the FieldFox.

Use **SYSTem:PWR:SHUTdown**(See 5.555) 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

5.558 SYSTem:PWR:SUSP

(Write-only) Puts the FieldFox into Standby mode. You can use with **SYSTem:PWR:SUSP:DLY**(See 5.559) and **SYSTem:PWR:SUSP:DURation**(See 5.560).

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

5.559 SYSTem:PWR:SUSP:DLY

(Read-Write) Sets the time to delay before putting the FieldFox in Standby.

Use **SYSTem:PWR:SUSP**(See 5.558) to put the FieldFox in Standby.

Use **SYSTem:PWR:SUSP:DURation**(See 5.560) 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

5.560 SYSTem:PWR:SUSP:DURation

(Read-Write) Sets the time to wait before awakening the FieldFox from Standby.

Use **SYSTem:PWR:SUSP**(See 5.558) 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.

5.561

SYSTem:UPReset:FPANel[:STATe]

(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

5.562 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

5.563 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

5.564 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

5.565 SYSTem:TIME

(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

5.566 SYSTem:TZONE

(Read-Write) Set and query the current time zone setting.

Relevant Modes ALL Modes.

Parameters

<string> Use **SYSTem:TZONE:CATalog?**(See 5.567) 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)

5.567 SYSTem:TZONE:CATalog?

(Read-only) Query the list of valid time zone settings. Use **SYSTem:TZONE**(See 5.566) 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)

5.568 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

5.569 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

5.570 SYSTem:VVS:ENABLE

(Read-Write) Set and query the voltage source state.

To clear a 'Tripped' condition, send SYSTem:VVS:ENABLE OFF, then SYSTem:VVS:ENABLE ON.

Query a tripped state using SYSTem:VVS[:STATe]?(See 5.573)

See example program.(See 3.3)

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	SYSTem:VVS:ENABle?
Return Type	Boolean
Default	OFF

Last Modified:

23-Jul-2013 Added trip condition

17-Jul-2012 New command

5.571 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

5.572 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

5.573 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: <ul style="list-style-type: none"> • 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(See 5.570) OFF, then SYSTem:VVS:ENABLE ON
Default	Not Applicable

Last Modified:

23-Jul-2013 Added tripped note

17-Jul-2012 New command

5.574 SYSTem:VVS:VOLTage

(Read-Write) Set and query the output voltage.

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

5.575 TRACe:DATA?

(Read-Only) Returns the current data trace values. If correction is ON, then the returned data is corrected.

- Set Units with [:SENSe]:AMPLitude:UNIT(See 5.331).
- Set data format with FORMat[:DATA](See 5.240)

Relevant Modes SA, RTSA, VVM

For CAT mode(See 4.1) and NA mode(See 4.2), use CALCulate:DATA:<type> commands.

Parameters

<n> Trace number of data to be returned. SA Only. Choose from 1 through 4.

If unspecified, <n> is set to 1.

<char> **Note:** These parameters are NOT allowed for 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
TRAC2:DATA? 'SA & RTSA mode

Return Type Comma-separated numeric

Default Not Applicable

Last modified:

19-sep-2016 Added RTSA to relevant modes (A.09.50).

28-Oct-2011 Added link to format:data

5.576 TRACe:ERTA:RINPut

(Read-Write) Set and query receiver trace measurement.

Relevant Modes ERTA(See 4.10)

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)

5.577 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).

5.578 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](#)(See 5.617), [TRAC:REAL:Y:AUTO](#)(See 5.593), [TRAC:PHAS:Y:AUTO](#)(See 5.585), [TRAC:POL:Y:AUTO](#)(See 5.590), and [TRAC:UPH:Y:AUTO](#)(See 5.609).

Relevant Modes	IQA
Parameters	n/a
Examples	:TRAC:IMAG:Y:AUTO
Query Syntax	n/a
Return Type	n/a
Default	n/a

5.579 TRACe:IMAGinary:Y:DLINe

(Read-Write) Set and query the waveform imaginary line values.

See also [TRAC:WAV:Y:DLIN](#)(See 5.618), [TRAC:REAL:Y:DLIN](#)(See 5.594), [TRAC:PHAS:Y:DLIN](#)(See 5.586), and [TRAC:UPH:Y:DLIN](#)(See 5.610).

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 (See 5.615)
	Minimum: -9.9e37V
	Maximum: 9.9e37V
Examples	TRAC:IMAG:Y:DLIN 1
Query Syntax	TRAC:IMAG:Y:DLINe?
Return Type	Numeric
Default	0V

5.580 TRACe:IMAGinary:Y:PDIVision

(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)

5.581 TRACe:IMAGinary:Y:RLEVel

(Read-Write) Set and query the imaginary reference level value.

See also [TRAC:WAV:Y:RLEV](#)(See 5.620), [TRAC:REAL:Y:RLEV](#)(See 5.596), [TRAC:PHAS:Y:RLEV](#)(See 5.587), [TRAC:POL:Y:RLEV](#)(See 5.591), and [TRAC:UPH:Y:RLEV](#)(See 5.611).

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

5.582 TRACe:IMAGinary:Y:RPOStion

(Read-Write) Set and query the imaginary reference position.

See also [TRAC:WAV:Y:RPOS](#)(See 5.621), [TRAC:REAL:Y:ROS](#)(See 5.597), [TRAC:PHAS:Y:RPOS](#)(See 5.588), and [TRAC:UPH:Y:RPOS](#)(See 5.612).

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

5.583 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](#)(See 5.241) 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

5.584 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).

5.585 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](#) (See 5.617), [TRAC:REAL:Y:AUTO](#) (See 5.593), [TRAC:PHAS:Y:AUTO](#) (See 5.585), [TRAC:POL:Y:AUTO](#) (See 5.590), and [TRAC:UPH:Y:AUTO](#) (See 5.609).

Relevant Modes IQA
 Parameters n/a
 Examples :TRAC:PHAS:Y:AUTO
 Query Syntax n/a
 Return Type n/a
 Default n/a

5.586 TRACe:PHASe:Y:DLINe

(Read-Write) Set and query the waveform phase view line values.

See also [TRAC:WAV:Y:DLIN](#) (See 5.618), [TRAC:REAL:Y:DLIN](#) (See 5.594), [TRAC:IMAG:Y:DLIN](#) (See 5.579), and [TRAC:UPH:Y:DLIN](#) (See 5.610).

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](#) (See 5.615)
 Minimum: -360 degrees
 Maximum: 360 degrees
 Examples TRAC:PHAS:Y:DLIN -180

Query Syntax TRAC:PHAS:Y:DLINe?

Return Type degrees

Default 0 degrees

5.587 TRACe:PHASe:Y:RLEVel

(Read-Write) Set and query the phase reference level value.

See also [TRAC:WAV:Y:RLEV](#)(See 5.620), [TRAC:REAL:Y:RLEV](#)(See 5.596), [TRAC:IMAG:Y:RLEV](#)(See 5.581), [TRAC:POL:Y:RLEV](#)(See 5.591), and [TRAC:UPH:Y:RLEV](#)(See 5.611).

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

5.588 TRACe:PHASe:Y:RPOSition

(Read-Write) Set and query the phase reference position.

See also [TRAC:WAV:Y:RPOS](#)(See 5.621), [TRAC:REAL:Y:ROS](#)(See 5.597), [TRAC:IMAG:Y:RPOS](#)(See 5.582), and [TRAC:UPH:Y:RPOS](#)(See 5.612).

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

5.589 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).

5.590 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](#) (See 5.617), [TRAC:REAL:Y:AUTO](#) (See 5.593), [TRAC:PHAS:Y:AUTO](#) (See 5.585), [TRAC:UPH:Y:AUTO](#) (See 5.609), and [TRAC:IMAG:Y:AUTO](#) (See 5.578).

Relevant Modes IQA

Parameters n/a

Examples :TRAC:POL:Y:AUTO

Query Syntax n/a

Return Type n/a

Default n/a

5.591 TRACe:POLar:Y:RLEV

(Read-Write) Set and query the polar (imaginary vs. real) view reference level value.

See also [TRAC:WAV:Y:RLEV](#)(See 5.620), [TRAC:REAL:Y:RLEV](#)(See 5.596), [TRAC:IMAG:Y:RLEV](#)(See 5.581), [TRAC:PHAS:Y:RLEV](#)(See 5.587), and [TRAC:UPH:Y:RLEV](#)(See 5.611).

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

5.592 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).

5.593 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](#)(See 5.617), [TRAC:IMAG:Y:AUTO](#)(See 5.578), [TRAC:PHAS:Y:AUTO](#)(See 5.585), [TRAC:POL:Y:AUTO](#)(See 5.590), and [TRAC:UPH:Y:AUTO](#)(See 5.609).

Relevant Modes IQA

Parameters n/a

Examples :TRAC:REAL:Y:AUTO

Query Syntax n/a

Return Type n/a

Default n/a

5.594 TRACe:REAL:Y:DLINe

(Read-Write) Set and query the waveform real line values.

See also [TRAC:WAV:Y:DLINe](#)(See 5.618), [TRAC:IMAG:Y:DLIN](#)(See 5.579), [TRAC:PHAS:Y:DLIN](#)(See 5.586), and [TRAC:UPH:Y:DLIN](#)(See 5.610).

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](#)(See 5.615)

Minimum: -9.9e37V

Maximum: 9.9e37V

Examples TRAC:REAL:Y:DLIN 1

Query Syntax TRAC:REAL:Y:DLINe?

Return Type Numeric

Default 0V

5.595 TRACe:REAL:Y:PDIVision

(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)

5.596 TRACe:REAL:Y:RLEVel

(Read-Write) Set and query the waveform real reference level value.

See also [TRAC:WAV:Y:RLEV](#)(See 5.620), [TRAC:IMAG:Y:RLEV](#)(See 5.581), [TRAC:PHAS:Y:RLEV](#)(See 5.587), [TRAC:POL:Y:RLEV](#)(See 5.591), and [TRAC:UPH:Y:RLEV](#)(See 5.611).

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

5.597 TRACe:REAL:Y:RPOStion

(Read-Write) Set and query the real reference position.

See also [TRAC:WAV:Y:RPOS](#)(See 5.621), [TRAC:IMAG:Y:RPOS](#)(See 5.582), [TRAC:PHAS:Y:RPOS](#)(See 5.588), and [TRAC:UPH:Y:RPOS](#)(See 5.612).

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

5.598

TRACe:SPECTrum:AMPLitude:SCALE

(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)

5.599

TRACe:SPECTrum:AMPLitude:UNIT

(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

5.600 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).

5.601 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)

5.602 TRACe:SPECtrum:Y:DLINe

(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)

5.603 TRACe:SPECtrum:Y:PDIVision

(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)

5.604 TRACe:SPECTrum:Y:RLEVel

(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)

5.605 TRACe:SPECTrum:Y:RPOSition

(Read-Write) Set and query the position of the IQA spectrum Y-axis reference line. Use this command with **TRAC:SPEC:Y:RLEVel**(See 5.604) 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

5.606 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

5.607 TRACe:SPECtrum<n>:TYPE

(Read-Write) Set and query the spectrum trace state.

See also :TRAC:WAV<n>:TYPE(See 5.623).

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

5.608 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).

5.609 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](#)(See 5.617), [TRAC:REAL:Y:AUTO](#)(See 5.593), [TRAC:PHAS:Y:AUTO](#)(See 5.585), [TRAC:POL:Y:AUTO](#)(See 5.590), and [TRAC:IMAG:Y:AUTO](#)(See 5.578).

Relevant Modes IQA

Parameters n/a

Examples :TRAC:UPH:Y:AUTO

Query Syntax n/a

Return Type n/a

Default n/a

5.610 :TRACe:UPHase:Y:DLINe

(Read-Write) Set and query the waveform unwrapped phase line values.

See also [TRAC:WAV:Y:DLIN](#)(See 5.618), [TRAC:REAL:Y:DLIN](#)(See 5.594), [TRAC:IMAG:Y:DLIN](#)(See 5.579), and [TRAC:PHAS:Y:DLIN](#)(See 5.586).

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(See 5.615)

Minimum: -360 degrees

Maximum: 360 degrees

Examples TRAC:UPH:Y:DLIN -180

Query Syntax TRAC:UPH:Y:DLIN?

Return Type degrees

Default 0 degrees

5.611 TRACe:UPHase:Y:RLEVel

(Read-Write) Set and query the unwrapped phase reference level value.

See also TRAC:WAV:Y:RLEV(See 5.620), TRAC:REAL:Y:RLEV(See 5.596), TRAC:IMAG:Y:RLEV(See 5.581), TRAC:POL:Y:RLEV(See 5.591), and TRAC:PHAS:Y:RLEV(See 5.587).

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

5.612 TRACe:UPHase:Y:RPOSition

(Read-Write) Set and query the unwrapped phase reference position.

See also TRAC:WAV:Y:RPOS(See 5.621), TRAC:REAL:Y:ROS(See 5.597), TRAC:IMAG:Y:RPOS(See 5.582), and TRAC:PHAS:Y:RPOS(See 5.588).

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

5.613 TRACe:TYPE

(Read-Write) Set and query the type of SA Mode trace display state.

Use [:SENSe]:QUANtity:TACTive?(See 5.445) 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

5.614

TRACe:WAVeform:AMPLitude:SCALe

(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)

5.615

TRACe:WAVeform:AMPLitude:UNIT

(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

5.616 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).

5.617 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](#) (See 5.593), [TRAC:IMAG:Y:AUTO](#) (See 5.578), [TRAC:PHAS:Y:AUTO](#) (See 5.585), [TRAC:POL:Y:AUTO](#) (See 5.590), and [TRAC:UPH:Y:AUTO](#) (See 5.609).

Relevant Modes IQA

Parameters n/a

Examples :TRAC:WAV:Y:AUTO

Query Syntax n/a

Return Type n/a

Default n/a

5.618 TRACe:WAVeform:Y:DLINe

(Read-Write) Set and query the waveform RF envelope view line values.

See also [TRAC:REAL:Y:DLINe](#)(See 5.594), [TRAC:IMAG:Y:DLIN](#)(See 5.579), [TRAC:PHAS:Y:DLIN](#)(See 5.586), and [TRAC:UPH:Y:DLIN](#)(See 5.610).

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](#)(See 5.615)

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

5.619 TRACe:WAVeform:Y:PDIVision

(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)

5.620 TRACe:WAVeform:Y:RLEVel

(Read-Write) Set and query IQA waveform RF envelope Y-axis absolute power reference level value.

See also [TRAC:REAL:Y:RLEV](#)(See 5.596), [TRAC:IMAG:Y:RLEV](#)(See 5.581), [TRAC:PHAS:Y:RLEV](#)(See 5.587), [TRAC:POL:Y:RLEV](#)(See 5.591), and [TRAC:UPH:Y:RLEV](#)(See 5.611).

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

5.621 TRACe:WAVeform:Y:RPOStion

(Read-Write) Set and query the position of the IQA waveform RF envelope Y-axis.

See also [TRAC:REAL:Y:RPOS](#)(See 5.597), [TRAC:IMAG:Y:RPOS](#)(See 5.582), [TRAC:PHAS:Y:RPOS](#)(See 5.588), and [TRAC:UPH:Y:RPOS](#)(See 5.612).

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

5.622 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).

5.623 TRACe:WAVeform<n>:TYPE

(Read-Write) Set and query the waveform RF envelope trace state.

See also :TRAC:SPEC<n>:TYPE(See 5.607).

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

5.624 TRIGger:DELaY

(Write-Read) Set and query the trigger delay time.

Relevant Modes **Pulse Measurements**(See 4.9)

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

5.625 TRIGger:LEVel:AUTO

(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**(See 4.9)

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(See 5.626).

Examples TRIG:LEV 5e-6

Query Syntax TRIGger:LEVel?

Default -15

5.626 TRIGger:LEVel

(Write-Read) Set and query the power level at which the USB power sensor is triggered when TRIGger:LEVel:AUTO(See 5.625) = OFF.

Relevant Modes **Pulse Measurements**(See 4.9)

Parameters

<num> Trigger level in dBm.

Examples TRIG:LEV 5e-6

Query Syntax TRIGger:LEVel?

Default -15

Last Modified:

29-Oct-2013 New command

5.627 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:PRESet:ALL

Return Type n/a

Default Not Applicable

Last modified:

19-sep-2016 Added new RTSA command (A.09.50).

5.628 TRIGger[:SEQuence]:ATRigger

(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(See 5.629).

Relevant Modes IQA, SA, 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:

22-Oct-2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

6-Mar-2013 Modified for 6.25

5.629

TRIGger[:SEQuence]:ATRigger:STATe

(Read-Write) Set and query the auto-triggering state.

Set automatic trigger time using :TRIG:ATR(See 5.628).

Relevant Modes IQA, SA, 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]:ATRigger(See 5.628)), a sweep will occur automatically.

Examples	TRIG:ATR:STAT 1
Query Syntax	TRIGger[:SEQuence]:ATRigger:STATe?
Return Type	Boolean
Default	OFF (0)

Last Modified:

22-Oct-2017 Added IQA mode (10.1x)

10-june-2016 Added RTSA mode (9.50)

6-Mar-2013 Modified for 6.25

5.630 TRIGger[:SEQuence]:DELay

(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]:DELay:STATe(See 5.631)

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

5.631

TRIGger[:SEQuence]:DELay:STATe

(Read-Write) Set and query the trigger delay state. Set delay time using :TRIGger[:SEQuence]:DELay(See 5.630)

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

5.632

TRIGger[:SEQuence]:EXTernal:SLOPe

(Read-Write) Set and query the IQA trigger slope. Trigger Slope determines which edge of a trigger signal initiates a acquisition.

Note: Only valid for **VIDeo**(See 5.656), **EXTernal**, and **RFBurst**(See 5.637) 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:EXT:SLOP NEG
Query Syntax	TRIGger:EXTernal:SLOPe?
Return Type	Character
Default	POS

Last Modified:

22-Oct-2017 Added new command for IQA mode (10.1x)

5.633

TRIGger[:SEQuence]:RFBurst:DElay

(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** (See 5.634).

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).

5.634

TRIGger[:SEQuence]:RFBurst:DElay:ST

ATe

(Read-Write) Set and query the IQA trigger delay states for RFBurst. Set delay time using **:TRIG:RFB:DEL** (See 5.633).

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).

5.635

TRIGger[:SEQuence]:RFBurst:GLIMask

(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).

5.636

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

5.637

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(See 5.632), and RFBurst(See 5.637) 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)

5.638 TRIGger[:SEQuence]:SOURce

(Read-Write) Set and query the source of trigger signals which initiate a measurement.

See [Trigger:Source command](#)(See 5.658) for NA Mode.

Relevant Modes [Pulse Measurements](#)(See 4.9)

Parameters

<char> Choose from:

FREerun - The USB Power Sensor acquires data without waiting for a trigger. This mode is NOT supported for Trace Graph measurements.

INTernal - The USB Power Sensor acquires data when a valid pulse signal is detected at the RF input. The following Trigger settings determine the validity of the trigger signal.

EXTernal - The USB Power Sensor acquires data when a valid TTL signal is detected at the USB Power Sensor external trigger input.

Examples	TRIG:SOU EXT
Query Syntax	TRIGger:SOURce?
Return Type	Character
Default	INTernal

5.639

TRIGger[:SEQuence]:FGATe:DELay

(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.(See 4.3)

Relevant Modes SA

Parameters

<num> Trigger delay time in seconds.

Examples TRIG:DEL 2

Query Syntax TRIGger[:SEQuence]:DELay?

Return Type Numeric

Default 0

5.640

TRIGger[:SEQuence]:FGATe[:STATe]

(Read-Write) Set and query the FFT Gating On/Off state.

See all FFT Gating commands.(See 4.3)

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

5.641

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

(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.(See 4.3)

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)

5.642

TRIGger[:SEQuence]:FGATe:VIEW:TIME

(Read-Write) Set and query the X-axis time span for the time domain window.

See all FFT Gating commands.(See 4.3)

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

5.643

TRIGger[:SEQuence]:FGATe:WIDTh

(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.(See 4.3)

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

5.644

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](#)(See 5.645).

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).

5.645

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** (See 5.644) 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).

5.646

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).

5.647 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).

5.648 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

5.649 TRIGger[:SEQuence]:POSition

(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 (See 5.650)

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

5.650

TRIGger[:SEQuence]:POSition:STATe

(Read-Write) Set and query the trigger position state. Set trigger position using TRIGger[:SEQuence]:POSition (See 5.649).

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 (See 5.630) 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)

5.651 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

5.652 TRIGger[:SEQuence]:SOURce

(Read-Write) Set and query the source of FieldFox trigger signals.

Relevant Modes IQA, SA, 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) 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.s

RFB – (RF Burst) 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](#)(See 5.655) (SA Only)

[TRIGger\[:SEquence\]:VIDeo|RFBurst:LEVel](#)(See 6.15) (IQA Only)

Examples	TRIG:SOUR EXT
Query Syntax	TRIGger[:SEquence]:SOURce?
Return Type	Character
Default	FREE

Last Modified:

22-Oct-2017	Added IQA mode (10.1x)
10-june-2016	Added RTSA mode (9.50)
28-Mar-2013	Added RF Burst (6.25)

5.653

TRIGger[:SEQuence]:VIDeo:DELaY

(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**(See 5.654).

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).

5.654

TRIGger[:SEQuence]:VIDeo:DELaY:STA
Te

(Read-Write) Set and query the IQA trigger delay states for VIDEO. Set delay time using **:TRIG:VID:DEL**(See 5.653).

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)

5.655

TRIGger[:SEQuence]:VIDeo: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 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(See 5.330).

Examples TRIG:VID:LEV -30

Query Syntax TRIGger[:SEQuence]:VIDeo:LEVel?

Return Type Numeric

Default - 20 dBm (Log)

22.361 mv (Lin)

5.656

TRIGger[:SEQuence]:VIDeo:SLOPe

(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 VIdео, EXTeRnal(See 5.632), and RFBurst(See 5.637) 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)

5.657 TRIGger:SLOPe

(Read-Write) Set and query the polarity of a valid external trigger signal.

Relevant Modes NA(See 4.2), **Pulse Measurements**(See 4.9)

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

5.658 TRIGger:SOURce

(Read-Write) Set and query the source of trigger signals which initiate a measurement.

See **Trigger:Source command**(See 5.638) 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

5.659 TRIGger:SOURce

(Read-Write) Set and query the source of trigger signals which initiate a measurement.

See [Trigger:Source command](#) for NA Mode.

Relevant Modes [Pulse Measurements](#)

Parameters

<char> Choose from:

FREerun - The USB Power Sensor acquires data without waiting for a trigger. This mode is NOT supported for Trace Graph measurements.

INTernal - The USB Power Sensor acquires data when a valid pulse signal is detected at the RF input. The following Trigger settings determine the validity of the trigger signal.

EXTernal - The USB Power Sensor acquires data when a valid TTL signal is detected at the USB Power Sensor external trigger input.

Examples	TRIG:SOU EXT
Query Syntax	TRIGger:SOURce?
Return Type	Character
Default	INTernal

5.660 UNIT:POWer

(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

6. Addenda

6.1 [:SENSe]:ALIGNment:ALL[:STATe]

(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**(See 6.2).

Relevant Modes IQA SA, **CPM**(See 4.7), 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

6.2 [: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** (See 6.1).

Relevant Modes IQA,SA, **CPM**(See 4.7), RTSA

All models with InstAlign (All EXCEPT N9912A)

Parameters None

Examples ALIG:ALL:NOW

Query Syntax Not Applicable

Default Not Applicable

Last Modified:

29-Nov-2017 New command & new IQA mode (A.10.15)

6.3

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

(Read-Write) Set and query the amplitude alignment (InstAlign) state.

Relevant Modes IQA SA, **CPM**(See 4.7), 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:

29-Nov-2017 New command & new IQA mode (A.10.15)

6.4

[: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 IQA,SA, **CPM**(See 4.7), RTSA

All models with InstAlign (All EXCEPT N9912A)

Parameters	None
Examples	ALIG:AMPL:NOW
Query Syntax	Not Applicable
Default	Not Applicable

Last Modified:

29-Nov-2017 New command & new IQA mode (A.10.15)

6.5

[:SENSe]:ALIGNment:BURSt[:STATe]

(Read-Write) Set and query the RTSA and SA modes burst alignment (InstAlign) state.

Relevant Modes IQA, SA, CPM(See 4.7), 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:

29-Nov-2017 New command & new IQA mode (A.10.15)

6.6 [: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:

29-Nov-2017 New command and new IQA mode (A.10.15)

6.7

[[: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:

29-Nov-2017 New command & new IQA mode (A.10.15)

6.8 [: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:

29-Nov-2017 New command & new IQA mode (A.10.15)

6.9

:CALCulate:WAVEform:MARKer[1]|2|3|4|5|6:FUNCtion:MINimum

(Write-Only) Moves the selected waveform 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 (Waveform Only)

Parameters

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

Couplings N/A

Examples CALC:WAV:MARK3:FUNC:MIN

Query Syntax N/A

Default N/A

6.10 :SOURce:TRACking

Note: This command was previously named SORce:MODE. That syntax will still work, but this new

syntax should be used for new development.

(Read-Write) Set and query the source tracking.

Relevant Modes SA

Parameters

<char> Source tracking type. Choose from:

OFF - Disables tracking.

TCF - Sets the internal source tracking to the center frequency.

TSWP - (SA Only) Sets the internal source to track with the SA receiver. Use **SOURce:NORMalize**(See 5.501) to normalize the trace.

Examples SOUR:TRAC TCF

Query Syntax SOUR:TRAC?

Return Type Character

Default OFF

6.11 TRACe:PHASe:Y:PDIVision

(Read-Write) Set and query the IQA waveform phase Y-axis scale values per division.

Relevant Modes IQA

Parameters

<degree> Minimum: 1 degree

Maximum: 360 degree

Examples TRAC:PHAS:Y:PDIV 18

Query Syntax TRAC:PHAS:Y:PDIV?

Return Type numeric

Default 36

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

6.12 TRACe:UPHase:Y:PDIVision

(Read-Write) Set and query the IQA waveform unwrapped phase Y-axis scale

values per division.

Relevant Modes	IQA
Parameters	
<degree>	Minimum: 1 degree
	Maximum: 360 degree
Examples	TRAC:UPH:Y:PDIV 18
Query Syntax	TRAC:UPH:Y:PDIV?
Return Type	numeric
Default	36

Last Modified:

22-oct-2017 Added IQA mode (10.1x)

6.13

:TRIGger[:SEQuence]:EXTernal:DELay

(Read-Write) Set and query the IQA delay for external triggers. An incoming signal with this amplitude will initiate an acquisition.

See also **TRIG:EXT:DEL:STAT** (See 6.14).

Relevant Modes	IQA
Parameters	
<numeric>	Minimum: -150 ms
	Maximum: 500 ms
Examples	TRIG:EXT:DEL .001
Query Syntax	TRIG:EXT:DEL?
Return Type	Numeric
Default	0.0000000E+00 s

Last Modified:

22-Oct-2017 Added new IQA mode command (10.1x).

6.14

:TRIGger[:SEQuence]:EXTernal:DELay:STATe

(Read-Write) Set and query the IQA trigger delay states for EXTeRnal. Set delay time using :TRIG:EXT:DEL(See 6.13).

Relevant Modes IQA

Parameters

<boolean> Trigger delay state. Choose from:

OFF or 0 - Trigger delay OFF.

ON or 1 - Auto Trigger ON.

Examples

```
TRIG:EXT:DEL:STAT ON
```

```
TRIG:EXT:DEL:STAT 0
```

Query Syntax TRIG:EXT:DEL:STAT?

Return Type Boolean

Default OFF (0)

Last Modified:

22-Oct-2017 Added new IQA mode command (10.1x).

6.15 :TRIGger[:SEQuence]:VIDeo:LEVel

(Read-Write) Set and query the IQA trigger level for VIDeo. An acquisition is triggered on a signal at the SA RF Input connector when the amplitude of the incoming signal exceeds the settable Trigger Level.

Note: Only valid for VIDeo triggers.

Relevant Modes IQA

Parameters

<numeric> Video trigger level (dBm).

Minimum: -210 dBm

Maximum: 30 dBm

Examples TRIG:VID:LEV 3
 TRIG:RFB:LEV -10
Query Syntax :TRIG:VID:LEV?
Return Type numeric
Default -25 dBm

Last Modified:

22-Oct-2017 New IQA command (A.10.1x)

6.16 CALCulate:MEASurement:WAOR?

(Read-Only) Returns the ADC over-range status of the last sweep?

Relevant Modes SA(See 4.3), ERTA(See 4.10)

Examples CALC:MEAS:WAOR?

Return Type Boolean

0 - No over-range detected.

1 - ADC over-range detected.

Default Not Applicable

Last Modified:

26-Jan-2015 New command

6.17

CALCulate[:SElected]:MARKer:TDR:FORMat

(Read-Write) Set and query the trace marker format for the selected TDR measurement.

This command operates on the selected trace. First select a trace using

CALC:PAR<tr>:SElect(See 5.26).

Relevant Modes CAT

Parameters

<char> Choose from:

DEfault - Marker readout is the same as the trace format.

ZMAG - Impedance magnitude readout.

Examples CALC:MARK:TDR:FORM ZMAG

Query Syntax CALCulate[:SElected]:MARKer:TDR:FORMat?

Return Type Character

Default ZMAG

6.18

CALCulate[:SElected]:OFFSet[:MAGNitude]

(Read-Write) Set and query the magnitude offset value.

See also: **CALCulate[:SElected]:OFFSet:SLOPe**(See 6.19)

Relevant Modes NA Mode(See 4.2)

Parameters

<num> Offset magnitude in dB.

Examples CALC:OFFS 1.5

Query Syntax CALCulate[:SElected]:OFFSet[:MAGNitude]?

Return Type Numeric

Default 0

Last Modified:

22-Jan-2015 New command (A.08.00)

6.19

CALCulate[:SElected]:OFFSet:SLOPe

(Read-Write) Set and query the magnitude offset slope.

See also: **CALCulate[:SElected]:OFFSet[:MAGNitude]**(See 6.18)

Relevant Modes **NA Mode**(See 4.2)

Parameters

<num> Offset magnitude slope in dB/GHz.

Examples CALC:OFFS:SLOP 1.5

Query Syntax CALCulate[:SElected]:OFFSet:SLOPe?

Return Type Numeric

Default 0

Last Modified:

22-Jan-2015 New command (A.08.00)

6.20

:DISPlay:ADEMod:METRics:AM:RESults:DATA?

(Query only) Queries the FM demodulation data values. Returns 8 doubles values in the following order: carrierPower, carrierFreq, modulationRate, sinad, thd, amModDepth, amModDepthPeakPlus, amModDepthPeakMinus

Relevant Modes SA

Parameters

<number>

Examples :DISP:ADEM:METR:AM:RES:DATA?

Query Syntax :DISP:ADEM:METR:AM: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)

6.21 :DISPlay:MODel:DATA

(Query only) Queries the USB power sensor serial number and model number values. Returns the serial number and model number.

Relevant Modes	Power Sensor (USB) Mode - Option 302
Parameters	<comma separated string>
Examples	:DISP:MOD:DATA?
Query Syntax	:DISP:MOD:DATA?
Return Type	<string>,<string>
Default	
Notes.	

6.22 DISPlay:WAVeform:VIEW[:SElect]

(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).

6.23 MMEMory:LOAD:SANTenna

(Write-only) Load a source antenna file from the specified device.

To load a receiver (or only one) antenna file, use **MMEMory:LOAD:ANTenna**(See 5.263)

- All 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**.(See 4.13)

Relevant Modes 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:SANT "MyAntenna",INT
mmemory:load:santenna "demo_antenna_26m_3g.ant",internal
```

Query Syntax Not Applicable

Default Not Applicable

6.24 MMEMory:LOAD:SCABLe

(Read-Write) Loads a source cable file from the specified device.

To load a receiver (or only one) cable file, use **MMEMory:LOAD:CABLe**(See 5.264)

- 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.(See 4.13)

Relevant Modes CAT, SA

Parameters

- <string> Filename of the cable file WITHOUT 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:SCAB "MyCable",INT

Query Syntax Not Applicable

Default Not Applicable

6.25 MMEMory:STORe:SANTenna

(Write-only) Load a source antenna file from the specified device.

To load a receiver (or only one) antenna file, use **MMEMory:LOAD:ANTenna**(See 5.263)

- All 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.(See 4.13)

Relevant Modes 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:SANT "MyAntenna",INT`
`mmemory:load:santenna "demo_antenna_26m_3g.ant",internal`

Query Syntax Not Applicable

Default Not Applicable

6.26 MMEMory:STORe:SCABle

(Read-Write) Saves the currently-loaded source cable table to a file at the specified location and device.

- 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.(See 4.13)

Relevant Modes CAT (DTF), SA

Parameters

<string> Filename of the cable file WITHOUT 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:SCAB "MyCable",INT`

Query Syntax Not Applicable

Default Not Applicable

6.27

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

(Write-only) Clears the Source-side Antenna Correction table. This is the same as selecting the **New** softkey and then confirming “Yes” from the Edit/Save/Recall Source Antennas menu.

For Receiver antenna, use

[:SENSe]:AMPLitude:CORRections:ANTenna:DEFault(See 5.325)

Relevant Modes SA(See 4.3), ERTA(See 4.10)

Parameters None

Examples AMPL:CORR:SANT:DEF

Query Syntax Not Applicable

Default Not Applicable

6.28

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

(Read-Write) Set and query the Source-side Antenna Corrections ON/OFF state.

For receiver antenna, use

[:SENSe]:AMPLitude:CORRections:ANTenna[:STATe](See 5.326)

Relevant Modes SA

Parameters

<bool> Source Antenna correction state. Choose from:

OFF (or 0) - Antenna correction OFF.

ON (or 1) - Antenna correction ON.

Examples AMPL:CORR:SANT 1

Query Syntax [:SENSe]:AMPLitude:CORRections:SANTenna[:STATe]?

Return Type Boolean

Default OFF

6.29

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

(Write-only) Clears the Source Cable Correction table. This is the same as selecting the **New** softkey and then confirming “Yes” from the Edit/Save/Recall Antennas menu.

For receiver (or only one) cable, use

[:SENSe]:AMPLitude:CORRections:CABLe:DEFault(See 5.327)

Relevant Modes SA

Parameters None

Examples AMPL:CORR:SCABL:DEF

Query Syntax Not Applicable

Default Not Applicable

6.30

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

(Read-Write) Set and query the Source Cable Corrections ON/OFF state.

For receiver (or ONE) cable, use:

[:SENSe]:AMPLitude:CORRections:CABLe[:STATe](See 5.328)

Relevant Modes SA

Parameters

<bool> Source Cable correction state. Choose from:

OFF (or 0) - Cable correction OFF.

ON (or 1) - Cable correction ON.

Examples AMPL:CORR:SCAB 1

Query Syntax [:SENSe]:AMPLitude:CORRections:SCABle[:STATe]?

Return Type Boolean

Default OFF

6.31 SENSE:BURSt:ALIGnment[:STATe]

This command has been replaced by `[[:SENSe]:ALIGnment:BURSt[:STATe]]` (See 6.5). Learn about superseded [commands](#) (See 5.2).

(Read-Write) Set and query the RTSA and SA modes burst alignment (InstAlign) state.

Relevant Modes IQA, SA, **CPM** (See 4.7), 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

BURS:ALIG HOLD

Query Syntax `[[:SENSe]:BURSt: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 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)

6.32

[:SENSe]:FREQuency:SPAN:DREVerse

(Write-only) Toggle the forward / reverse state of the SA frequency range (step sweep only). Requires Opt 209.

Relevant Modes SA(See 4.3)

Parameters None

Examples `FREQ:SPAN:DREV`

Default Not applicable

Last Modified:

26-Jan-2015 New command (8.0)

6.33 [:SENSe]:MEASurement:ERTA:PIP

(Read-Write) Set and query the partner network identity.

Relevant Modes ERTA(See 4.10)

Parameters

<string> IP address of the partner (source) FieldFox, enclosed in quotes.

Examples `MEAS:ERTA:PIP "192.168.0.0"`

Query Syntax `[:SENSe]:MEASurement:ERTA:PIP?`

Return Type String

Default Not applicable

Last Modified:

20-Jan-2015 New command (8.00)

6.34

[:SENSe]:MEASurement:ERTA:VPIP

(Read-only) Returns whether or not the source (partner) FieldFox is ERTA capable.

Relevant Modes ERTA(See 4.10)

Parameters	None
Return Type	Boolean
	1 – Partner is ERTA capable.
	0 – Partner is NOT ERTA capable
Default	Not applicable

Last Modified:

20-Jan-2015 New command (8.00)

6.35

[[:SENSe]:SWEep:TDR:AUTO:FREQuency:STOP:MAXimum

(Read-Write) Set and query maximum stop frequency when TDR sweep resolution mode = AUTO

Relevant Modes CAT(See 4.1)

Parameters

<num> Choose a value between the FieldFox start and stop frequencies.

Examples SWE:TDR:AUTO:FREQ:STOP:MAX 1e6

Query Syntax [[:SENSe]:SWEep:TDR:AUTO:FREQuency:STOP:MAXimum?

Return Type Numeric

Default The stop frequency of the FieldFox model.

6.36 [[:SENSe]:SWEep:TDR:RES

(Read-Write) Set and query the resolution mode for the TDR measurement. This is the TDR Sweep setting in the FieldFox UI.

Relevant CAT(See 4.1)

Modes

Parameters

<num> Choose from:

AUTO – Low pass frequency settings are calculated based on the

current number of points. The Stop Frequency and Resolution settings can be changed to any value.

- Use `[[:SENSe]:SWEep:TDR:AUTO:FREQuency:STOP:MAXimum(` See 6.35) to limit the Stop Frequency.
- Use `[[:SENSe]:SWEep:POINts`(See 5.473) to set Resolution.

CABLe - Provides a higher resolution measurement or when under-sampling is suspected. The Stop Frequency is limited to 500 MHz maximum. The Resolution is fixed to 1601.

Examples	SWE:TDR:RES AUTO
Query Syntax	[[:SENSe]:SWEep:TDR:RES?
Return Type	Character
Default	Auto

6.37 SOURce:TOFFset:ENABle

(Read-Write) Set and query source tracking offset ON / OFF state.

Relevant Modes **ERTA**(See 4.10)

Parameters

<bool> Choose from:

ON or 1 - Tracking offset enabled.

OFF or 0 - Tracking offset NOT enabled.

Examples	SOUR:TOFF:ENAB 1
Query Syntax	SOURce:TOFFset:ENABle?
Return Type	Boolean
Default	OFF

Last Modified:

20-Jan-2015 New command (8.00)

6.38 SOURce:TOFFset:FREQuency

(Read-Write) Set and query source tracking offset frequency.

Relevant Modes **ERTA**(See 4.10)

Parameters

<num> Offset frequency in Hz.

Choose a value between 1 Hz and the maximum frequency of the FieldFox.

Examples SOUR:TOFF:FREQ 1e3

Query Syntax SOURce:TOFFset:FREQuency?

Return Type Numeric

Default 0 Hz.

Last Modified:

20-Jan-2015 New command (8.00)

6.39 SOURce:TOFFset:REVerse

(Read-Write) Set and query source tracking offset reversal ON / OFF state.

Relevant Modes ERTA(See 4.10)

Parameters

<bool> Choose from:

ON or 1 - Tracking offset reversal enabled.

OFF or 0 - Tracking offset reversal NOT enabled.

Examples SOUR:TOFF:REV 1

Query Syntax SOURce:TOFFset:REVerse?

Return Type Boolean

Default OFF

Last Modified:

20-Jan-2015 New command (8.00)

6.40 SYSTem:ERRor:LOG:ERASe

(Write Only) Immediately erase error log data from the FieldFox.

Caution: there is no confirmation message.

Note: This SCPI only applies to CPU2 FieldFox models.

Relevant Modes ALL

Parameters

<value> RAM – Erases current displayed UI entries.

ALL – Clears the UI information and the persistent log file (i.e., erases the error log created by using the :SYST:ERAS "USERDATA" command).

Examples **SYST:ERR:LOG:ERAS RAM**

Query Syntax n/a
Default n/a

6.41 SYSTem:PREFerences:SNP

(Read-Write) Set and query the SNP data save selection.

Relevant Modes ALL Modes, but relevant only to NA mode.

Parameters

<char> Choose from:

DEFault – SNP data does NOT include smoothing. SNP data saves are taken AFTER data processing (location 2) on the processing chain.

ADVanced – SNP data includes the following:

- With Smith or Polar display format, SNP data saves are taken BEFORE most processing (location 1 on the data processing chain).
- With any other display format, SNP data saves are taken just AFTER Formatting and Smoothing is applied (location 3 on the data processing chain). For each non-active trace, SNP trace data is reprocessed using the data processing chain of the active trace.

See the FieldFox data processing chain at the **Supplemental Online Help:**

<http://na.support.keysight.com/fieldfox/help/SupHelp/FieldFox.htm>

Examples **SYST:PREF:SNP ADV**

Query Syntax SYSTem:PREFerences:SNP?
Return Type Character
Default DEFault