HSA1000 Series Spectrum Analyzer

Programming Manual

For product support, visit:www.owon.com.hk/download

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SCPI Introduction

SCPI (Standard Commands for Programmable Instrument) is a standard instruction set for programmable devices under IEEE 488.2. SCPI commands are divided into two parts: IEEE 488.2 Common Commands and SCPI Instrument Specific Control Commands.

Common commands are commands that the instrument specified in IEEE 488.2 must support. Its syntax and semantics follow IEEE 488.2. Common commands are independent from the measurement and are used to control reset, self-test and status inspection. For an introduction of SCPI common commands, refer to the relative chapter below.

SCPI instrument-specific control commands are used to measure, read data, and toggle switches, including all measurement functions and specific functions.

Command Format

The SCPI command is a tree hierarchy that includes multiple subsystems, each consisting of a root key and one or more level keys. The command line usually begins with a colon ":"; the keywords are separated by the colon ":" followed by the optional parameter settings; the question mark "?" is added after the command line to query this function; the commands and parameters separate with "space".

E.g
:CALCulate:BANDwidth:NDB <rel_ampl>
:CALCulate:BANDwidth:NDB?
CALCulate is the root keyword of the command, BANDwidth and NDB are the second level, third level keywords. The command line starts with a colon ":" and at the same time separates keywords at all levels, <rel_ampl> indicates configurable parameters; the question mark "?" indicates a query; the command: CALCulate:BANDwidth:NDB and parameter <rel_ampl> "separate.

In some commands with parameters, it is common to use commas "," to separate the parameters, for example:
:SYSTem:DATE <year>,<month>,<day>

For professionalization, the final command should include a newline character (\n) to indicate the end of the command. If multiple commands are issued simultaneously, the command lines should be separated by a semicolon (;).

Symbol Description

The following four symbols are not part of the SCPI command, but are usually used to assist in specifying

the parameters in the command.。

Brace { }
Parameters in brace are optional and can be set one or more times or even don't set them. E.g:
The frequency and magnitude of {, <freq>, <rel_ampl>} in the command [:SENSe]:CORRection:CSET <n>:DATA <freq>, <rel ampl> {, <freq>, <rel ampl>} can be omitted, or to set one or more pairs of frequency and amplitude parameters.

Vertical bar |
Vertical bars are used to separate multiple parameter options, one of which must be selected when sending commands. E.g,
In DISPlay:MENU:STATe OFF | ON | 0 | 1 command, the parameters that can be selected are "OFF", "ON", "0" or "1".

Square bracket [ ]
The contents of the square bracket (command key) are optional and are executed regardless of whether they are omitted. E.g
[:SENSe]:CORRection:OFFSet[:MAGNitude]?
The effect of sending the following three commands is the same:
:CORRection:OFFSet?
:CORRection:OFFSet:MAGNitude?
:SENSe:CORRection:OFFSet?

Triangle bracket < >
The parameters in the triangle brackets must be replaced with a valid value. E.g:
:DISPlay:BRIGtness <integer>
:DISPlay:BRIGtness 10

Parameter Type

The commands contain 8 kinds of parameters, different parameters have different setting methods.

(1) arbitrary block
A specified length of arbitrary data, for example,
#6377512xxxxx . . . where
6 indicates that the following 6 digits (377512) specify the length of the data in bytes; xxxxx ... indicates the data or #0xxxxx...<LF><&EOI>

(2) boolean
Boolean numbers or values, for example,
ON or ≠ 0
OFF or 0

(3) discrete

A list of specific values, for example,
MIN, MAX

(4) NR1 numeric
Integers, for example,
0, 2, 30, -5

(5) NR2 numeric
Decimal numbers, for example,
0.6, 3.1415926, -2.6

(6) NR3 numeric
Floating point numbers, for example,
3.1415E-7, -8.2E3

(7) NRf numeric
Flexible decimal number that may be type NR1, NR2 or NR3
See NR1, NR2, and NR3 examples

(8) string
Alphanumeric characters (must be within quotation marks)
"Model, 123456"

Command abbreviation

All commands are case sensitive, meaning that if the command is not written in the correct upper or lower-case format, it will not be recognized. However, if you want to abbreviate, you must enter all capital letters in the command format, for example:
:CALCulate:BANDwidth:NDB? can be abbreviated into:CALC:BAND:NDB?

Third-party programming entrance

The analyzer and the computer can communicate through the following interfaces: LAN interface and USB interface. please refer to the product's user manual for the use of various communication interface.

When using commands to program, all command words are sent and recognized as ASCII strings for operation and secondary development.

You can implement the following actions by programming:
- Set the analyzer
- Implement the measurement

Get data from the spectrum analyzer (instrument working status and measurement data results).

Remote control

The analyzer provides USB and LAN connections that allow you to set up a remote operating environment using the controller computer. The controller computer can be a personal computer (PC) or a small computer, as well as some intelligent instruments.

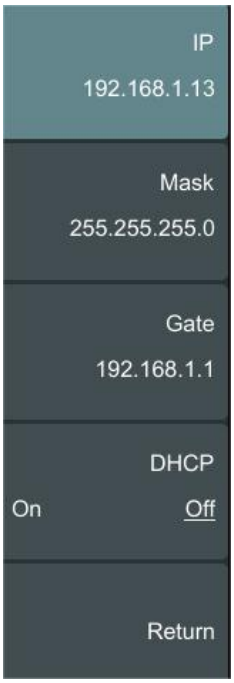
Connect using USB port

Refer to the following steps to complete the connection to the PC by a USB device:
1、Install NI-VISA on your PC to get the USB-TMC driver.
2、Connect the USB Device port of the analyzer to the USB Host port of the PC using the USB A-B cable.
3、Open the analyzer.
The analyzer will be automatically monitored for the new USB device.

Connect using LAN port

Refer to the following steps to complete the connection to the PC by LAN:
1、Install NI-VISA on your PC to get the VXI driver. Alternatively, in the absence of NI-VISA, use sockets can view the listening port on the system information page.
2、Connect the LAN port of the analyzer to the LAN Host port of the PC using the Internet cable.
3、Open the analyzer.
4、Press **System** -> **Setting** -> **LAN** button in the front of panel and enter the LAN function menu.
5、Select static or dynamic IP configuration.

- Dynamic:The DHCP server in the current network automatically assigns network parameters (IP, Mask, Gate) to the analyzer.
- Static:You can manually set the IP, Mask, and Gate mode.



The analyzer will be tested automatically or manually for the new LAN device.

SCPI Command Set

In this command set, unless otherwise specified, the query function returns **"N/A"** (without the quotes) when the function is optional and not installed. And when the query function is not turned on or the type does not match, it returns **"ERR"** (without quotes).

IEEE 488.2 Common Commands

The IEEE standard defines some common commands for querying basic information about the instrument or performing common basic operations. The commands usually start with "*" and the command keyword is three characters in length.

*IDN?

Description	Queries the manufacturer, model number, serial number, and firmware version of the instrument.	
Query Syntax	*IDN?	
Return parameter	<string>	Returns the instrument identification as a string in the following format: OWON, HSA1015S-TG, 1712074, V3.0.5.1 Manufacturer: OWON Model number: HSA1015S-TG Serial number: 1712074 Firmware version: V3.0.5.1

*RST

Description	perform a factory reset.
Syntax	*RST

CALCulate Commands

:CALCulate:BWIDth|BANDwidth:NDB

Description	Set the power ratio to measure the frequency bandwidth of the current frequency scale, which drops NdB on both sides.
Syntax Query Syntax	:CALCulate:BWIDth|BANDwidth:NDB <rel_ampl> :CALCulate:BWIDth|BANDwidth:NDB?
Parameter	<rel_ampl> <NR2> 1 dB to 60 dB
Return Parameter	<NR3>
Example	:CALC:BAND:NDB 5

:CALCulate:BWIDth|BANDwidth:RESult?

Description	Returns the NdB bandwidth measurement.
Query Syntax	:CALCulate:BWIDth|BANDwidth:RESult?
Return Parameter	<NR1> NdB bandwidth in Hz.
Example	:CALC:BAND:RES? returns 26000

:CALCulate:BWIDth|BANDwidth[:STATe]

Description	Sets or queries the state of the NdB bandwidth measurement function. The function measures the bandwidth, at the number of dB down specified in *:CALCulate:BWIDth|BANDwidth:NDB*, of the maximum signal on the display.
Syntax Query Syntax	:CALCulate:BWIDth|BANDwidth[:STATe] {OFF|ON|0|1} :CALCulate:BWIDth|BANDwidth[:STATe]?
Parameter	0 Turns NdB BW off. 1 Turns NdB BW on. OFF Turns NdB BW off. ON Turns NdB BW on.
Return Parameter	0 NdB BW is off. 1 NdB BW is on.
Example	:CALC:BAND ON

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

Description	Sets or queries the state of continuous peaking. It continuously puts the selected marker on the highest displayed signal peak.	
Syntax	:CALCulate:MARKer<n>:CPEak[:STATe] {OFF|ON|0|1}	
Query Syntax	:CALCulate:MARKer<n>:CPEak[:STATe]?	
Parameter	<n>	<NR1> Marker number 1 to 5
	0	Turns continuous peaking off.
	1	Turns continuous peaking on.
	OFF	Turns continuous peaking off.
	ON	Turns continuous peaking on.
Return Parameter	0	Continuous peaking is off.
	1	Continuous peaking is on.
Example	:CALC:MARK1:CPE ON	

:CALCulate:TRACe<n>:PEAK:MODE

Description	Sets and queries peak search types	
Syntax	:CALCulate:TRACe<n>:PEAK:MODE {Min|Max}	
Query Syntax	:CALCulate:TRACe<n>:PEAK:MODE?	
Parameter	<n>	<NR1> trace number 1 to 5.
	Min	Peak min search mode.
	Max	Peak max search mode.
Return Parameter	Min	Sets the minimum peak search.
	Max	Set the maximum peak search.
Example	:CALC:TRAC1:PEAK:MODE MAX :CALC:TRAC1:PEAK:MODE? Return Max	

:CALCulate:TRACe<n>:PEAK:EXCur | EXCursion

Description	Sets and queries the peak height of the selected trace, Unit dB.	
Syntax Query Syntax	:CALCulate:TRACe<n>:PEAK:EXCur <value> :CALCulate:TRACe<n>:PEAK:EXCur? :CALCulate:TRACe<n>:PEAK:EXCursion <value> :CALCulate:TRACe<n>:PEAK:EXCursion?	
Parameter	<n> <value>	<NR1> trace number 1 to 5. <NR2> 0 dB to 120 dB
Return Parameter	<value>	10.00 dB
Example	:CALC:TRAC1:PEAK:EXC 10 :CALC:TRAC1:PEAK:EXC? Return 10.00 dB	

:CALCulate:TRACe<n>:PEAK:LIST:SORT

Description	Set and query the peak list sorting type.	
Syntax Query Syntax	:CALCulate:TRACe<n>:PEAK:LIST:SORT {ampt|freq} :CALCulate:TRACe<n>:PEAK:LIST:SORT?	
Parameter	<n> Ampt Freq	<NR1> Traces number 1 to 5. Selects traces peak list amplitude sorting. Selects traces peak list frequency sorting.
Return Parameter	Ampt Freq	Traces peak list amplitude sorting. Traces peak list frequency sorting.
Example	:CALC:TRAC1:PEAK:LIST:SORT AMPT :CALC:TRAC1:PEAK:LIST:SORT? Return Ampt	

:CALCulate:TRACe<n>:PEAK:LIST:[STATe]

Description	Sets or queries the peak list switch.
Syntax Query Syntax	:CALCulate:TRACe<n>:PEAK:LIST:[STATe] <ON|OFF|1|0> :CALCulate:TRACe<n>:PEAK:LIST:[STATe]?
Parameter	<n> <NR1> Traces number 1 to 5. OFF Selects traces off peak list ON Selects traces on peak list 0 Selects traces off peak list 1 Selects traces on peak list
Return Parameter	1 Selects traces to turn on peak list 0 Selects traces to turn off peak list
Example	:CALC:TRAC1:PEAK:LIST:STAT 1 :CALC:TRAC1:PEAK:LIST:STAT? Return 1

:CALCulate:TRACe<n>:PEAK:LIST:VALue

Description	Queries the frequency point of the peak list of the currently selected trace and the corresponding amplitude value.
Syntax	:CALCulate:TRACe<n>:PEAK:LIST:VALue?
Parameter	<n> <NR1> Traces number 1 to 5.
Example	:CALC:TRAC1:PEAK:LIST:VAL? Return 500 MHz -20 dBm, 1.00GHz -18.0 dBm,...

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

Description	Changes the center frequency of the analyzer to the frequency difference between the two markers. This command is not available if the delta marker is off.
Syntax	:CALCulate:MARKer<n>:DELTa[:SET]:CENTer
Parameter	<n> <NR1> Marker number 1 to 5.
Example	:CALC:MARK1:DELT:CENT

:CALCulate:MARKer<n>:DELTa[:SET]:SPAN

Description	Changes the span of the analyzer to the frequency difference between the two markers. This command is not available if the delta marker is off.
Syntax	:CALCulate:MARKer<n>:DELTa[:SET]:SPAN
Parameter	<n> <NR1> Marker number 1 to 5.
Example	:CALC:MARK1:DELT:SPAN

:CALCulate:MARKer<n>:FCOunt:RESolution

Description	Sets or queries the frequency counter resolution in Hz.	
Syntax Query Syntax	:CALCulate: MARKer<n>:COUNt:RESolution <freq> :CALCulate: MARKer<n>:COUNt:RESolution?	
Parameter	<freq>	Frequency resolution in Hz Only 1000, 100, 10, 1 Hz are meaningful.
Return Parameter	<freq>	Frequency resolution in Hz
Example	:CALC:FREQ:COUN:RES 1	

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

Description	Sets or queries the state of the marker frequency counter function.	
Syntax Query Syntax	:CALCulate: MARKer<n>:COUNt[:STATe] {OFF|ON|0|1} :CALCulate: MARKer<n>:COUNt[:STATe]?	
Parameter	0 1 OFF ON	Turns frequency counter off. Turns frequency counter on. Turns frequency counter off. Turns frequency counter on.
Return Parameter	0 1	Frequency counter is off. Frequency counter is on.
Example	:CALC:FREQ:COUN: 1	

:CALCulate: MARKer<n>:COUNt:X?

Description	Returns the counter frequency of the selected marker in Hz.Return
Query Syntax	:CALCulate: MARKer<n>:COUNt:X?
Parameter	<n> <NR1> Marker number 1 to 8.
Return Parameter	<freq> <NR1> Frequency in Hz.
Example	:CALC:FREQ:COUN:X? returns 230580000

:CALCulate: MARKer<n>:FUNCtion:AOFF

Description	Turns off the opened noise markers or NdB BW measurements, but not the markers themselves.
Syntax	:CALCulate: MARKer<n>:FUNCtion:AOFF
Example	:CALC: MARKer<n>:FUNC:AOFF

:CALCulate:MARKer<n>:MAXimum

Description	Performs peak search and places a marker on the highest peak.
Syntax	:CALCulate:MARKer<n>:MAXimum
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:MAX

:CALCulate:MARKer<n>:MAXimum:LEFT

Description	Places the selected marker to the left of the current marked peak.
Syntax	:CALCulate:MARKer<n>:MAXimum:LEFT
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:MAX:LEFT

:CALCulate:MARKer<n>:MAXimum:NEXT

Description	Places the selected marker on the next highest signal peak from the current marked peak.
Syntax	:CALCulate:MARKer<n>:MAXimum:NEXT
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:MAX:NEXT

:CALCulate:MARKer<n>:MAXimum:RIGHt

Description	Places the selected marker to the right of the current marked peak.
Syntax	:CALCulate:MARKer<n>:MAXimum:RIGHt
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:MAX:RIGH

:CALCulate:MARKer<n>:MINimum

Description	Places the selected marker on the lowest point on the trace that is assigned to that particular marker number.
Syntax	:CALCulate:MARKer<n>:MINimum
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:MIN

:CALCulate:MARKer:PHNoise[:STATe]

Description	Sets or queries the state of the Marker Noise function for the specified marker. This function measures the average noise level at the marked point and then normalize this value to 1 Hz bandwidth.	
Syntax Query Syntax	:CALCulate:FREQMarker:PHNoise[:STATe] {OFF|ON|0|1} :CALCulate:FREQMarker:PHNoise[:STATe]?	
Parameter	0 1 OFF ON	Turns Marker Noise off. Turns Marker Noise on. Turns Marker Noise off. Turns Marker Noise on.
Return Parameter	0 1	Marker Noise is off. Marker Noise is on.
Example	:CALC:FREQM:PHN ON	

:CALCulate: MARKer<n>:PHNoise:Y?

Description	Returns the normalized noise level over a BW of 1Hz from the marker position.Return .
Query Syntax	:CALCulate: MARKer<n>:PHNoise:Y?
Return Parameter	<NR2> Normalized noise level in dBm, <NR1> Frequency 1 to 8.
Example	:CALC:FREQM:PHN:Y? returns 127.8

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

Description	Sets the center frequency equal to the specified marker frequency, which moves the marker to the center of the screen. In delta marker mode, the center frequency is set to the delta marker frequency. This command is not available in zero span.
Syntax	:CALCulate:MARKer<n>[:SET]:CENTer
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:CENT

:CALCulate:MARKer<n>[:SET]:RLEVel

Description	Sets the reference level to the specified marker amplitude. In delta marker mode, the reference level is set to the delta marker amplitude.
Syntax	:CALCulate:MARKer<n>[:SET]:RLEVel
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:RLEV

:CALCulate:MARKer<n>[:SET]:STARt

Description	Sets the start frequency to the value of the specified marker frequency. In delta marker mode, the start frequency is set to the delta marker frequency. This command is not available in zero span.
Syntax	:CALCulate:MARKer<n>[:SET]:STARt
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:STAR

:CALCulate:MARKer<n>[:SET]:STEP

Description	Sets the center frequency step size equal to the specified marker frequency. In delta marker mode, the center frequency step size is set to the delta marker frequency. This command is not available in zero span.
Syntax	:CALCulate:MARKer<n>[:SET]:STEP
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:STEP

:CALCulate:MARKer<n>[:SET]:STOP

Description	Sets the stop frequency to the value of the specified marker frequency. In delta marker mode, the stop frequency is set to the delta marker frequency. This command is not available in zero span.
Syntax	:CALCulate:MARKer<n>[:SET]:STOP
Parameter	<n> <NR1> Marker number 1 to 5
Example	:CALC:MARK1:STOP

:CALCulate:MARKer<n>:STATe

Description	Sets or queries the state of the selected marker.	
Syntax	:CALCulate:MARKer<n>:STATe {OFF|NORMal|DELTa|0|NORM|DELT}	
Query Syntax	:CALCulate:MARKer<n>:STATe?	
Parameter	<n>	<NR1> Marker number 1 to 8.
	OFF|0	Turns the selected marker off.
	NORMal|NORM	Set the selected frequency marker to normal mode.The
	DELTa|DELT	selected frequency scale is in difference mode.
Return Parameter	Off	The selected marker is off.
	NORMal	Set the selected frequency marker to normal mode.The
	DELTa	selected frequency scale is in difference mode.
Example	:CALC:MARK1:STAT NORM	

:CALCulate: FREQMarkers:TABLe:STATe

Description	Sets or queries the state of the marker table.	
Syntax Query Syntax	:CALCulate:FREQKarkers:TABLe:STATe {OFF|ON|0|1} :CALCulate:FREQKarkers:TABLe:STATe?	
Parameter	0	Turns the table off.
	1	Turns the table on.
	OFF	Turns the table off.
	ON	Turns the table on.
Return Parameter	0	The table is off.
	1	The table is on.
Example	:CALC:FREQM:TABL:STAT ON	

:CALCulate:MARKer<n>: TRACe

Description	Set the frequency marker n on the trace i.
Syntax Query Syntax	:CALCulate:MARKer<n>:TOTRACe <integer> :CALCulate:MARKer<n>:TOTRACe? :CALCulate:MARKer<n>:TRACe <integer> :CALCulate:MARKer<n>:TRACe?
Parameter/ Return Parameter	<n> <NR1> Marker number 1 to 8 <integer> The number of the trace: (1, 2, 3, 4, 5)
Example	:CALC:MARK1:TOTRAC 2

:CALCulate:MARKer<n>:DELTa:X?

Description	Returns the reference marker position of delta marker.
Query Syntax	:CALCulate:MARKer<n>:DELTa:X?
Parameter	<n> <NR1> Marker number 1 to 5
Return Parameter	<freq> Frequency in Hz.
Example	:CALC:MARK3:DELT:X? returns 300000000Hz

:CALCulate:MARKer<n>:DELTa:Y?

Description	Returns the reference marker's vertical position of delta marker.
Query Syntax	:CALCulate:MARKer<n>:DELTa:Y?
Parameter	<n> <NR1> Marker number 1 to 5
Return Parameter	<ampl> Power or voltage. If the specified marker is not active, returns ERR.
Example	:CALC:MARK3:DELT:Y? returns 9.8dBm

:CALCulate:MARKer<n>:X

Description	Sets or returns the marker position. In delta marker mode, this command returns the frequency difference between the markers.
Syntax Query Syntax	:CALCulate:MARKer<n>:X <freq> :CALCulate:MARKer<n>:X?

Parameter	<n>	<NR1> Marker number 1 to 5
	<freq>	Frequency in GHz, MHz, kHz, Hz. The default unit is Hz.
Return Parameter	<freq>	Frequency in Hz. If the specified marker is not active, returns ERR.
Example	:CALC:MARK2:X 300MHz query :CALC:MARK2:X? returns 300000000Hz	

:CALCulate:MARKer<n>:Y?

Description	Returns the marker's vertical position. In delta marker mode, this command returns the amplitude difference between the markers.	
Query Syntax	:CALCulate:MARKer<n>:Y?	
Parameter	<n>	<NR1> Marker number 1 to 5
Return Parameter	<ampl>	Power or voltage. If the specified marker is not active, returns ERR.
Example	:CALC:MARK3:Y? returns 9.8dBm	

:CALCulate:FREQMarkers:AOFF

Description	Turns all the markers off.
Syntax	:CALCulate:FREQMarkers:AOFF
Example	:CALC:FREQM:AOFF

:CALCulate:NETMeasure:RLEVel

Description	Sets and queries the source reference level scale position.
Syntax Query Syntax	:CALCulate:NETMeasure:RLEVel <value> :CALCulate:NETMeasure:RLEVel?
Parameter	<value> -10. Sets the reference level -200 to 200 units d'B
Return Parameter	-10 dB Tracks the source reference level -10dB
Example	:CALC:NETM:RLVE -10 :CALC:NETM:RLEV? Return -10 dB

:CALCulate:NETMeasure:POSition

Description	Sets and queries the percentage position of the source 0dB scale screen.
Syntax Query Syntax	:CALCulate:NETMeasure:POSition <value> :CALCulate:NETMeasure:POSition?
Parameter	<value> 50. 0dB scale percentage 0% to 100%
Return Parameter	-10 dB Tracks source reference level -10dB
Example	:CALC:NETM:POS 10 :CALC:NETM:POS? Return 10

:CALCulate:NTData:NORMalize:ON

Description	Turns the tracking generator normalization on/off or queries its state.	
Syntax Query Syntax	:CALCulate:NTData:NORMalize:ON {OFF|ON|0|1} :CALCulate:NTData:NORMalize:ON?	
Parameter	0	Turns the normalization off.
	1	Turns the normalization on.
	OFF	Turns the normalization off.
	ON	Turns the normalization on.
Return Parameter	0	The normalization is off.
	1	The normalization is on.
Example	:CALC:NTD:NORM:ON ON :CALC:NTD:NORM:ON? Return 1	

:CALCulate:NTData:NORMalize

Description	Perform normalization.
Syntax	:CALCulate:NTData:NORMalize
Parameter	Null
Return Parameter	Null
Example	:CALC:NTD:NORM

:CALCulate:TUNE:AUTO

Description	Runs the auto tune function.
Syntax	:CALCulate:TUNE:AUTO
Example	:CALC:TUNE:AUTO

CONFigure Commands

:CONFigure:ACPower

Description	This command places the analyzer in Adjacent Channel Power measurement state.	
Syntax	:CONFigure:ACPower <value>	
Parameter	<value>	Sets the adjacent channel power measurement Parameter
	ON	Turns on adjacent channel power measurement
	OFF	Turns off adjacent channel power measurement
	1	Turns on adjacent channel power measurement
	0	Turns off adjacent channel power measurement
Example	:CONF:ACP 1	

:CONFigure:CHPower

Description	This command places the analyzer in Channel Power measurement state.	
Syntax	:CONFigure:CHPower <value>	
Parameter	<value>	Sets the channel power measurement Parameter
	ON	Turns on channel power measurement
	OFF	Turns off channel power measurement
	1	Turns on channel power measurement
	0	Turns off channel power measurement
Example	:CONF:CHP 1	

:CONFigure:OBWidth

Description	This command places the analyzer in Occupied Bandwidth measurement state.	
Syntax	:CONFigure:OBWidth <value>	
Parameter	<value>	Sets the occupied Bandwidth measurement Parameter
	ON	Turns on bandwidth occupied measurement
	OFF	Turns off bandwidth occupied measurement
	1	Turns on bandwidth occupied measurement
	0	Turns off bandwidth occupied measurement
Example	:CONF:OBW 1	

:CONFigure:SANalyzer

Description	Disable all measurement functions.	
Syntax	:CONFigure:SANalyzer	
Example	:CONF:SAN	

:CONFigure:SATime

Description	Turns on or off time spectrum measure mode.	
Syntax	:CONFigure:SATime <value>	
Parameter	<value>	Sets time spectrum measure Parameter
	ON	Turns time spectrum measure on
	OFF	Turns time spectrum measure off
	1	Turns time spectrum measure on
	0	Turns time spectrum measure off
Example	:CONF:SAT	

DISPlay Commands

:DISPlay:ANNotation:CLOCk:DATE:FORMat

Description	Sets or queries the display format of date&time.	
Syntax	:DISPlay:ANNotation:CLOCk:DATE:FORMat {YMDhms|HMSymd}	
Query Syntax	:DISPlay:ANNotation:CLOCk:DATE:FORMat?	
Parameter/ Return Parameter	YMDhms	Set the display format of date&time to YYYY-MM-DD HH:MM:SS.
	HMSymd	Set the display format of date&time to HH:MM:SS YYYY-MM-DD.
Example	:DISP:ANN:CLOC:DATE:FORM YMDhms :DISP:ANN:CLOC:DATE:FORM? return YMDhms	

:DISPlay:ANNotation:CLOCk[:STATe]

Description	Turns the on-screen date&time display on/off or queries its state.	
Syntax	:DISPlay:ANNotation:CLOCk:[STATe] {OFF|ON|0|1}	
Query Syntax	:DISPlay:ANNotation:CLOCk:[STATe]?	
Parameter	0	Turns the date&time display off.
	1	Turns the date&time display on.
	OFF	Turns the date&time display off.
	ON	Turns the date&time display on.
Return Parameter	0	The date&time display is off.
	1	The date&time display is on.
Example	:DISP:ANN:CLOC ON :DISP:ANN:CLOC? Return 1	

:DISPlay:MENU:STATe

Description	Turns the full screen display mode on/off or queries its state.	
Syntax Query Syntax	:DISPlay:MENU:STATe {OFF|ON|0|1} :DISPlay:MENU:STATe?	
Parameter	0	Turns the full screen display mode off.
	1	Turns the full screen display mode on.
	OFF	Turns the full screen display mode off.
	ON	Turns the full screen display mode on.
Return Parameter	0	The full screen display mode is off.
	1	The full screen display mode is on.
Example	:DISP:MENU:STAT 1	

:DISPlay:WINdow:LABEl

Description	Turns the on-screen label on/off or queries its state.	
Syntax Query Syntax	:DISPlay:WINdow:LABEl {OFF|ON|0|1} :DISPlay:WINdow:LABEl?	
Parameter	0	Turns the label off.
	1	Turns the label on.
	OFF	Turns the label off.
	ON	Turns the label on.
Return Parameter	0	The label is off.
	1	The label is on.
Example	:DISP:WIN:LABE 1	

:DISPlay:WINdow:HIDe:STATe

Description	Turns on or off the menu auto hiding when not any touch or key press.	
Syntax Query Syntax	:DISPlay:WINdow:HIDe:STATe {OFF|ON|0|1} :DISPlay:WINdow:HIDe:STATe?	
Parameter	0	Turns the auto hide off.
	1	Turns the auto hide on.
	OFF	Turns the auto hide off.
	ON	Turns the auto hide on.
Return Parameter	0	The auto hide is off.
	1	The auto hide is on.
Example	:DISP:WIN:HID:STAT 1	

:DISPlay:WINdow:HIDe:TIMe

Description	Set or query the right menu to automatically hide the time.
Syntax Query Syntax	:DISPlay:WINdow:HIDe:TIMe <TIMe> :DISPlay:WINdow:HIDe:TIMe?
Parameter/Return Parameter	<TIMe> Range:5s - 50s. Default Unit ns.
Example	:DISP:WIN:HID:TIM 5e9

:DISPlay:WINdow:SCReen:BRIGhtness

Description	Set or query screen brightness.
Syntax Query Syntax	:DISPlay:WINdow:SCReen:BRIGhtness <BRIGhtness> :DISPlay:WINdow:SCReen:BRIGhtness?
Parameter/Return Parameter	<BRIGhtness> Range:1- 100.
Example	:DISP:WIN:SCR:BRIG 50

:DISPlay:WINdow:SCReen:SLEep:STATe

Description	Set or query the screen sleep switch.	
Syntax	:DISPlay:WINdow:SCReen:SLEep:STATe {OFF|ON|0|1}	
Query Syntax	:DISPlay:WINdow:SCReen:SLEep:STATe?	
Parameter	0	Turn off screen sleep.
	1	Turn on screen sleep.
	OFF	Turn off screen sleepf.
	ON	Turn on screen sleep.
Return Parameter	0	Turn off screen sleep.
	1	Turn on screen sleep.
Example	:DISP:WIN:SCR:SLE:STAT 1	

:DISPlay:WINdow:SCReen:TIMe

Description	Set or query the automatic screen-off time.
Syntax	:DISPlay:WINdow:SCReen:TIMe <TIMe>
Query Syntax	:DISPlay:WINdow:SCReen:TIMe?
Parameter/Return Parameter	<TIMe> Range:1Min - 60Min. Default Unit ns。
Example	:DISP:WIN:SCR:TIM 60e9

:DISPlay:WINdow[:TRACe]:X[:SCALe]:OFFSet

Description	Sets or queries the X-axis frequency offset.
Syntax	:DISPlay:WINdow[:TRACe]:X[:SCALe]:OFFSet <freq>
Query Syntax	:DISPlay:WINdow[:TRACe]:X[:SCALe]:OFFSet?
Parameter	<freq> <NRf>
Return Parameter	<NR1> Frequency in Hz.
Example	:DISP:WIN:X:OFFS 1000

:DISPlay:WINdow:X[:SCALe]:SPACing

Description	Set or query the frequency scale type: logarithmic or linear.
Syntax Query Syntax	:DISPlay:WINdow:X[:SCALe]:SPACing {LINear|LOGarithmic} :DISPlay:WINdow:X[:SCALe]:SPACing?
Parameter/ Return Parameter	LINear Linear scale LOGarithmic Logarithmic scale
Example	:DISP:WIN:X:SPAC LOG :DISP:WIN:X:SPAC? Return LOGarithmic

:DISPlay:WINdow[:TRACe]:Y:DLINe

Description	Sets or queries the display line amplitude level.
Syntax Query Syntax	:DISPlay:WINdow[:TRACe]:Y:DLINe <ampl> :DISPlay:WINdow[:TRACe]:Y:DLINe?
Parameter	<ampl> <NRf> power
Return Parameter	<NR3>
Example	:DISP:WIN:Y:DLIN -5.0e+1

:DISPlay:WINdow[:TRACe]:Y:DLINe:STATe

Description	Turns the display line on/off or queries its state.
Syntax Query Syntax	:DISPlay:WINdow[:TRACe]:Y:DLINe:STATe {OFF|ON|0|1} :DISPlay:WINdow[:TRACe]:Y:DLINe:STATe?
Parameter	0 Turns the display line off. 1 Turns the display line on. OFF Turns the display line off. ON Turns the display line on.
Return Parameter	0 The display line is off. 1 The display line is on.
Example	:DISP:WIN:Y:DLIN:STAT 1 :DISP:WIN:Y:DLIN:STAT? return 0

:DISPlay:WINdow[:TRACe]:Y[:SCALe]:PDIVision

Description	Sets or queries the Y-axis scale/div when the amplitude scale is logarithmic.
Syntax Query Syntax	:DISPlay:WINdow[:TRACe]:Y[:SCALe]:PDIVision <rel_ampl> :DISPlay:WINdow[:TRACe]:Y[:SCALe]:PDIVision?
Parameter/ Return Parameter	<rel_ampl> <NR1> 0.01 dB to 1000dB.
Example	:DISP:WIN:Y:PDIV 10 :DISP:WIN:Y:PDIV? Return 10.00

:DISPlay:WINdow[:TRACe]:Y[:SCALe]:RLEVel

Description	Sets or queries the Y-axis reference level. The units depend on the scale type (logarithmic/linear).	
Syntax	:DISPlay:WINdow[:TRACe]:Y[:SCALe]:RLEVel <ampl>	
Query Syntax	:DISPlay:WINdow[:TRACe]:Y[:SCALe]:RLEVel?	
Parameter/ Return Parameter	<ampl>	<NRf> in current active unit
	<NR3>	Current active unit
Example	:DISP:WIN:Y:RLEV -10 :DISP:WIN:Y:RLEV? Return -10	

:DISPlay:WINdow:Y[:SCALe]:RLEVel:OFFSet

Description	Sets or queries the Y-axis reference level offset.	
Syntax	:DISPlay:WINdow:Y[:SCALe]:RLEVel:OFFSet <rel_ampl>	
Query Syntax	:DISPlay:WINdow:Y[:SCALe]:RLEVel:OFFSet?	
Parameter	<rel_ampl>	<NRf> dB
Return Parameter	<NR3>	
Example	:DISP:WIN:Y:RLEV:OFFS -5.0e+1 dB :DISP:WIN:Y:RLEV:OFFS? Return 0	

:DISPlay:WINdow:Y[:SCALe]:SPACing

Description	Sets or queries the type of scale: logarithmic or linear.	
Syntax	:DISPlay:WINdow:Y[:SCALe]:SPACing {LINear|LOGarithmic}	
Query Syntax	:DISPlay:WINdow:Y[:SCALe]:SPACing?	
Parameter/ Return Parameter	LINear	Linear scale
	LOGarithmic	Logarithmic scale
Example	:DISP:WIN:Y:SPAC LOG :DISP:WIN:Y:SPAC? Return LOGarithmic	

:DISPlay:WINdow:TRACe:MATH:1EXChang2

Description	Swap the contents of trace 1 and trace 2 and put them in display mode at the same time..
Syntax	:DISPlay:WINdow:TRACe:MATH:1EXChange2
Example	:DISP:WIN:TRAC:MATH:1EXC2

:DISPlay:WINdowTRACe:MATH:2DL2

Description	Trace 2 amplitude value minus the value of the displayed line.
Syntax	:DISPlay:WINdow:TRACe:MATH:2DL2
Example	:DISP:WIN:TRAC:MATH:2DL2

:DISPlay:WINdow:TRACe:MATH:2EXChang3

Description	Swap the contents of trace 2 and trace 3 and display them at the same time.
Syntax	:DISPlay:WINdow:TRACe:MATH:2EXChange3
Example	:DISP:WIN:TRAC:MATH:2EXC3

:DISPlay:WINdow:TRACe:MATH:1TO3

Description	Change the content of trace 1 to trace 3, and set trace 3 to view mode.
Syntax	:DISPlay:WINdow:TRACe:MATH:1TO3
Example	:DISP:WIN:TRAC:MATH:1TO3

:DISPlay:WINdow:TRACe:MATH:2TO3

Description	Change the content of trace 2 to trace 3, and set trace 3 to view mode.
Syntax	:DISPlay:WINdow:TRACe:MATH:2TO3
Example	:DISP:WIN:TRAC:MATH:2TO3

INITiate Commands

:[INITiate]:CONTinuous

Description	Sets the sweep mode to continuous or single mode or queries its state.	
Syntax	:INITiate:CONTinuous {OFF|ON|0|1}	
Query Syntax	:INITiate:CONTinuous?	
Parameter	0	Sets the sweep mode to single.
	1	Sets the sweep mode to continuous.
	OFF	Sets the sweep mode to single.
	ON	Sets the sweep mode to continuous.
Return Parameter	0	The sweep mode is single.
	1	The sweep mode is continuous.
Example	:INIT:CONT ON	

MMEMory Commands

:MMEMory:CATalog?

Description	Returns a list of all the files that have been saved to the local memory.
Query Syntax	:MMEMory:CATalog?
Example	:MMEM:CAT? returns 20171010_155852.csv,20171107_145956.png,20171107_150136.png,……

:MMEMory:COPY:SCReen

Description	Exports the screen file to PC software.
Syntax	:MMEMory:COPY:SCReen <file_name>
Parameter	<file_name> XXX.png
Example	:MMEM:COPY:SCR 20171107_145956.png

:MMEMory:COPY:TRACe

Description	Exports the trace file to PC software.
Syntax	:MMEMory:COPY:TRACe <file_name>
Parameter	<file_name> XXX.csv
Example	:MMEM:COPY:TRAC 20171010_155852.csv

:MMEMory:DELete:ALL

Description	Deletes all files.
Syntax	:MMEMory:DELete:ALL
Example	:MMEM:DEL:ALL

:MMEMory:DELete:SCReen

Description	Deletes the selected screen file from the current directory.
Syntax	:MMEMory:DELete:SCReen <file_name>
Parameter	<file_name> XXX.png
Example	:MMEM:DEL:SCR 20171107_145956.png

:MMEMory:DELete:SCReen:ALL

Description	Deletes all screen files.
Syntax	:MMEMory:DELete:SCReen:ALL
Example	:MMEM:DEL:SCR:ALL

:MMEMory:DELete:TRACe

Description	Deletes the selected trace file from the current directory.
Syntax	:MMEMory:DELete:TRACe <file_name>
Parameter	<file_name> XXX.csv
Example	:MMEM:DEL:TRAC 20171010_155852.csv

:MMEMory:DELete:TRACe:ALL

Description	Deletes all trace files.
Syntax	:MMEMory:DELete:TRACe:ALL
Example	:MMEM:DEL:TRAC:ALL

:MMEMory:DISK:INFormation

Description	Displays information about the files stored on the current disk.
Query Syntax	:MMEMory:DISK:INFormation?
Example	:MMEM:DISK:INF?

:MMEMory:LOAD:SCReen

Description	Loads screen data from a file to the internal memory.
Syntax	:MMEMory:LOAD:SCReen <file_name>

Parameter	<file_name> XXX.png
Example	:MMEM:LOAD:SCR 20171107_145956.png

:MMEMory:LOAD:TRACe

Description	Load the trace data screenshot.
Syntax	:MMEMory:LOAD:TRACe <file_name>
Parameter	<file_name> XXX.csv
Example	:MMEM:LOAD:TRAC 20171010_155852.csv

:MMEMory:LOAD:LIMitline

Description	Load limit line data.
Syntax	:MMEMory:LOAD:LIMitline <file_name>
Parameter	<file_name> XXX.sp
Example	:MMEM:LOAD:LIM 20171010_155852.sp

:MMEMory:STORe:QUICK:SAVE

Description	Quick save the screenshot. When a USB flash drive is inserted, the image is saved into the USB flash drive, otherwise saved into the internal memory.
Syntax	:MMEMory:STORe:QUICK:SAVE {fileName}
Example	:MMEM:STOR:QUICK:SAVE :MMEM:STOR:QUICK:SAVE 123

:MMEMory:STORe:QUICK:SAVE:TYPE

Description	Set or query the quick save type.	
Syntax	:MMEMory:STORe:QUICK:SAVE:TYPE {SCReen|TRAce|USER|LimitLine} :MMEMory:STORe:QUICK:SAVE:TYPE?	
Parameter/ Return Parameter	SCReen TRAce USER LimitLine	Save screenshot. Save trace data. Save user parameter. Save Limit Line.
Example	:MMEM:STOR:QUICK:SAVE:TYPE Screen :MMEM:STOR:QUICK:SAVE:TYPE? Return Screen	

:MMEMory:STORe:SCReen

Description	Save the current screenshot to internal memory. If the file name is null, the file name is based on the date and time and the format is png.
Syntax	:MMEMory:STORe:SCReen <file_name>
Parameter	<file_name> XXX
Example	:MMEM:STOR:SCR 20171107_145956

:MMEMory:STORe:STATe

Description	Save the instrument state to user-defined configuration, used to set the startup parameters of the analyzer or preset parameters. If the file name is null, the file name is based on the date/time, and the format is user.
Syntax	:MMEMory:STORe:STATe <file_name>
Parameter	<file_name> XXX
Example	:MMEM:STOR:STAT 20171107_145956

:MMEMory:STORe:TRACe

Description	Saves the trace data from internal memory to a file. If the file name is null, the file name is based on the date/time, and the format is cvs.
Syntax	:MMEMory:STORe:TRACe <file_name>
Parameter	<file_name> XXX
Example	:MMEM:STOR:TRAC 20171107_145956

:MMEMory:STORe:LIMitline

Description	Saves the limit line data from internal memory to a file. If the file name is null, the file name is based on the date/time. The format is sp.
Syntax	:MMEMory:STORe:LIMitline <file_name>
Parameter	<file_name> XXX
Example	:MMEM:STOR:LIM 20171107_145956

:MMEMory:STORAGe

Description	Switch storage to internal storage or external U disk.	
Syntax Query Syntax	:MMEMory:STORAGe {INT|EXT} :MMEMory::STORAGe?	
Parameter/ Return Parameter	INT EXT	Switch internal memory. Switch external memory.
Example	:MMEM:STORAG INT :MMEM:STORAG? Return INT	

OUTPut Commands

[:SOURce]:OUTPut:TRACk[:STATe]

Description	Turn on or off TG source output status.	
Syntax	:OUTPut:TRACk[:STATe] {OFF|ON|0|1}	
Query Syntax	:OUTPut:TRACk[:STATe]?	
Parameter	0	Turns TG output off.
	1	Turns TG output on.
	OFF	Turns TG output off.
	ON	Turns TG output on.
Return Parameter	0	TG output is off.
	1	TG output is on.
Example	:OUTP:TRAC ON :OUTP:TRAC? Return 1	

SENSe Commands

[:SENSe]:ACPower:BANDwidth:ACHannel:COUNt

Description	Sets or queries the number of upper and lower adjacent channels measured by adjacent channel power.
Syntax Query Syntax	[:SENSe]:ACPower:BANDwidth:ACHannel:COUNt <integer> [:SENSe]:ACPower:BANDwidth:ACHannel:COUNt?
Parameter/ Return Parameter	<integer> <NR1> Adjacent channels number
Example	:ACP:BAND:ACH:COUN 1

[:SENSe]:ACPower:BANDwidth:INTegration

Description	Sets or queries the range of integration used in calculating the power in the main channel.
Syntax Query Syntax	[:SENSe]:ACPower:BANDwidth:INTegration <freq> [:SENSe]:ACPower:BANDwidth:INTegration?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:ACP:BAND:INT 2.0e+7

[:SENSe]:ACPower:CSPacing

Description	Sets or queries the channel spacing between the main channels.
Syntax Query Syntax	[:SENSe]:ACPower:CSPacing <freq> [:SENSe]:ACPower:CSPacing?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:ACP:CSP 1.0e+8

[:SENSe]:AVERage:COUNt

Description	Sets or queries the number of traces that are used with the average function.
Syntax Query Syntax	[:SENSe]:AVERage:COUNt <integer> [:SENSe]:AVERage:COUNt?
Parameter/ Return Parameter	<integer> <NR1>
Example	:AVER:COUN 20 :AVER:COUN? return 20

[:SENSe]:AVERage[:STATe]

Description	Enable or disable the trace averaging function of the current measurement or query its status.	
Syntax Query Syntax	[:SENSe]:AVERage[:STATe] {OFF|ON|0|1} [:SENSe]:AVERage[:STATe]?	
Parameter	0	Turns the Average function off.
	1	Turns the Average function on.
	OFF	Turns the Average function off.
	ON	Turns the Average function on.
Return Parameter	0	The Average function is off.
	1	The Average function is on.
Example	:AVER ON :AVER? return 1	

[:SENSe]:BANDwidth|BWIDth[:RESolution]

Description	Sets or queries the resolution bandwidth (RBW).
Syntax Query Syntax	[:SENSe]:BANDwidth|BWIDth[:RESolution] <freq> [:SENSe]:BANDwidth|BWIDth[:RESolution]?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:BAND 1.0e+6

[:SENSe]:BANDwidth|BWIDth[:RESolution]:AUTO

Description	Sets the RBW to auto (on) or manual (off) or queries its state.	
Syntax	[:SENSe]:BANDwidth|BWIDth[:RESolution]:AUTO {MAN|AUTO|0|1}	
Query Syntax	[:SENSe]:BANDwidth|BWIDth[:RESolution]:AUTO?	
Parameter	0	Sets RBW to manual (off).
	1	Sets RBW to automatic (on).
	MAN	Sets RBW to manual (off).
	AUTO	Sets RBW to automatic (on).
Return Parameter	0	RBW is set to manual (off).
	1	RBW is set to automatic (on).
Example	:BAND:AUTO ON	

[:SENSe]:BANDwidth|BWIDth:VIDeo

Description	Sets or queries the video bandwidth (VBW).	
Syntax	[:SENSe]:BANDwidth|BWIDth:VIDeo <freq>	
Query Syntax	[:SENSe]:BANDwidth|BWIDth:VIDeo?	
Parameter	<freq>	<NRf>
Return Parameter	<NR3>	Hz
Example	:BAND:VID 1.0e+6	

[:SENSe]:BANDwidth|BWIDth:VIDeo:AUTO

Description	Sets the VBW to auto (on) or manual (off) or queries its state.	
Syntax	[:SENSe]:BANDwidth|BWIDth:VIDeo:AUTO {OFF|ON|0|1}	
Query Syntax	[:SENSe]:BANDwidth|BWIDth:VIDeo:AUTO?	
Parameter	0	Sets VBW to manual (off).
	1	Sets VBW to automatic (on).
	OFF	Sets VBW to manual (off).
	ON	Sets VBW to automatic (on).
Return Parameter	0	VBW is set to manual (off).
	1	VBW is set to automatic (on).
Example	:BAND:VID:AUTO OFF	

[:SENSe]:BANDwidth| BWIDth:EMC

Description	Sets the EMI filter bandwidth (must be set to the exact bandwidth).

Syntax	[:SENSe]:BANDwidth:EMC <freq>
Query Syntax	[:SENSe]:BANDwidth:EMC? [:SENSe]:BWIDth:EMC <freq> [:SENSe]:BWIDth:EMC?
Parameter	<freq> <NRf> (Only 200Hz, 9kHz, 120kHz, 1MHz are valid settings)
Return Parameter	<NR3> Return frequency 200Hz、 9kHz,、120kHz、 1MHz.
Example	BAND:EMC 200 BAND:EMC? Return 1.000000 MHz

[:SENSe]:BANDwidth:EMC:STATe

Description	Turns the EMI filter on/off or queries its state.	
Syntax	[:SENSe]:BANDwidth:EMC:STATe {OFF|ON|0|1}	
Query Syntax	[:SENSe]:BANDwidth:EMC:STATe?	
Parameter	0	Turns the EMI filter off.
	1	Turns the EMI filter on.
	OFF	Turns the EMI filter off.
	ON	Turns the EMI filter on.
Return Parameter	0	The EMI filter is off.
	1	The EMI filter is on.
Example	BAND:EMC:STAT 0	

[:SENSe]:DEMod:AM[:CARRier]:FREQuency

Description	Sets or queries the carrier frequency for AM demodulation.
Syntax Query Syntax	[:SENSe]:DEMod:AM[:CARRier]:FREQuency <freq> [:SENSe]:DEMod:AM[:CARRier]:FREQuency?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:DEM:AM:FREQ 10 MHz :DEM:AM:FREQ? Return 1.000000 MHz

[:SENSe]:DEMod:AM:IFBW

Description	Sets or queries the IF bandwidth for AM demodulation.
Syntax Query Syntax	[:SENSe]:DEMod:AM:IFBW <freq> [:SENSe]:DEMod:AM:IFBW?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:DEM:AM:IFBW 3.0e+5

[:SENSe]:DEMod:MODulation:STATe

Description	Sets or queries the state of AM demodulation.	
Syntax	[:SENSe]:DEMod:MODulation:STATe {ON|OFF|1|0}	
Query Syntax	[:SENSe]:DEMod:MUDulation:STATe?	
Parameter	0	Turns AM demodulation off.
	1	Turns AM demodulation on.
	OFF	Turns AM demodulation off.
	ON	Turns AM demodulation on.
Return Parameter	0	AM demodulation is off.
	1	AM demodulation is on.
Example	:DEM:MOD:STAT 1	
	:DEM:MOD:STAT?	
	Return 1	

[:SENSe]:DEMod:MODulation:MODE

Description	Set and query the mode of modulation analysis.	
Syntax	[:SENSe]:DEMod:MODulation:MODE {AM|FM}	
Query Syntax	[:SENSe]:DEMod:MODulation:MODE?	
Parameter	AM	Turns AM mode on
	FM	Turns FM mode on
Return Parameter	AM	AM mode
	FM	FM mode
Example	:DEM:MOD:MODE AM	
	:DEM:MOD:MODE?	
	Return	
	AM	

[:SENSe]:DEMod:FM[:CARRier]:FREQuency

Description	Sets or queries the carrier frequency for FM demodulation.	
Syntax	[:SENSe]:DEMod:FM[:CARRier]:FREQuency <freq>	
Query Syntax	[:SENSe]:DEMod:FM[:CARRier]:FREQuency?	
Parameter	<freq>	<NRf>
Return Parameter	<NR3>	Hz
Example	:DEM:FM:FREQ 10.000000MHz	

[:SENSe]:DEMod:FM:IFBW

Description	Sets or queries the IF bandwidth for FM demodulation.
Syntax Query Syntax	[:SENSe]:DEMod:FM:IFBW <freq> [:SENSe]:DEMod:FM:IFBW?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:DEM:FM:IFBW 3.0e+5

[:SENSe]:DEMod:FREQuency

Description	Sets or queries the radio frequency for the audio demodulation function.
Syntax Query Syntax	[:SENSe]:DEMod:FREQuency <freq> [:SENSe]:DEMod:FREQuency?
Parameter	<freq> <NRf> Audio demodulation frequency
Return Parameter	<NR3> Hz
Example	:DEM:FREQ 87.6MHz :DEM:FREQ? Return 87.600000 MHz

[:SENSe]:DEMod:MODE

Description	Sets or queries the demodulation type for the audio demodulation function.
Syntax Query Syntax	[:SENSe]:DEMod:MODE {FM|AM} [:SENSe]:DEMod:MODE?
Parameter/ Return Parameter	FM FM demodulation AM AM demodulation
Example	:DEM:MODE AM :DEM:MODE? Return AM

[:SENSe]:DEMod:STATe

Description	Turns the audio demodulation on/off or queries its state.	
Syntax Query Syntax	[:SENSe]:DEMod:STATe {OFF|ON|0|1} [:SENSe]:DEMod:STATe?	
Parameter	0	Turns the audio demodulation off.
	1	Turns the audio demodulation on.
	OFF	Turns the audio demodulation off.
	ON	Turns the audio demodulation on.
Return Parameter	0	The audio demodulation is off.
	1	The audio demodulation is on.
Example	:DEM:STAT ON :DEM:STAT? Return 1	

[:SENSe]:FREQuency:CENTer

Description	Sets or queries the center frequency.	
Syntax Query Syntax	[:SENSe]:FREQuency:CENTer <freq> [:SENSe]:FREQuency:CENTer?	
Parameter	<freq>	<NRf>
Return Parameter	<NR3>	Hz
Example	:FREQ:CENT 1.0e+9	

[:SENSe]:FREQuency:CENTer:STEP:AUTO

Description	Sets the center frequency step size to auto (on) or manual (off) or queries its state.	
Syntax	[:SENSe]:FREQuency:CENTer:STEP:AUTO {OFF|ON|0|1}	
Query Syntax	[:SENSe]:FREQuency:CENTer:STEP:AUTO?	
Parameter	0	Turn center frequency step to manual (off).
	1	Turn center frequency step to auto (on).
	OFF	Turn center frequency step to manual (off).
	ON	Turn center frequency step to auto (on).
Return Parameter	0	Center frequency step is set to manual.
	1	Center frequency step is set to automatic.
Example	:FREQ:CENT:STEP:AUTO OFF	

[:SENSe]:FREQuency:CENTer:STEP[:INCRement]

Description	Sets or queries the center frequency step frequency.	
Syntax	[:SENSe]:FREQuency:CENTer:STEP[:INCRement] <freq>	
Query Syntax	[:SENSe]:FREQuency:CENTer:STEP[:INCRement]?	
Parameter	<freq>	<NRf>
Return Parameter	<NR3>	Hz
Example	FREQ:CENT:STEP 1000 FREQ:CENT:STEP? Return 1e+9	

[:SENSe]:FREQuency:REFerence

Description	Sets or queries the frequency reference to internal or external.
Syntax Query Syntax	[:SENSe]:FREQuency:REFerence {INT|EXT} [:SENSe]:FREQuency:REFerence?
Parameter/ Return Parameter	INT Internal reference EXT External reference
Example	:FREQ:REF INT :FREQ:REF? Return INT

[:SENSe]:FREQuency:SPAN

Description	Sets or queries the frequency span. Setting the span to 0 Hz puts the analyzer into zero span.
Syntax Query Syntax	[:SENSe]:FREQuency:SPAN <freq> [:SENSe]:FREQuency:SPAN?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:FREQ:SPAN 1.0e+9 :FREQ:SPAN? Return 1e+7

[:SENSe]:FREQuency:SPAN:FULL

Description	Sets the frequency span to full scale.
Syntax	[:SENSe]:FREQuency:SPAN:FULL
Example	:FREQ:SPAN:FULL

[:SENSe]:FREQuency:SPAN:PREVious

Description	Sets the frequency span to the previous span setting.
Syntax	[:SENSe]:FREQuency:SPAN:PREVious
Example	:FREQ:SPAN:PREV

[:SENSe]:FREQuency:SPAN:ZERO

Description	Sets the frequency span to zero span.
Syntax	[:SENSe]:FREQuency:SPAN:ZERO
Example	:FREQ:SPAN:ZERO

[:SENSe]:FREQuency:STARt

Description	Sets or queries the start frequency.
Syntax Query Syntax	[:SENSe]:FREQuency:STARt <freq> [:SENSe]:FREQuency:STARt?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:FREQ:STAR 100MHz :FREQ:STAR? Return 1e+8

[:SENSe]:FREQuency:STOP

Description	Sets or queries the stop frequency.
Syntax Query Syntax	[:SENSe]:FREQuency:STOP <freq> [:SENSe]:FREQuency:STOP?
Parameter	<freq> <NRf>
Return Parameter	<NR3> Hz
Example	:FREQ:STOP 100MHz :FREQ:STOP? Return 1e+8

[:SENSe]:OBWidth:PERCent

Description	Sets or queries the percentage of signal power used when determining the occupied bandwidth (OBW).
Syntax Query Syntax	[:SENSe]:OBWidth:PERCent <percent> [:SENSe]:OBWidth:PERCent?
Parameter	<percent> <NRf>
Return Parameter	<NR3> %
Example	:OBW:PERC 33 :OBW:PERC? Return 33

[:SENSe]:PASSFAIL:LINELimit:LOWer:CLEar

Description	Clears all points of the lower limit line.
Syntax	[:SENSe]:PASSFAIL:LINELimit:LOWer:CLEar
Example	:PASSFAIL:LINEL:LOW:CLE

[:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:DELete

Description	Deletes the specified point in the lower limit line.
Syntax	[:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:DELete
Parameter	<n> <NR1> Point number
Example	:PASSFAIL:LINEL:LOW:POIN1:DEL

[:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:X

Description	Sets or queries the frequency limit of the specified point in the lower limit line.
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:X <freq> [:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:X?
Parameter	<n> <NR1> Point number <freq> <NRf> Frequency in Hz or ns.
Return Parameter	<NR3> Hz
Example	:PASSFAIL:LINEL:LOW:POIN1:X 1.0GHz :PASSFAIL:LINEL:LOW:POIN1:X? Return 1.9e+9

[:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:Y

Description	Sets or queries the amplitude limit of the specified point in the lower limit line.
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:Y <ampl> [:SENSe]:PASSFAIL:LINELimit:LOWer:POINt<n>:Y?
Parameter	<n> <NR1> Point number <ampl> Amplitude in dBm
Return Parameter	<NR3> dBm
Example	:PASSFAIL:LINEL:LOW:POIN1:Y -20 :PASSFAIL:LINEL:LOW:POIN1:Y? Return -20

[:SENSe]:PASSFAIL:LINELimit:LOWer:ADD

Description	Add lower limit edit point.
Syntax	[:SENSe]:PASSFAIL:LINELimit:LOWer:ADD <freq> <ampl>
Parameter	<freq> Point frequency. <ampl> Amplitude in dBm
Example	:PASSFAIL:LINEL:LOW:ADD 1.9e9 -10

[:SENSe]:PASSFAIL:LINELimit:LOWer:STATe

Description	Turns the lower limit line on/off or queries its state.	
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:LOWer:STATe {OFF|ON|0|1} [:SENSe]:PASSFAIL:LINELimit:LOWer:STATe?	
Parameter	0	Turns the lower limit line off.
	1	Turns the lower limit line on.
	OFF	Turns the lower limit line off.
	ON	Turns the lower limit line on.
Return Parameter	0	The lower limit line is off.
	1	The lower limit line is on.
Example	:PASSFAIL:LINEL:LOW:STAT 1 :PASSFAIL:LINEL:LOW:STAT? Return 1	

[:SENSe]:PASSFAIL:LINELimit:RESulte?

Description	Returns the Pass/Fail judgment of limit line testing.	
Query Syntax	[:SENSe]:PASSFAIL:LINELimit:RESulte?	
Return Parameter	0	Fail
	1	Pass
Example	:PASSFAIL:LINEL:RESulte? return 1	

[:SENSe]:PASSFAIL:LINELimit:STATe

Description	Turns limit line testing of pass/fail measurement function on/off.	
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:STATe {OFF|ON|0|1} [:SENSe]:PASSFAIL:LINELimitSTATe?	
Parameter	0	Turns limit line testing off.
	1	Turns limit line testing on.
	OFF	Turns limit line testing off.
	ON	Turns limit line testing on.
Return Parameter	0	Limit line testing is off.
	1	Limit line testing is on.
Example	:PASSFAIL:LINEL:STAT 1 :PASSFAIL:LINEL:STAT? Return 1	

[:SENSe]:PASSFAIL:LINELimit:UPPer:CLEar

Description	Clears all points of the upper limit line.
Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:CLEar
Example	:PASSFAIL:LINEL:UPP:CLE

[:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:DELete

Description	Deletes the specified point in the upper limit line.	
Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:DELete	
Parameter	<n>	<NR1> Point number
Example	:PASSFAIL:LINEL:UPP:POIN1:DEL	

[:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:X

Description	Sets or queries the frequency limit of the specified point in the upper limit line.
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:X <freq> [:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:X?
Parameter	<n> <NR1> Point number <freq> <NRf> Frequency in Hz.
Return Parameter	<NR3> Hz
Example	:PASSFAIL:LINEL:UPP:POIN1:X 9e+8

[:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:Y

Description	Sets or queries the amplitude limit of the specified point in the upper limit line.
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:Y <ampl> [:SENSe]:PASSFAIL:LINELimit:UPPer:POINt<n>:Y?
Parameter	<n> <NR1> Point number <ampl> Amplitude in dBm
Return Parameter	<NR3> dBm
Example	:PASSFAIL:LINEL:UPP:POIN1:Y -10

[:SENSe]:PASSFAIL:LINELimit:UPPer:ADD

Description	Add upper limit edit point.
Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:ADD <freq> <ampl>
Parameter	<freq> Point frequency. <ampl> Amplitude in dBm
Example	:PASSFAIL:LINEL:UPP:ADD 1.9e9 -10

[:SENSe]:PASSFAIL:LINELimit:UPPer:STATe

Description	Turns the upper limit line on/off or queries its state.	
Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:STATe {OFF|ON|0|1}	
Query Syntax	[:SENSe]:PASSFAIL:LINELimit:UPPer:STATe?	
Parameter	0	Turns the upper limit line off.
	1	Turns the upper limit line on.
	OFF	Turns the upper limit line off.
	ON	Turns the upper limit line on.
Return Parameter	0	The upper limit line is off.
	1	The upper limit line is on.
Example	:PASSFAIL:LINEL:UPP:STAT 1	

[:SENSe]:PASSFAIL:LINELimit:X:OFFSet

Description	Sets or queries the frequency offset (Shift X) of the upper and lower limit line.
Syntax	[:SENSe]:PASSFAIL:LINELimit:X:OFFSet <freq>
Query Syntax	[:SENSe]:PASSFAIL:LINELimit:X:OFFSet?
Parameter	<freq> <NRf> Frequency in Hz
Return Parameter	<NR3> Hz
Example	:PASSFAIL:LINEL:X:OFFS 1.0e+6 :PASSFAIL:LINEL:X:OFFS? Return 1.0e+6

[:SENSe]:PASSFAIL:LINELimit:Y:OFFSet

Description	Sets or queries the amplitude offset (Shift Y) of the upper and lower limit line.
Syntax Query Syntax	[:SENSe]:PASSFAIL:LINELimit:Y:OFFSet <ampl> [:SENSe]:PASSFAIL:LINELimit:Y:OFFSet?
Parameter	<ampl> <NRf> Amplitude in dBm
Return Parameter	<NR3> dBm
Example	:PASSFAIL:LINEL:Y:OFFS -15 :PASSFAIL:LINEL:Y:OFFS? Return -15

[:SENSe]:PASSFAIL:WINdow:AMPLitude:LOWer

Description	Sets or queries the lower amplitude of amplitude line in window testing.
Syntax Query Syntax	[:SENSe]:PASSFAIL:WINdow:AMPLitude:LOWer <ampl> [:SENSe]:PASSFAIL:WINdow:AMPLitude:LOWer?
Parameter	<ampl> Amplitude in dBm
Return Parameter	<NR3> dBm
Example	:PASSFAIL:WIN:AMPL:LOW -20 :PASSFAIL:WIN:AMPL:LOW? Return -20.00 dBm

[:SENSe]:PASSFAIL:WINdow:AMPLitude:UPPer

Description	Sets or queries the upper amplitude of amplitude line in window testing.
Syntax Query Syntax	[:SENSe]:PASSFAIL:WINdow:AMPLitude:UPPer <ampl> [:SENSe]:PASSFAIL:WINdow:AMPLitude:UPPer?
Parameter	<ampl> Amplitude in dBm
Return Parameter	<NR3> dBm
Example	:PASSFAIL:WIN:AMPL:UPP -10 :PASSFAIL:WIN:AMPL:UPP? Return -10.00 dBm

[:SENSe]:PASSFAIL:WINdow:AMPLitude:STATe

Description	Turns the amplitude line of window testing on/off or queries its state.
Syntax	[:SENSe]:PASSFAIL:WINdow:AMPt:STATe {OFF|ON|0|1}
Query Syntax	[:SENSe]:PASSFAIL:WINdow:AMPt:STATe?
Parameter	0 Turns the amplitude line off. 1 Turns the amplitude line on. OFF Turns the amplitude line off. ON Turns the amplitude line on.
Return Parameter	0 The amplitude line is off. 1 The amplitude line is on.
Example	:PASSFAIL:WIN:AMPL:STAT 1 :PASSFAIL:WIN:AMPL:STAT? Return 1

[:SENSe]:PASSFAIL:WINdow:FREQuency:END

Description	Sets or queries the stop frequency of frequency line in window testing.
Syntax	[:SENSe]:PASSFAIL:WINdow:FREQuency:END<freq>
Query Syntax	[:SENSe]:PASSFAIL:WINdow:FREQuency:END?
Parameter	<freq> <NRf> Frequency in Hz.
Return Parameter	<NR3> Hz
Example	:PASSFAIL:WIN:FREQ:END 8e+8 :PASSFAIL:WIN:FREQ:END?

[:SENSe]:PASSFAIL:WINdow:FREQuency:STARt

Description	Sets or queries the start frequency of frequency line in window testing.
Syntax	[:SENSe]:PASSFAIL:WINdow:FREQuency:STARt <freq>
Query Syntax	[:SENSe]:PASSFAIL:WINdow:FREQuency:STARt?
Parameter	<freq> <NRf> Frequency in Hz.
Return Parameter	<NR3> Hz
Example	:PASSFAIL:WIN:FREQ:STAR 6e+8 :PASSFAIL:WIN:FREQ:STAR?

[:SENSe]:PASSFAIL:WINdow:FREQuency:STATe

Description	Turns the frequency line of window testing on/off or queries its state.

Syntax	[:SENSe]:PASSFAIL:WINdow:FREQuency:STATe {OFF|ON|0|1}	
Query Syntax	[:SENSe]:PASSFAIL:WINdow:FREQuency:STATe?	
Parameter	0	Turns the frequency line off.
	1	Turns the frequency line on.
	OFF	Turns the frequency line off.
	ON	Turns the frequency line on.
Return Parameter	0	The frequency line is off.
	1	The frequency line is on.
Example	:PASSFAIL:WIN:FREQ:STAT 1 :PASSFAIL:WIN:FREQ:STAT? Return 1	

[:SENSe]:PASSFAIL:WINdow:RESulte?

Description	Returns the Pass/Fail judgment of window testing.	
Query Syntax	[:SENSe]:PASSFAIL:WINdow:RESulte?	
Return Parameter	0	Fail
	1	Pass
Example	:PASSFAIL:WIN:RES? returns 1	

[:SENSe]:PASSFAIL:WINdow:STATe

Description	Turns window testing of pass/fail measurement function on/off.	
Syntax Query Syntax	[:SENSe]:PASSFAIL:WINdow:STATe {OFF|ON|0|1} [:SENSe]:PASSFAIL:WINdow:STATe?	
Parameter	0	Turns window testing off.
	1	Turns window testing on.
	OFF	Turns window testing off.
	ON	Turns window testing on.
Return Parameter	0	Window testing is off.
	1	Window testing is on.
Example	:PASSFAIL:WIN:STAT 1 :PASSFAIL:WIN:STAT? Return 1	

[:SENSe]:PASSFAIL:WINdow:SWEEP:STATe

Description	Turns window sweep on/off or queries its state.When the window sweep is on, only the window formed by the intersection of the amplitude line and the frequency line is swept, the peripheral stops sweeping; the full frequency is swept when it is off.	
Syntax Query Syntax	[:SENSe]:PASSFAIL:WINdow:SWEEP:STATe {OFF|ON|0|1} [:SENSe]:PASSFAIL:WINdow:SWEEP:STATe?	
Parameter	0	Turns window sweep off.
	1	Turns window sweep on.
	OFF	Turns window sweep off.
	ON	Turns window sweep on.
Return Parameter	0	Window sweep is off.
	1	Window sweep is on.
Example	:PASSFAIL:WIN:SWEEP:STAT 1	

[:SENSe]:POWer[:RF]:ATTenuation

Description	Sets or queries the input attenuation.
Syntax Query Syntax	[:SENSe]:POWer[:RF]:ATTenuation <rel_ampl> [:SENSe]:POWer[:RF]:ATTenuation?
Parameter/ Return Parameter	<rel_ampl> <NR1> 0 dB to 40 dB.
Example	:POW:ATT 10 dB :POW:ATT? Return 10

[:SENSe]:POWer[:RF]:ATTenuation:AUTO

Description	Sets or queries whether the automatic input attenuation is on/off.	
Syntax Query Syntax	[:SENSe]:POWer[:RF]:ATTenuation:AUTO {OFF|ON|0|1} [:SENSe]:POWer[:RF]:ATTenuation:AUTO?	
Parameter	0	Turns automatic input attenuation off.
	1	Turns automatic input attenuation on.
	OFF	Turns automatic input attenuation off.
	ON	Turns automatic input attenuation on.
Return Parameter	0	Automatic input attenuation is off.
	1	Automatic input attenuation is on.
Example	:POW:ATT:AUTO ON	

[:SENSe]:POWer[:RF]:GAIN[:STATe]:AUTO

Description	Turns the preamplifier on/off or queries its state.	
Syntax Query Syntax	[:SENSe]:POWer[:RF]:GAIN[:STATe]:AUTO {OFF|ON|0|1} [:SENSe]:POWer[:RF]:GAIN[:STATe]:AUTO?	
Parameter	0	Turns the preamplifier off.
	1	Turns the preamplifier on.
	OFF	Turns the preamplifier off.
	ON	Turns the preamplifier on.
Return Parameter	0	The preamplifier is off.
	1	The preamplifier is on.
Example	:POW:GAIN:AUTO ON	

[:SENSe]:SWEep:TIME

Description	Sets or queries the sweep time.	
Syntax Query Syntax	[:SENSe]:SWEep:TIME <time> [:SENSe]:SWEep:TIME?	
Parameter	<time>	Sweep time in s, ms, us, ns. The default unit is ns.
Return Parameter	<time>	Sweep time in millisecond.
Example	:SWE:TIME 60 ms	

[:SENSe]:SWEep:TIME:AUTO

Description	Sets the Sweep time setting to auto (on) or manual (off).	
Syntax Query Syntax	[:SENSe]:SWEep:TIME:AUTO {OFF|ON|0|1} [:SENSe]:SWEep:TIME:AUTO?	
Parameter	0	Sets sweep time to manual (off).
	1	Sets sweep time to auto (on).
	OFF	Sets sweep time to manual (off).
	ON	Sets sweep time to auto (on).
Return Parameter	0	Sweep time is set to manual.
	1	Sweep time is set to automatic.
Example	:SWE:TIME:AUTO 0	

SOURce Commands

:SOURce:POWer:TRACk[:POWer]

Description	Sets or queries the tracking generator output power level.
Syntax	:SOURce:POWer:TRACk[:POWer] <ampl>
Query Syntax	:SOURce:POWer:TRACk[:POWer]?
Parameter	<ampl> <NRf> Power or voltage, -40 dBm to 0 dBm
Return Parameter	<NR3>
Example	:SOUR:POW:TRAC -5

SYSTem Commands

:SYSTem:COMMunicate:LAN:DHCP

Description	Turns the DHCP on/off or queries its state.	
Syntax Query Syntax	:SYSTem:COMMunicate:LAN:DHCP {OFF|ON|0|1} :SYSTem:COMMunicate:LAN:DHCP?	
Parameter	0 1 OFF ON	Turns the DHCP off. Turns the DHCP on. Turns the DHCP off. Turns the DHCP on.
Return Parameter	0 1	The DHCP is off. The DHCP is on.
Example	:SYST:COMM:LAN:DHCP 0	

:SYSTem:COMMunicate:LAN:GATE

Description	Sets or queries the gateway address. Gate (gateway address) should match with IP address.
Syntax Query Syntax	:SYSTem:COMMunicate:LAN:GATE <gate> :SYSTem:COMMunicate:LAN:GATE?
Parameter	<gate> <String>
Return Parameter	<String>
Example	:SYST:COMM:LAN:GATE 192.168.1.1

:SYSTem:COMMunicate:LAN:IP:ADDRess

Description	Sets or queries the device IP address.
Syntax Query Syntax	:SYSTem:COMMunicate:LAN:IP:ADDRess <ip address> :SYSTem:COMMunicate:LAN:IP:ADDRess?
Parameter	<ip address> <String>
Return Parameter	<String>
Example	:SYST:COMM:LAN:IP:ADDR 192.168.1.72

:SYSTem:COMMunicate:LAN:MASK

Description	Sets or queries the device subnet mask address. Mask (subnet mask address) should match with IP address.
Syntax Query Syntax	:SYSTem:COMMunicate:LAN:MASK <mask> :SYSTem:COMMunicate:LAN:MASK?
Parameter	<mask> <String>
Return Parameter	<String>
Example	:SYST:COMM:LAN:MASK 255.255.255.0

:SYSTem:CONFigure:FIRMwareupdate

Description	Updates the system with new firmware from files located on an external USB drive.
Syntax	:SYSTem:CONFigure:FIRMwareupdate
Example	:SYST:CONF:FIRM

:SYSTem:DATE

Description	Sets or queries the system date.	
Syntax Query Syntax	:SYSTem:DATE <year>,<month>,<day> :SYSTem:DATE?	
Parameter/ Return Parameter	<year> <month> <day>	<NR1> Year, a 4-digit integer 2000 to 2100. <NR1> Month, a 2-digit integer 01 to 12. <NR1> Day, a 2-digit integer 01 to 31.
Example	:SYST:DATE 2011,07,01	

:SYSTem:LANGuage

Description	Sets or queries the language that the instrument uses to display on the screen.	
Syntax Query Syntax	:SYSTem:LANGuage {ENGLish|CHINese} :SYSTem:LANGuage?	
Parameter/ Return Parameter	ENGLish CHINese	The instrument displays in English. The instrument displays in Chinese.
Example	:SYST:LANG ENGL	

:SYSTem:PON:TYPE

Description	Sets the power-on type between user-defined and factory default.	
Syntax Query Syntax	:SYSTem:PON:TYPE {FACTory|USER} :SYSTem:PON:TYPE?	
Parameter/ Return Parameter	FACTory USER	Factory default User defined preset
Example	:SYST:PON:TYPE USER	

:SYSTem:PRESet:TYPE

Description	Sets the preset type between user-defined and factory default.	
Syntax Query Syntax	:SYSTem:PRESet:TYPE {FACT|USER} :SYSTem:PRESet:TYPE?	
Parameter/ Return Parameter	FACT USER	Factory default User defined preset
Example	:SYST:PRES:TYPE USER	

:SYSTem:SPEaker:VOLume

Description	Sets or queries the volume setting for the demodulation function.
Syntax Query Syntax	:SYSTem:SPEaker:VOLume <integer> :SYSTem:SPEaker:VOLume?
Parameter/ Return Parameter	<integer> <NR1> 0 to 100
Example	:SYST:SPE:VOL 50

:SYSTem:TIME

Description	Sets or queries the system time.	
Syntax Query Syntax	:SYSTem:TIME <hour>,<minute>,<second> :SYSTem:TIME?	
Parameter Return Parameter	<hour> <minute> <second>	<NR1> Hour, a 2-digit integer 00 to 23. <NR1> Minute, a 2-digit integer 00 to 59. <NR1> Second, a 2-digit integer 00 to 59.
Example	:SYST:TIME 19,05,30	

:SYSTem:TOUCh:ON

Description	Set or query touch screen control parameter switch.	
Syntax Query Syntax	:SYSTem:TOUCh:ON {ON|OFF|1|0} :SYSTem:TOUCh:ON?	
Parameter	ON OFF 1 0	Enable touchscreen controls. Disable touchscreen controls. Enable touchscreen controls. Disable touchscreen controls.
Return Parameter	1 0	Enable touchscreen controls. Disable touchscreen controls.
Example	:SYST:TOUC:ON 1 :SYST:TOUC:ON? Return 1	

:SYSTem:AUTo:SHUTdown:ON

Description	Set or query the automatic shutdown parameter switch.	
Syntax Query Syntax	:SYSTem:AUTo:SHUTdown:ON {ON|OFF|1|0} :SYSTem:AUTo:SHUTdown:ON?	
Parameter	ON OFF 1 0	Enable automatic shutdown. Disable automatic shutdown. Enable automatic shutdown. Disable automatic shutdown.
Return Parameter	1 0	Enable automatic shutdown. Disable automatic shutdown.
Example	:SYST:AUT:SHUT:ON 1 :SYST:AUT:SHUT:ON? Return 1	

:SYSTem:AUTo:SHUTdown:TIME

Description	Set or query the time setting of automatic shutdown.	
Syntax Query Syntax	:SYSTem:AUTo:SHUTdown:TIME <time> :SYSTem:AUTo:SHUTdown:TIME?	
Parameter/ Return Parameter	time	<NR1> 5Min - 240Min.Unit minutes
Example	:SYST:AUT:SHUT:TIME 10 :SYST:AUT:SHUT:TIME? Return 10Min	

:SYSTem:MODE

Description	Sets or queries the system mode.
Syntax Query Syntax	:SYSTem:MODE {Spectrum|Demod|Modulation} :SYSTem:MODE?
Parameter/ Return Parameter	Spectrum Demod Modulation
Example	:SYST:MODE Modulation :SYST:MODE? Return Modulation

TRACe Commands

:TRACe<n>[:DATA]?

Description	Returns the trace data for the selected trace.	
Query Syntax	:TRACe<n>[:DATA]?	
Parameter	<n>	<NR1> Trace number 1 to 5
Return Parameter	<data>	Start with #9, the following 9 digits specify the length of the data. Trace data is separated by a comma "," and each data length is fixed at 7 bits.
Example	:TRAC1? returns #9000004807,64.7301,-68.163, …, -36.195,-57.951	

:TRACe:SOCKdata?

Description	Returns the trace data for the selected trace as a stream of bytes.	
Query Syntax	:TRACe[:DATA]? TRACE1|TRACE2|TRACE3|TRACE4|TRACE5	
Parameter	TRACE1 TRACE2 TRACE3 TRACE4 TRACE5	The selected trace.
Return Parameter	<data>	Byte stream of trace data, start with #9, the following 9 digits specify the length of the data in bytes; and each data length is fixed at 4 bytes.
Example	:TRAC:SOCK? TRACE1 returns #9000002406\C1\13\F5z\C1\13\EF\F0\C1\14\18\B5\C1\13\FD\9E\C1\13\F7(\C1\14\04L\C1\13\F1\AD\C1\14\15\81\C1\13\FA\17\C1\13\F9\D1\C1\13\FA\F5\C1\13\F5\BF\...	

:TRACe<n>:MODE

Description	Sets or queries the operation mode of the selected trace.	
Syntax 查询各式	:TRACe<n>:MODE {WRITe|MAXHold|MINHold|AVERage|BLANk|VIEW} :TRACe<n>:MODE?	
Parameter/ Return Parameter	<n>	<NR1> Trace number 1 to 5
	WRITe	Clear and Write
	MAXHold	Hold the maximum points from each sweep
	MINHold	Hold the minimum points from each sweep
	AVERage <n>	设置迹线为平均，平均次数为 n
	BLANk	Off
	VIEW	Hold the last trace
Example	:TRAC1:MODE VIEW	

[:SENSe]:TRACe<n>:DETector[:FUNCtion]

Description	Sets or queries the trace detection mode.	
Syntax Query Syntax	[:SENSe]:TRAce<n>:DETector[:FUNCtion] {POSitive|NEGative|NORMal|SAMPle|RMS|VAVerage|QPEak} [:SENSe]:TRAce<n>:DETector[:FUNCtion]?	
Parameter/ Return Parameter	POSitive	Sets the detector mode to Peak+.
	NEGative	Sets the detector mode to Peak-.
	NORMal	Sets the detector mode to Normal.
	SAMPle	Sets the detector mode to Sample.
	RMS	Sets the detector mode to RMS.
	VAVerage	Sets the detector mode to Voltage average.
	QPEak	Sets the detector mode to quasi-peak.
Example	:TRAC1:DET POStive :TRAC1:DET? return POSTive	

[:SENSe]:DETector:LIST?

Description	Query the list of detector names.	
Syntax Query Syntax	:DETector:LIST?	
Return Parameter	POSitive	Peak+.
	NEGative	Peak-.
	NORMal	Normal.
	SAMPle	Sample.
	RMS	RMS.
	VAVerage	Voltage average.
	QPEak	Sets the detector mode to quasi-peak.
Example	:DET:LIST? return POSitive,NEGative,SAMPle,NORMal,VAVerage,RMS,QPEak	

:TRACe<n>:READy?

Description	Query whether the trace is scanned.	
Syntax Query Syntax	:TRACe:READy?	
Parameter	<n>	<NR1> Trace number 1 to 5
Return Parameter	1	Scan complete.
	0	Scan not completed.
Example	:TRAC<1>:READ? return 1	

Trigger Commands

:TRIGger:SEQuence:SOURce

Description	Sets or queries the triggering source.	
Syntax	:TRIGger:SEQuence:SOURce {RUN|VIDeo|POSitive|NEGative}	
Query Syntax	:TRIGger:SEQuence:SOURce?	
Parameter/ Return Parameter	RUN	Run trigger
	VIDeo	Video trigger
	POSitive	Positive trigger
	NEGative	Negative trigger
Example	:TRIG:SEQ:SOUR RUN	

:TRIGger:SEQuence:SOURce:VIDeo:POWer

Description	Sets or queries the video trigger power.	
Syntax	:TRIGger:SEQuence:SOURce:VIDeo:POWer <ampl>	
Query Syntax	:TRIGger:SEQuence:SOURce:VIDeo:POWer?	
Parameter	<ampl>	<NRf> power
Return Parameter	<NR3>	
Example	:TRIG:SEQ:SOUR:VID:POW 10	

UDISk Commands

:UDISk:STORe:SCReen

Description	Save the current snapshot to the spectrum folder automatically created on the USB storage device. If the file name is blank, the file name is based on the date/time, and the format is png.
Syntax	:UDISk:STORe:SCReen <file_name>
Example	:UDIS:STOR:SCR 20171107_145956

:UDISk:STORe:TRACe

Description	Saves the trace data to a folder named "spectrum" (created automatically) in USB storage device, the file is named based on date/time, the format is cvs.
Syntax	:UDISk:STORe:TRACe <file_name>
Example	:UDIS:STOR:TRAC 20171107_145956

UNIT Commands

:UNIT:POWer

Description	Sets the amplitude unit.	
Syntax	:UNIT:POWer {DBM|DBUW|DBPW|DBMV|DBUV|W|V}	
Query Syntax	:UNIT:POWer?	
Parameter/ Return Parameter	DBM	Decibels
	DBUW	Decibels relative to one microwatt
	DBPW	Decibels relative to one picowatt
	DBMV	Decibels relative to one millivolt
	DBUV	Decibels relative to one microvolt
	W	Watt
	V	Volt
Example	:UNIT:POW DBM	