S3331 Series Handheld Spectrum Analyzer

Programming Manual

Saluki Technology Inc.

The manual applies to the cable & antenna tester of the following models:

- S3331A handheld spectrum analyzer (9kHz-3.6GHz).
- S3331B handheld spectrum analyzer (9kHz-7.5GHz).

Standard Accessories of S3331 handheld spectrum analyzer

Item	Name	Qty
1	Main Machine	1 Set
2	AC/DC Adaptor	1 pcs
3	CD	1 pcs

Options of the S3331 handheld spectrum analyzer:

Option Number	Item
S3331-01	100kHz - 1.5GHz tracking source
S3331-02	100kHz - 3.2GHz tracking source
S3331-03	PC control software
S3331-04	Soft pack bag

Preface

Thanks for choosing S3331 handheld spectrum analyzer produced by Saluki Technology Inc. Please read this quick starter manual carefully for your convenience.

Manual No.

S3331-03-03

Version

Rev01 2016.09 Saluki Technology

Manual Authorization

The information contained in this Manual is subject to change without notice. The power to interpret the contents of and terms used in this Manual rests with Saluki.

Product Quality Assurance

The warranty period of the product is 18 months from the date of delivery.

Product Quality Certificate

The product meets the indicator requirements of the manual at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Environment Management

Research, development, manufacturing and testing of the product comply with the requirements of the quality and environmental management system.

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Content

1. Overview

This chapter means to give an overall description of the S3331 programming and SCPI, following content is included:

- Overview of S3331 programming
- SCPI introduction
  - Format
  - Symbol
  - Parameter
- Command

1. 1. S3331 Programming

S3331 supports remote access via LAN or USB port. All programming commands are sent as ASCII strings for easy programming and development.

S3331 provide following remote control functions:

- Instrument configuration
- Measurement
- Data access (status/measurement data)
- Print

1. 2. Introduction to the SCPI command

SCPI (Standard Commands for Programmable Instrument) is a standard instruction set of programmable instrument on IEEE 488.2. The SCPI command is divided into two parts: the IEEE 488.2 common command and the SCPI instrument specific control command.

The common command is a command that the instrument specified by IEEE 488.2 must support, and its syntax and semantics follow the requirements of IEEE 488.2. Common commands are independent of measurement and are used to control reset, self-test, and state operations. Refer to the IEEE 488.2 section for an introduction to the SCPI common command.

SCPI instrument specific control commands for measuring, access to data and other operations, including all measurement functions and some calculation functions.

1. 2. 1. Command format

The SCPI command is a tree hierarchy, including multiple subsystems, each consisting of a root key and one or more hierarchical keywords. The command line begins with a colon " : "; the keywords are separated by a colon " : " followed by an optional parameter; the question mark " **?** " Is appended to the command line to indicate that the function is queried; commands and parameters are separated by a space " ".

- Example

:CALCulate:BANDwidth:NDB <rel_ampl>

:CALCulate:BANDwidth:NDB?

CALCulate is the root of the command, *BANDwidth* and *NDB* are the second and third level keywords. The command line begins with a colon ":" and separates the keywords at all levels. *<Rel_ampl>* represents the settable parameter; the question mark "?" Indicates the query; the command: *CALCulate: BANDwidth: NDB* and the parameter *<rel_ampl>* is separated by a space " ".

In some commands with parameters, usually with a comma "," separate multiple parameters, such as:

: SYSTem: DATE <year>, <month>, <day>

1. 2. 2. Symbol Description

The following four symbols are not the contents of the SCPI command, but are usually used to describe the parameters in the command.

1. 2. 2. 1. Braces {}

The parameters in braces are optional, can be empty, or can be set one or more parameters.

- Example

[:SENSe]:CORRection:CSET<n>:DATA <freq>,<rel_ampl>{,<freq>,<rel_ampl>}

In *{,<freq>,<rel_ampl>}* the frequency and amplitude can be omitted, or set one or more pairs of frequency/amplitude parameters.

1. 2. 2. 2. Vertical bar |

The vertical bar is used to separate multiple parameter options, and one of the parameters must be selected when execute the command.

- Example

: DISPLAY: MENU: STATe OFF | ON | 0 | 1

The available command parameters are "OFF", "ON", "0" or "1", one of them must be selected.

1. 2. 2. 3. Square brackets []

The contents in the square brackets (command keywords) are optional and can be omitted.

- Example

[: SENSe]: CORRection: OFFSet [: MAGNitude]?

This command equals to following 3 commands:

: CORRection: OFFSet?

: CORRection: OFFSet: MAGNitude?

: SENSe: CORRection: OFFSet?

1. 2. 2. 4. Triangle brackets <>

The parameters in the triangle brackets must be a valid value.

- Example

: DISPlay: BRIGtness <integer>

: DISPlay: BRIGtness 10

1. 2. 3. Parameter Type

The parameters contained in the commands described in this manual can be classified into the following six types: Boolean, keyword, integer, continuous real, discrete, ASCII string.

1.2.3.1. boolean

The parameter values are "OFF", "ON", "0" or "1".

- Example

: DISPlay: MENU: STATe OFF | ON | 0 | 1

1.2.3.2. keywords

The value of the parameter is the value listed.

- Example

: DISPlay: AFUnction: POSition BOTTom | CENTer | TOP

The parameters are "BOTTom", "CENTer" or "TOP".

1.2.3.3. Integer

Unless otherwise noted, the parameter can take any integer value within the valid range. Note that this time, please do not set the parameters to decimal format, otherwise an exception will occur.

- Example

: DISPlay: BRIGtness <integer>

The parameter <integer> is any integer in the range 0 to 255.

1.2.3.4. Continuous real type

Any continuous real parameters is allowed in the effective range of precision requirements (usually the default accuracy is six digits after decimal point).

- Example

: CALCulate: BANDwidth: NDB <rel_ampl>

The parameter *<rel_ampl>* desires a real number between -100 and 100.

1.2.3.5. Discrete

Parameters can only take from the specified values, and these values are not continuous.

- Example

: CALCulate: MARKer <n>: MAXimum: MAX

The parameter <n> can only be 1, 2, 3, or 4.

1.2.3.6. ASCII string

The parameter value is a combination of ASCII characters.

- Example

: SYSTem: DATE <year>, <month>, <day>

The parameter is the set date format string.

1. 2. 4. Command abbreviation

All commands are case insensitive, user can use uppercase or lowercase. Meanwhile if abbreviations to be used, users must type in all the capital letters in the command format.

- Example

: CALCulate: BANDwidth: NDB?

Can be abbreviated as :

: CALC: BAND: NDB?

2. Sub-command

This chapter introduces the sub-command system of the S3331 in the alphabet sequence (except IEEE 488.2 standard commands).

- IEEE488.2
- *:CALibration*
- *:CALCulate*
- *:CONFigure*
- *:DISPlay*
- *:FETCh*
- *:HCOPy*
- *:INITiate*
- *:MMEMory*
- *[:SENSe]*
- *:SYSTem*
- *:TRACe*
- *:OUTPut*
- *:SOURce*
- *:UNIT*

Note: In this command set, if there is no special description, the query function is not installed, will return "N / A" (without quotation marks), and when the query function is not validated or the type does not match, Returns "ERR" (without the quotation marks). Each instruction ends with a semicolon (;)

2. 1. IEEE488.2

The IEEE standard defines common commands for querying instrument basic information or performing common basic operations. These commands usually begin with "*" and the command key length is 3 characters.

*IDN?	
Command Format	*IDN?
Description	Query the instrument ID string *IDN? *Company, S3331B, SN20000101 V1.8.0.1033*
Note	ID string is consisted of 4 parts: Company name + Equipment type + Serial No. + Revision No.

**RST*	
Command Format	*RST
Description	Reset the instrument

2. 2. :CALibration

:CALibration[:ALL]	
Command Format	*:CALibration[:ALL]* *:CALibration[:ALL]?*
Description	For user calibration
Note	When the instrument is connected to a calibration signal, user can run this command to do user calibration For S3331 the calibration signal frequency is 440MHz, amplitude is -20dBm
:CALibration:RESTore	
Command Format	*:CALibration:RESTore*
Description	Restore to default calibration status
Note	

2. 3. :CALCulate

:CALCulate:MARKer[n]:FCOunt[:STATe]	
Command Format	*:CALCulate:MARKer[n]:FCOunt[:STATe] ON|OFF|0|1* *:CALCulate:MARKer[n]:FCOunt[:STATe]?*
Description	Enable/disable frequency counter, inquire the status of frequency counter ● Example: *:CALC:MARK1:FCO 1* // enable frequency counter
Note	Enable/disable frequency counter
:CALCulate:MARKer:FCOunt:RESolution <bw>	
Command Format	*:CALCulate:MARKer:FCOunt:RESolution* *:CALCulate:MARKer:FCOunt:RESolution?*
Description	Set or inquire resolution of frequency counter
Note	Available value of *<bw>* 1,10,100,1000
:CALCulate:MARKer[n]:FCOunt:X?	
Command Format	*:CALCulate:MARKer[n]:FCOunt:X?*
Description	Inquire the result of frequency counter
Note	
:CALCulate:TUNE:AUTO	
Command Format	*:CALCulate:TUNE:AUTO ON|OFF|0|1* *:CALCulate:TUNE:AUTO?*
Description	Auto search Start/ Stop
Note	*ON|1* Start auto search *OFF|0* Stop auto search
Default	OFF
:CALCulate:MARKer:AOFF	
Command Format	*:CALCulate:MARKer:AOFF*
Description	Turn off all markers
Note	

:CALCulate:MARKer[n]:STATe	
Command Format	*:CALCulate:MARKer[n]:STATe ON|OFF|0|1* *:CALCulate:MARKer[n]:STATe?*
Description	Display/hide the marker state, inquire the marker state
Note	*[n]* available value is 1~5
:CALCulate:MARKer<n>:TRACe	
Command Format	*:CALCulate:MARKer<n>:TRACe <integer>* *:CALCulate:MARKer<n>:TRACe?*
Description	Set of inquire the trace for current marker n ● Example: *:CALC:MARK1:TRACe 1* // Set Marker 1 onto trace 1
Note	*<n>* is available 1~5， *<integer>* is available 1~5
:CALCulate:MARKer[n]:MODE	
Command Format	*:CALCulate:MARKer[n]:MODE POSition | DELTa* *:CALCulate:MARKer[n]:MODE?*
Description	Set or inquire current marker mode ● Example *:CALCulate:MARKer1:MODE DELT;* // Set Marker 1 as a DELTa marker
Note	*[n]* is available 1~5
:CALCulate:MARKer:TABLe:STATe	
Command Format	*:CALCulate:MARKer:TABLe:STATe ON|OFF|0|1* *:CALCulate:MARKer:TABLe:STATe?*
Description	Display / Hide marker table, inquire the status of marker table ● Example *:CALCulate:MARKer:TABLe:STATe 1;* // Display the marker table
Note	*0|OFF* Hide *1|ON* Display

:CALCulate:MARKer[n]:X	
Command Format	*:CALCulate:MARKer[n]:X <param>* *:CALCulate:MARKer[n]:X?*
Description	Set or inquire the X axis value of current marker ● Example *:CALCulate:MARKer1:X 200MHz;* // Move current marker to 200MHz
Note	*[n]* is available 1~5
:CALCulate:MARKer[n]:Y?	
Command Format	*:CALCulate:MARKer[n]:Y?*
Description	Inquire the Y axis value of current marker ● Example *:CALC:MARK1:Y?* // Inquire Y value of Marker 1
Note	*[n]* is available 1~5
:CALCulate:MARKer[n]:PHNoise[:STATe]	
Command Format	*:CALCulate:MARKer[n]:PHNoise[:STATe] ON|OFF|0|1* *:CALCulate:MARKer[n]:PHNoise[:STATe]?*
Description	Enable/disable marker noise function. Inquire the marker noise function state. ● Example *:CALCulate:MARK2:PHNoise 1;* // enable marker 2 marker noise function
Note	*0|OFF* disable *1|ON* enable *[n]* is available 1~5
:CALCulate:MARKer:PHNoise:Y?	
Command Format	:CALCulate:MARKer:PHNoise:Y?
Description	Inquire the value of marker noise ● Example *:CALCulate:MARKer:PHNoise:Y?*
Note	

:CALCulate:MARKer:PHNoise:OFFSet:FREQuency	
Command Format	*:CALCulate:MARKer:PHNoise:OFFSet:FREQuency <freq>* *:CALCulate:MARKer:PHNoise:OFFSet:FREQuency?*
Description	Set or inquire the start frequency of marker noise ● Example *:CALCulate:MARKer:PHNoise:OFFSet:FREQ 100MHz* Return Value：100000000
Note	
:CALCulate:MARKer:PHNoise:OFFSet	
Command Format	*:CALCulate:MARKer:PHNoise:OFFSet <±bw>* *:CALCulate:MARKer:PHNoise:OFFSet?*
Description	Set or inquire the bandwidth of marker noise ● Example *:CALCulate:MARKer:PHNoise:OFFSet 2MHz* Return Value：2000000
Note	
:CALCulate:BWIDth|BANDwith[:STATe]	
Command Format	*:CALCulate:BWIDth|BANDwith[:STATe] ON|OFF|0|1* *:CALCulate:BWIDth|BANDwith[:STATe]?*
Description	Enable / disable NdB measurement function， inquire NdB measurement function state ● Example *:CALC:BWID 1;* // Enable NdB measurement Return Value 1
Note	0|OFF Disable 1|ON Enable
:CALCulate:BWIDth|BANDwith:NDB	
Command Format	*:CALCulate:BWIDth|BANDwith:NDB <rel_ampl>* *:CALCulate:BWIDth|BANDwith:NDB?*
Description	Set or inquire NdB amplitude ● Example *:CALC:BWID:NDB 3; // set Ndb amplitude to 3dB* Return Value 3.00
Note	

:CALCulate:BWIDth|BANDwith:RESult?	
Command Format	*:CALCulate:BWIDth|BANDwith:RESult?*
Description	Inquire NdB measurement result/ ● Example *:CALC:BWID:RES?;* Return Value: 1000300
Note	
:CALCulate:MARKer:FUNCtion:AOFF	
Command Format	*:CALCulate:MARKer:FUNCtion:AOFF*
Description	Disable all marker functions
Note	
:CALCulate:MARKer[n][:SET]:CENTer	
Command Format	*:CALCulate:MARKer[n][:SET]:CENTer*
Description	Set the frequency of marker [n] as the center frequency
Note	*[n]* is available 1~5
:CALCulate:MARKer[n][:SET]:STEP	
Command Format	*:CALCulate:MARKer[n][:SET]:STEP*
Description	Set the frequency of marker [n] as the step frequency
Note	*[n]* is available 1~5
:CALCulate:MARKer[n][:SET]:STARt	
Command Format	*:CALCulate:MARKer[n][:SET]:STARt*
Description	Set the frequency of marker [n] as the start frequency
Note	[n] is available 1~5
:CALCulate:MARKer[n][:SET]:STOP	
Command Format	*:CALCulate:MARKer[n][:SET]:STOP*
Description	Set the frequency of marker [n] as the stop frequency
Note	[n] is available 1~5

:CALCulate:MARKer[n][:SET]:RLEVel	
Command Format	*:CALCulate:MARKer[n][:SET]: RLEVel*
Description	Set the amplitude of marker [n] as the reference level
Note	[n] is available 1~5
:CALCulate:MARKer[n][:SET]:SPAN	
Command Format	*:CALCulate:MARKer[n][:SET]: SPAN*
Description	Set the frequency difference of delta marker as span
Note	[n] is available 1~5
:CALCulate:MARKer[n]:MAXimum	
Command Format	*:CALCulate:MARKer[n]:MAXimum*
Description	Search for the peak
Note	[n] is available 1~5
:CALCulate:MARKer[n]:MAXimum:LEFT	
Command Format	*:CALCulate:MARKer[n]:LEFT*
Description	Search for the leaf peak
Note	[n] is available 1~5
:CALCulate:MARKer[n]:MAXimum:RIGHt	
Command Format	*:CALCulate:MARKer[n]:RIGHt*
Description	Search for the right peak
Note	[n] is available 1~5
:CALCulate:MARKer[n]:MAXimum:NEXT	
Command Format	*:CALCulate:MARKer[n]:NEXT*
Description	Search for the next peak
Note	[n] is available 1~5
:CALCulate:MARKer[n]:MINimum	
Command Format	*:CALCulate:MARKer[n]:MINimum*
Description	Search for the valley
Note	[n] is available 1~5

:CALCulate:MARKer[n]:CPEak[:STATe]	
Command Format	*:CALCulate:MARKer[n]:CPEak[:STATe] ON|OFF|0|1* *:CALCulate:MARKer[n]:CPEak[:STATe]?*
Description	Set or inquire the status of continuous peak function
Note	*0|OFF* disable *1|ON* enable [n] is available 1~5
:CALCulate:NETMeasure[:STATe]	
Command Format	*:CALCulate:NETMeasure[:STATe] ON|OFF|0|1* *:CALCulate:NETMeasure[:STATe]?*
Description	Set or inquire the status of network measurement
Note	*0|OFF* disable *1|ON* enable
:CALCulate:NETMeasure:RLEVel	
Command Format	*:CALCulate:NETMeasure:RLEVel <ampl>* *:CALCulate:NETMeasure:RLEVel?*
Description	Set or inquire the reference level of network measurement
Note	<ampl> is available -80dB~+30dB
:CALCulate:NETMeasure:POWer	
Command Format	:CALCulate:NETMeasure:POWer <ampt> :CALCulate:NETMeasure:POWer?
Description	Set or inquire the output power of network measurement
Note	<ampt> is available -30dB~0dB
:CALCulate:NETMeasure:NORMalize	
Command Format	:CALCulate:NETMeasure:NORMalize
Description	Normalize the network measurement result
Note	

2. 4. :CONFigure

:CONFigure:ACPower	
Command Format	*:CONFigure:ACPower*
Description	Switch to adjacent channel power measurement mode
Note	
:CONFigure:CHPower	
Command Format	*:CONFigure:CHPower*
Description	Switch to channel power measurement mode
Note	
:CONFigure:OBWidth	
Command Format	*:CONFigure:OBWidth*
Description	Switch to occupied bandwidth measurement mode
Note	
:CONFigure:SANalyzer	
Command Format	*:CONFigure: SANalyzer*
Description	Switch to Spectrum analyzer mode
Note	
:CONFigure?	
Command Format	*:CONFigure?*
Description	Inquire the measurement mode
Note	

2. 5. :DISPlay

:DISPlay:WINdow:TRACe:Y[:SCALe]:RLEVel	
Command Format	*:DISPlay:WINdow:TRACe:Y[:SCALe]:RLEVel <ampl>* *:DISPlay:WINdow:TRACe:Y[:SCALe]:RLEVel?*
Description	Set or inquire the reference level, Default unit for log display format is dBm, for linear display format is mV ● Example: *:DISP:WIN:TRAC:Y: RLEV -10 // set the reference level to -10 dBm or mV* Return Value: -10
Note	<ampl> is available -80dBm~+30dBm Available range will change with the display format of the Y axis unit.
Default	0dBm
:DISPlay:WINdow:TRACe:X[:SCALe]:OFFSet	
Command Format	*:DISPlay:WINdow:TRACe:X[:SCALe]:OFFSet <freq>* *:DISPlay:WINdow:TRACe:X[:SCALe]:OFFSet?*
Description	Set or inquire the frequency offset ● Example: *:DISP:WIN:TRAC:X:OFFS 10MHz; // set the offset to 10MHz* Return Value 10000000
Note	*<freq>* is available -MAXFREQ~+-MAXFREQ
Default	0Hz
:DISPlay:WINdow:TRACe:Y[:SCALe]:PDIVison	
Command Format	*:DISPlay:WINdow:TRACe:Y[:SCALe]:PDIVison <rel_ampl>* *:DISPlay:WINdow:TRACe:Y[:SCALe]:PDIVison?*
Description	Set or inquire the scale ● Example: *:DISP:WIN:TRAC:Y:PDIV 5.0; // set the scale to 5 unit per grid* Return Value 5.00
Note	< rel_ampl > is available 1 ~ 255
Default	10.0

:DISPlay:WINdow:TRACe:Y[:SCALe]:SPACing	
Command Format	*:DISPlay:WINdow:TRACe:Y[:SCALe]: SPACing LINear| LOGarithmic* *:DISPlay:WINdow:TRACe:Y[:SCALe]: SPACing?*
Description	Set or inquire the display formate ● Example: *:DISP:WIN:TRAC:Y: SPAC LIN; //set the display format to linear* Return value LINear
Note	Available keywords *LINear* *LOGarithmic*
Default	*LOGarithmic*
:DISPlay:WINdow:TRACe:Y[:SCALe]:RLEVel:OFFSet	
Command Format	*:DISPlay:WINdow:TRACe:Y[:SCALe]:RLEVel:OFFSet <rel_ampl>* *:DISPlay:WINdow:TRACe:Y[:SCALe]:RLEVel:OFFSet?*
Description	Set or inquire reference offset, unit is dBm ● Example: *:DISP:WIN:TRAC:Y: RLEV:OFFS 20 // set the reference offset to 20dBm* Return value: 20.00
Note	< rel_ampl > is available 0 ~ 120
Default	0dBm
:DISPlay:ENABle	
Command Format	*:DISPlay:ENABle ON|OFF|0|1* *:DISPlay:ENABle?*
Description	Set or inquire the display refresh function
Note	0|OFF Disable 1|ON Enable
:DISPlay:MENU:STATe	
Command Format	:DISPlay:MENU:STATe ON|OFF|0|1 :DISPlay:MENU:STATe?
Description	Set or inquire the full window display
Note	

:DISPlay:FORMat:ZOOM	
Command Format	*:DISPlay:FORMat:ZOOM ON|OFF|0|1* *:DISPlay:FORMat: ZOOM?*
Description	Set or inquire the display zoom function
Note	0|OFF Disable 1|ON Enable
:DISPlay:WINdow:TRACe:Y:DLINe	
Command Format	*:DISPlay:WINdow:TRACe:Y:DLINe <ampl>* *:DISPlay:WINdow:TRACe:Y:DLINe?*
Description	Set or inquire the reference line function ● Example: *:DISP:WIN:TRAC:Y:DLIN -20 // set a reference line, Y axis value is -20, unit depends on display formate* Return value -20
Note	
Default	-25dBm
:DISPlay:WINdow:TRACe:Y:DLINe:STATe	
Command Format	*:DISPlay:WINdow:TRACe:Y:DLINe:STATe ON|OFF|0|1* *:DISPlay:WINdow:TRACe:Y:DLINe:STATe?*
Description	Display or hide the reference line, inquire the display status of the reference line ● Example: *:DISP:WIN:TRAC:Y:DLIN:STATe ON // Display the reference line* Return value 1
Note	0|OFF Disable 1|ON Enable
:DISPlay:WINdow:TRACe:Y[:SCALe]:GAUge	
Command Format	*:DISPlay:WINdow:TRACe:Y[:SCALe]:GAUge ON|OFF|0|1* *:DISPlay:WINdow:TRACe:Y[:SCALe]:GAUge?*
Description	Turn on / off the reference grid. Inquire the grid status. ● Example: *:DISPlay:WINdow:TRACe:Y[:SCALe]:GAUge ON // display the grid* Return value 1
Note	0|OFF Disable 1|ON Enable

:DISPlay:BRIGhtness	
Command Format	*:DISPlay:BRIGhtness <integer>* *:DISPlay:BRIGhtness?*
Description	Set or inquire the brightness of the screen ● Example: *:DISPlay:BRIG 50 // set the screen brightness to 50* Return value 50
Note	<integer> range 1~100
:DISPlay:ANNotation:CLOCk[:STATe]	
Command Format	*:DISPlay:ANNotation:CLOCk[:STATe] ON|OFF|0|1* *:DISPlay:ANNotation:CLOCk[:STATe]?*
Description	Display or hide the time display, inquire the time display status ● Example: *:DISPlay:ANNotation:CLOC ON // display the time info* Return value 1
Note	0|OFF Disable 1|ON Enable
:DISPlay:ANNotation:CLOCk:DATE:FORMat	
Command Format	*:DISPlay:ANNotation:CLOCk:DATE:FORMat YMD|HMS* *:DISPlay:ANNotation:CLOCk:DATE:FORMat?*
Description	Set and inquire time display formate ● Example: *:DISPlay:ANNotation:CLOC:DATE:FORM YMD // set the format to year/month/day/hour/munite/second* Return value YMDhms
Note	Available keyword YMD , year/month/day/hour/minute/second HMS , hour/minute/second/year/month/day

2. 6. :FETCh

:FETCh:ACPower:MAIN?	
Command Format	*:FETCh:ACPower:MAIN?*
Description	Inquire the main channel power
Note	
:FETCh:ACPower?	
Command Format	*:FETCh:ACPower?*
Description	Inquire the adjacent channels power
Note	
:FETCh:ACPower:LOWer?	
Command Format	*:FETCh:ACPower:LOWer?*
Description	Inquire lower channel power
Note	
:FETCh:ACPower:UPPer?	
Command Format	*:FETCh:ACPower:UPPer?*
Description	Inquire upper channel power
Note	
:FETCh:CHPower:POWer?	
Command Format	*:FETCh:CHPower:POWer?*
Description	Inquire the channel power
Note	
:FETCh:OBWidth:BANDwidth?	
Command Format	*:FETCh:OBWidth:BANDwidth?*
Description	Inquire the occupied bandwidth
Note	

2. 7. :HCOPy

:HCOPy:IMAGe:COLor[:STATe]	
Command Format	*:HCOPy:IMAGe:COLor[:STATe] ON|OFF|0|1* *:HCOPy:IMAGe:COLor[:STATe]?*
Description	Set and inquire printer type
Note	ON|1 colorful printer OFF|0 Black/White printer
:HCOPy:PAGE:ORIentation	
Command Format	*:HCOPy:PAGE:ORIentation LANDscape|PORTrait* *:HCOPy:PAGE:ORIentation?*
Description	Set and inquire the paper direction
Note	Available keyword: LANDscape PORTrait
:HCOPy:PAGE:SIZE	
Command Format	*:HCOPy:PAGE:SIZE Letter|A4|A5|A6|B5* *:HCOPy:PAGE:SIZE?*
Description	Set and inquire the paper size
Note	
:HCOPy:PAGE:PRINts	
Command Format	*:HCOPy:PAGE:PRINts <integer>* *:HCOPy:PAGE:PRINts?*
Description	Set and inquire the copy quantity to be printed.
Note	<Integer> ranges 1~5
:HCOPy:SCReen	
Command Format	*:HCOPy:SCReen*
Description	Print screen
Note	
:HCOPy:TRACe	
Command Format	:HCOPy:TRACe
Description	Print trace
Note	

2.8. :INITiate

[:INITiate]:CONTinuous	
Command Format	*[:INITiate]:CONTinuous OFF|ON|0|1* *[:INITiate]:CONTinuous?*
Description	Set or inquire sweep mode ● Example: *:INIT:CONT 0 // set sweep mode as single sweep* Return value 0
Note	2 sweep modes are supported: Single sweep and continuous sweep ON|1 Continuous Sweep OFF|0 Single Sweep
Default	ON|1，Continuous Sweep

2. 9. :MMEMory

:MMEMory:CATalog?	
Command Format	*:MMEMory:CATalog?*
Description	Inquire the saving file directory
Note	Return the saving file directory
Default	
:MMEMory:STORe:STATe	
Command Format	*:MMEMory:STORe:STATe*
Description	Save current user state
Note	
Default	
:MMEMory:DISK:INFormation?	
Command Format	*:MMEMory:DISK:INFormation?*
Description	Inquire hard disk information
Note	
:MMEMory:STORe:TRACe	
Command Format	*:MMEMory:STORe:TRACe*
Description	Save current trace, save time is the name of the saving file. File type is *.csv
Note	
:MMEMory:STORe:SCReen	
Command Format	*:MMEMory:STORe:SCReen*
Description	Save the screenshot, save time is the name of the saving file, file type is *.png
Note	
:MMEMory:LOAD:STATe	
Command Format	*:MMEMory:LOAD:STATe <file_name>*
Description	Load the saved user configurations
Note	

:MMEMory:LOAD:TRACe	
Command Format	*:MMEMory:LOAD:TRACe <file_name>*
Description	Recall saved trace file
Note	
:MMEMory:LOAD:SCReen	
Command Format	*:MMEMory:LOAD:SCReen <file_name>*
Description	Recall saved screenshot
Note	
:MMEMory:DELete:TRACe	
Command Format	*:MMEMory:DELete:TRACe <file_name>*
Description	Delete saved trace file
Note	
:MMEMory:DELete:SCReen	
Command Format	*:MMEMory:DELete:SCReen <file_name>*
Description	Delete saved screenshot
Note	
:MMEMory:DELete:TRACe:ALL	
Command Format	*:MMEMory:DELete:TRACe:ALL*
Description	Delete all saved trace file
Note	
:MMEMory:DELete:SCReen:ALL	
Command Format	*:MMEMory:DELete:SCReen:ALL*
Description	Delete all saved screenshot
Note	
:MMEMory:DELete: ALL	
Command Format	*:MMEMory:DELete:ALL*
Description	Delete all saved screenshot and trace data
Note	

:MMEMory:COPY:ALL	
Command Format	*:MMEMory:COPY:ALL*
Description	Copy all screenshot and trace data
Note	
:MMEMory:COPY:STATe:ALL	
Command Format	*:MMEMory:COPY:STATe:ALL*
Description	Copy all user configuration file.
Note	
:MMEMory:COPY:STATe	
Command Format	*:MMEMory:COPY:STATe <file_name>*
Description	Copy a specified saved configuration file
Note	
:MMEMory:COPY:SCReen:ALL	
Command Format	*:MMEMory:COPY:SCReen:ALL*
Description	Copy all saved screenshot
Note	
:MMEMory:COPY:SCReen	
Command Format	*:MMEMory:COPY:SCReen <file_name>*
Description	Copy a specified saved screenshot
Note	

2. 10. [:SENSe]

[:SENSe]:FREQuency:CENTer	
Command Format	*[:SENSe]:FREQuency:CENTer <freq>* *[:SENSe]:FREQuency:CENTer?*
Description	Set or inquire the center frequency. Supported units are GHz, MHz, KHz, Hz, Default unit is Hz， ● Example: *:FREQ:CENT 200000000* or *:FREQ:CENT 200000000Hz // set the center frequency to 20MHz* Return value 200000000
Note	<freq> ranges 9kHz~3.600009GHz (S3331A), 9kHz – 7.5GHz (S3331B)
Default	500MHz
[:SENSe]:FREQuency:STARt	
Command Format	*[:SENSe]:FREQuency:STARt <freq>* *[:SENSe]:FREQuency:STARt?*
Description	Set or inquire the start frequency. Supported units are GHz, MHz, KHz, Hz, Default unit is Hz. ● Example: *:FREQ:STAR 1000000* Or *:FREQ:STAR 1MHz // set the start frequency to 1MHz* Return value 1000000
Note	<freq> ranges 9kHz~3.600009GHz (S3331A), 9kHz – 7.5GHz (S3331B)
Default	9kHz

[:SENSe]:FREQuency:STOP	
Command Format	*[:SENSe]:FREQuency:STOP <freq>* *[:SENSe]:FREQuency:STOP?*
Description	Set or inquire the stop frequency. Supported units are GHz, MHz, KHz, Hz, Default unit is Hz. ● Example: *:FREQ:STOP 1000000000* Or *:FREQ:STOP 1GHz //set the stop frequency to 1GHz* Return value 1000000000
Note	<freq> ranges 9kHz~3.600009GHz (S3331A), 9kHz – 7.5GHz (S3331B)
Default	3.6GHz (S3331A) / 7.5GHz (S3331B)
[:SENSe]:FREQuency:CENTer:STEP	
Command Format	*[:SENSe]:FREQuency:CENTer:STEP <freq>* *[:SENSe]:FREQuency:CENTer:STEP?*
Description	Set or inquire frequency step. Supported units are GHz, MHz, KHz, Hz, Default unit is Hz. ● Example: *:FREQ:CENT:STEP 1000* or *:FREQ:CENT:STEP 1KHz // set the frequency step to 1KHz* Return value 1000
Note	<freq> ranges 9kHz~3.600009GHz (S3331A), 9kHz – 7.5GHz (S3331B)
Default	100MHz
[:SENSe]:FREQuency:CENTer:STEP:AUTO	
Command Format	*[:SENSe]:FREQuency:CENTer:STEP:AUTO ON|OFF|0|1* *[:SENSe]:FREQuency:CENTer:STEP:AUTO?*
Description	Set frequency step mode, manual mode and auto mode are supported. ● Example: *:FREQ:CENT:STEP:AUTO ON // Set frequency step mode as auto.* Return value 1
Note	ON|1 auto mode OFF|0 manual mode
Default	Auto mode

[:SENSe]:FREQuency:REFerence INTernal|EXTernal	
Command Format	*[:SENSe]:FREQuency:REFerence INTernal|EXTernal* *[:SENSe]:FREQuency:REFerence?*
Description	Set or inquire the reference source mode ● Example: *:FREQ:REF INT //use internal reference source* Return value：INTernal
Note	Keywords: INTernal: Internal source EXTernal: External reference source
Default	INTernal
[:SENSe]:FREQuency:SPAN	
Command Format	*[:SENSe]:FREQuency:SPAN <freq>* *[:SENSe]:FREQuency:SPAN?*
Description	Set or inquire the span. Supported units are GHz, MHz, KHz, Hz, Default unit is Hz. ● Example: *:FREQ:SPAN 1000000* or *:FREQ:SPAN 1MHz // set sweep span to 1MHz* Return value 1000000
Note	<freq> ranges 9kHz~3.600009GHz (S3331A), 9kHz – 7.5GHz (S3331B) When
Default	3.6GHz (S3331A) / 7.5GHz (S3331B)
[:SENSe]:FREQuency:SPAN:FULL	
Command Format	*[:SENSe]:FREQuency:SPAN:FULL*
Description	Set sweep span as full span
Note	
Default	
[:SENSe]:FREQuency:SPAN:ZERO	
Command Format	*[:SENSe]:FREQuency:SPAN:ZERO*
Description	Set sweep span as Zero span
Note	When zero span is activated, the X axis will be time axis
Default	

[:SENSe]:FREQuency:SPAN:PREVious	
Command Format	*[:SENSe]:FREQuency:SPAN:PREVious*
Description	Set current span the same as the previous span
Note	
[:SENSe]:BANDwidth|BWIDth[:RESolution]	
Command Format	*[:SENSe]:BANDwidth[:RESolution] <freq>* *Or* *[:SENSe]:BWIDth[:RESolution] <freq>* *[:SENSe]:BANDwidth[:RESolution]?* *Or* *[:SENSe]:BWIDth[:RESolution]?*
Description	Set or inquire resolution bandwidth. ● Example: *:BAND:RES 1000* *Or* *:BAND:RES 1KHz // set the resolution bandwidth* Return Value 1000
Note	Following RBW are supported: 3MHz, 1MHz, 500kHz, 400 kHz, 300 kHz, 200 kHz, 100 kHz, 90 kHz, 80 kHz, 70 kHz, 60 kHz, 50 kHz, 40 kHz, 30 kHz, 20 kHz, 10 kHz, 9 kHz, 8 kHz, 7 kHz, 6 kHz, 5 kHz, 4 kHz, 3 kHz, 2 kHz, 1 kHz, 900Hz, 800 Hz, 700 Hz, 600 Hz, 500 Hz, 400 Hz, 300 Hz, 200 Hz, 100 Hz, 90 Hz, 80 Hz, 70 Hz, 60 Hz, 50 Hz, 40 Hz, 30 Hz, 20 Hz, 10 Hz
Default	3MHz

[:SENSe]:BANDwidth|BWIDth[:RESolution]:AUTO	
Command Format	*[:SENSe]:BANDwidth[:RESolution] :AUTO OFF|ON|0|1* *Or* *[:SENSe]:BWIDth[:RESolution] :AUTO OFF|ON|0|1* *[:SENSe]:BANDwidth[:RESolution] :AUTO?* *Or* *[:SENSe]:BWIDth[:RESolution] :AUTO?*
Description	Set or inquire RBW setting mode, manual and auto modes are supported. ● Example: *:BAND:RES:AUTO OFF // Manual set the RBW* Return value 0
Note	ON|1 Auto mode OFF|0 Manual Mode
Default	Auto mode
[:SENSe]:BANDwidth|BWIDth[:RESolution]:STEP:MODE	
Command Format	[:SENSe]:BANDwidth[:RESolution]:STEP:MODE 0|1 Or [:SENSe]:BWIDth[:RESolution]:STEP:MODE 0|1 [:SENSe]:BANDwidth[:RESolution]:STEP:MODE? or [:SENSe]:BWIDt[:RESolution]STEP:MODE?
Description	Set or inquire the RBW setting method, continuous or step. ● Example: *:BAND:RES:STEP:MODE 0 // continuous setting* Return value 0
Note	ON|1 step 1、3、5 OFF|0 continuous
Default	Step

[:SENSe]:BANDwidth|BWIDth:VIDeo	
Command Format	*[:SENSe]:BANDwidth:VIDeo <freq>* *or* *[:SENSe]:BWIDth:VIDeo <freq>* *[:SENSe]:BANDwidth:VIDeo?* *or* *[:SENSe]:BWIDth:VIDeo?*
Description	Set video bandwidth, Supported units are GHz, MHz, KHz, Hz, Default unit is Hz ● Example: *:BAND:VID 1000000* *or* *:BAND:VID 1MHz // set the video bandwidth to 1MHz.* Return value 1000000
Note	Video bandwidth available value: 3MHz, 1MHz, 500kHZ, 300kHZ, 100kHZ, 50kHZ, 30kHZ, 10kHZ, 5kHZ, 3kHZ, 1kHZ, 500Hz, 300Hz, 100Hz, 50Hz, 30Hz, 10Hz, 0Hz
Default	3MHz
[:SENSe]:BANDwidth|BWIDth:VIDeo:AUTO	
Command Format	*[:SENSe]:BANDwidth:VIDeo:AUTO OFF|ON|0|1* *or* *[:SENSe]:BWIDth:VIDeo:AUTO OFF|ON|0|1* *[:SENSe]:BANDwidth:VIDeo:AUTO?* *Or* *[:SENSe]:BWIDth:VIDeo:AUTO?*
Description	Set or inquire VBW setting mode, auto or manual. ● Example: *:BAND:VID:AUTO OFF* Return value 0
Note	ON|1 Auto setting OFF|0 Manual setting
Default	Auto setting

[:SENSe]:BANDwidth|BWIDth:EMC	
Command Format	*[:SENSe]:BANDwidth:EMC <freq>* *Or* *[:SENSe]:BWIDth:EMC <freq>* *[:SENSe]:BANDwidth:EMC?* *Or* *[:SENSe]:BWIDth:EMC?*
Description	Set or inquire EMC bandwidth ● Example: *:BAND:EMC 120000* *Or* *:BAND:EMC 120kHz // set EMC bandwidth to 120kHz* Return value 120000
Note	Following EMC bandwidth is available: 1MHz，120kHz，30kHz，9kHz，200Hz
Default	120kHz
[:SENSe]:BANDwidth|BWIDth:EMC:STATe	
Command Format	*[:SENSe]:BANDwidth:EMC:STATe ON|OFF|1|0* *Or* *[:SENSe]:BWIDth:EMC: STATe ON|OFF|1|0* *[:SENSe]:BANDwidth:EMC:STATe?* *Or* *[:SENSe]:BWIDth:EMC:STATe?*
Description	Turn on/off EMC bandwidth function. Inquire the EMC bandwidth function status ● Example *:BAND:EMC:STATe OFF // Turn off the EMC bandwidth function* Return Value 0
Note	
Default	Off

[:SENSe]:AVERage:COUNt	
Command Format	*[:SENSe]:AVERage:COUNt <integer>* *[:SENSe]:AVERage:COUNt?*
Description	Set or inquire average factor ● Example *:AVER:COUN 50 // set average factor to 50* Return Value 50
Note	Average function should be enabled before setting the average factor
Default	
[:SENSe]:AVERage[:STATe]	
Command Format	*[:SENSe]:AVERage[:STATe] OFF|ON|0|1* *[:SENSe]:AVERage[:STATe]?*
Description	Turn on/off trace average function. Inquire the trace average function status. ● Example *:AVER 1 // enable trace average function* Return value 1
Note	
Default	0
[:SENSe]:POWer[:RF]:ATTenuation	
Command Format	*[:SENSe]:POWer[:RF]:ATTenuation <att>* *[:SENSe]:POWer[:RF]:ATTenuation?*
Description	Set and inquire the attenuator，Available Units: dBm，dBmV，dBuV，mW，mV; Example: *:POW:ATT 10.0* *Or* *:POW:ATT 10.0dBm // set the attenuator to 10dB* Return Value 10.0
Note	<*value*> ranges 0~30.0dB
Default	10dB

[:SENSe]:POWer[:RF]:ATTenuation:AUTO	
Command Format	*[:SENSe]:POWer[:RF]:ATTenuation:AUTO ON|OFF|1|0* *[:SENSe]:POWer[:RF]:ATTenuation:AUTO?*
Description	Set or inquire the attenuator setting mode, manual or auto. ● Example *:POW:ATT:AUTO OFF // set the attenuator manually* Return value 0
Note	ON|1 Auto OFF|0 Manual
Default	Auto
[:SENSe]:POWer[:RF]:GAIN[:STATe]:AUTO	
Command Format	*[:SENSe]:POWer[:RF]:GAIN[:STATe]:AUTO ON|OFF|1|0* *[:SENSe]:POWer[:RF]:GAIN[:STATe]:AUTO?*
Description	Turn on/off or inquire the pre-amplifier status 前置放大器开启/关闭控制，默认是关闭前置放大器。 ● Example *:POWer:GAIN:AUTO OFF // turn off the pre-amplifier* Return value 0
Note	ON|1 Turn on the pre-amplifier OFF|0 Turn off the pre-amplifier
Default	OFF
[:SENSe]:SWEep:TIME	
Command Format	*[:SENSe]:SWEep:TIME <time>* *[:SENSe]:SWEep:TIME?*
Description	Set or inquire the sweep time. Units are : s , ms. ● Example: *:SWE:TIME 100* *or* *:SWE:TIME 100ms //set the sweep time to 100ms* Return value 100
Note	<time>取值范围根据下述情况确定： 非零扫宽时，扫描时间范围为 10ms~3000s 零扫宽时，扫描时间范围为 1ms~3000s
Default	全扫宽模式(扫宽为 1GHz)时扫描时间为 13.333ms

[:SENSe]:SWEep:TIME:AUTO	
Command Format	*[:SENSe]:SWEep:TIME:AUTO OFF|ON|0|1* *[:SENSe]:SWEep:TIME:AUTO?*
Description	Set or inquire the sweep time setting mode, auto or manual ● Example: *:SWE:TIME:AUTO OFF // manually set the sweep time* Return value 0
Note	ON|1 Auto OFF|0 Manual
Default	Auto
[:SENSe]:SWEep:POINts	
Command Format	*[:SENSe]:SWEep:POINts <number>* *[:SENSe]:SWEep:POINts?*
Description	Set or inquire the sweep point ● Example: *:SWE:POIN 501 // Set sweep point to 501* Return Value 501
Note	<number> ranges 201~1001
Default	
[:SENSe]:DETector[:FUNCtion]	
Command Format	*[:SENSe]:DETector[:FUNCtion] AUTO|NORMal|POSitive|SAMPle|NEGative* *[:SENSe]:DETector[:FUNCtion]?*
Description	Set or inquire the detector, ● Example: *:DET POS; // set the detector to positive peak* Return value: POS
Note	Following detectors are supported. AUTO NORMal POSitive SAMPle NEGative
Default	AUTO

[:SENSe]:ACPower:BANDwidth:INTegration	
Command Format	*[:SENSe]:ACPower:BANDwidth:INTegration <freq>* *[:SENSe]:ACPower:BANDwidth:INTegration?*
Description	Set or inquire main channel bandwidth: *:ACP:BAND:INT 1MHz; // set the main channel bandwidth 1MHz* Return value: 1000000
Note	Adjacent channel power measurement function should be enabled before setting the main channel bandwidth.
[:SENSe]:ACPower:BANDwidth:ACHannel:COUNt	
Command Format	*[:SENSe]:ACPower:BANDwidth:ACHannel:COUNt <integer>* *[:SENSe]:ACPower:BANDwidth:ACHannel:COUNt?*
Description	Set or inquire the adjacent channel quantity. *:ACP:BAND:ACH:COUNT 4; // set 4 adjacent channels* Return value: 4
Note	Adjacent channel power measurement function should be enabled before setting adjacent channel quantity.
[:SENSe]:ACPower:CSPacing	
Command Format	*[:SENSe]:ACPower: CSPacing <freq>* *[:SENSe]:ACPower: CSPacing?*
Description	Set or inquire the interval between channels. *:ACP:CSP 200kHz; // set the interval to 200kHz* Return value 200000
Note	Adjacent channel power measurement function should be enabled before setting the interval.
[:SENSe]:OBWidth:FREQuency:SPAN	
Command Format	*[:SENSe]:OBWidth:FREQuency:SPAN <freq>* *[:SENSe]:OBWidth:FREQuency:SPAN?*
Description	Set or inquire the OBW span :OBW:FREQ:SPAN 1MHz; // set the OBW span to 1MHz Return value 1000000
Note	OBW function should be enabled before setting the OBW span.

[:SENSe]:OBWidth:PERCent	
Command Format	*[:SENSe]:OBWidth: PERCent <real>* *[:SENSe]:OBWidth: PERCent?*
Description	Set or inquire OBW percentage *:OBW:PERC 98; // set the percentage to 98%* Return value 98
Note	OBW function should be enabled before setting the OBW percentage.
[:SENSe]:CHPower:FREQuency:SPAN	
Command Format	*[:SENSe]: CHPower:FREQuency:SPAN <freq>* *[:SENSe] :CHPower:FREQuency:SPAN?*
Description	Set or inquire the channel span. *:CHP:FREQ:SPAN 1MHz; // set the channel span to 1MHz* Return value 1000000
Note	Channel power measurement should be enabled before setting the channel span.
[:SENSe]:DEMod:STATe	
Command Format	*[:SENSe]:DEMod:STATe ON|OFF|0|1* *[:SENSe]:DEMod:STATe?*
Description	Turn on/off the audio demodulation function. Inquire the audio demodulation function status *:DEM:STAT 1; // Tun on audio demodulation function* Return value 1
Note	

2.11. :SYSTem

:SYSTem:DATE	
Command Format	*:SYSTem:DATE <year>,<month>,<day>* *:SYSTem:DATE?*
Description	Set or inquire system date, ● Example: :SYST:DATE 2016,11,1 // set date to 2016.11.1 Return value 2016,11,1
Note	<year> ranges 2000~2037 <month> ranges 1~12 <day> ranges 1~31
:SYSTem:TIME	
Command Format	*:SYSTem:TIME <hour>,<minute>,<second>* *:SYSTem:TIME?*
Description	Set or inquire system time. ● Example: *:SYST:TIME 12,00,00 // set system time to 12:00:00* Return value 12,00,00
Note	<hour> ranges 0~23 <minute> ranges 0~59 <second> ranges 0~59
:SYSTem:PRESet:TYPE	
Command Format	*:SYSTem:PRESet:TYPE FACTory|USER* *:SYSTem:PRESet:TYPE?*
Description	Set or inquire preset configuration ● Example: *:SYST:PRES:TYPE FACT // preset the instrument to factory settings* Return value: FACT
Note	Available keyword: *FACT*，factory settings *USER*，User defined

:SYSTem:COMMunicate:LAN:IP:ADDRess	
Command Format	*:SYSTem:COMMunicate:LAN:IP:ADDRess <ip>* *:SYSTem:COMMunicate:LAN:IP:ADDRess?*
Description	Set or inquire the instrument IP address. *:SYST:COMM:LAN:IP:ADDR 192.168.1.10 // set the instrument IP to 192.168.1.10* Return value 192.168.1.10
Note	
:SYSTem:COMMunicate:LAN:MASK	
Command Format	*:SYSTem:COMMunicate:LAN:MASK <mask>* *:SYSTem:COMMunicate:LAN:MASK?*
Description	Set or inquire the instrument IP address mask *:SYST:COMM:LAN:MASK 255.255.255.0 // set the mask to 255.255.255.0* Return value 255.255.255.0
Note	
:SYSTem:COMMunicate:LAN:GATE	
Command Format	*:SYSTem:COMMunicate:LAN:GATE <gate>* *:SYSTem:COMMunicate:LAN:GATE?*
Description	Set or inquire the instrument gateway *:SYST:COMM:LAN:GATE 192.168.1.1 // set the gateway to 192.168.1.1* Return value 192.168.1.1
Note	
:SYSTem:SPEaker:VOLume	
Command Format	*:SYSTem:SPEaker:VOLume <integer>* *:SYSTem:SPEaker:VOLume?*
Description	Set or inquire the audio output volume of the audio demodulation ● Example *:SYSTem:SPEaker:VOLume 50 // set the audio volume to 50* Return value 50
Note	The audio demodulation should be enabled before setting the volume

2. 12. :TRACe

:TRACe[:DATA]	
Command Format	:TRACe[:DATA] ? TRACE1| TRACE2| TRACE3| TRACE4| TRACE5
Description	Inquire trace data of a specified trace. ● Example: *:TRAC? TRACE1 // inquire the trace data of Trace 1* Return value 64.7301,-68.163, …, -36.185,-57.931
Note	S3331 support maximum 5 traces simultaneously. TRACE1，TRACE2，TRACE3，TRACE4，TRACE5 The return value is separated by a comma ",", and each data length is fixed to 7 bits. The number of valid data points is the number of sweep points
Default	
:TRACe<n> :MODE	
Command Format	*:TRACe<n>:MODE WRITe|MAXHold|MINHold|VIEW|BLANk* *:TRACe<n>:MODE?*
Description	Set and inquire the trace display mode ● Example: *:TRACe1:MODE MAXH // set the trace to max hold mode* Return value: MAXHold
Note	S3331 support maximum 5 traces simultaneously. TRACE1，TRACE2，TRACE3，TRACE4，TRACE5 5 trace display mode are supported: *WRITe* *MAXHold* *MINHold* *VIEW* *BLANk*
Default	TRACE1 *WRITe*， TRACE2，TRACE3，TRACE4，TRACE5 *BLANK*

:TRACe:SOCKdata?	
Command Format	*:TRACe:SOCKdata? TRACE1| TRACE2| TRACE3| TRACE4| TRACE5*
Description	Inquire the trace date in binary data. ● Example: *:TRAC:SOCK? Trace1; // inquire binary data of trace 1* Return value: c1 b8 de 61 c2 84 83 26 c2 81 82 9d c2 81 b9 c6 ...2a 6a c2 81 3e 9d c2 82 71 eb c2 80 85 90 0d 0a
Note	
Default	

2.13. :OUTPut

:OUTPut:TRACk	
Command Format	:OUTPut:TRACk ON|1|OFF|1 :OUTPut:TRACk?
Description	Turn On/Off the tracking source. Inquire the tracking source status ● Example: *:OUTP:TRAC 1; // Turn on the tracking source* Return value 1
Note	ON|1 Turn on OFF|0 Turn off
Default	OFF
:OUTPut[:STATe]	
Command Format	*:OUTPut ON|1|OFF|1* *:OUTPut?*
Description	Turn on/off the normal source. ● Example: *:OUTP 1; // Turn on the normal source* Return value 1
Note	ON|1 Turn on OFF|0 Turn off
Default	OFF
:OUTPut:FREQuency	
Command Format	*:OUTPut:FREQuency <freq>* *:OUTPut:FREQuency?*
Description	Set or inquire normal source output frequency ● Example: *:OUTP:FREQ 500MHz; // Set the output frequency to 500MHz* Return value 500000000
Note	<freq> ranges 150MHz~3.6GHz
Default	500MHz

2. 14. :SOURce

:SOURce:POWer:TRACk:POWer	
Command Format	*:SOURce:POWer:TRACk:POWer <pow>* *:SOURce:POWer:TRACk:POWer?*
Description	Set or inquire tracking source output power, unite is -dBm. ● Example: *:SOURce:POWer:TRAC:POWer -20; // set tracking source output power -20dBm* Return value -20
Note	<pow> ranges -30 dBm ~ 0dBm
Default	-10dBm
:SOURce:OUTPut:POWer	
Command Format	*:SOURce:OUTPut:POWer <pow>* *:SOURce:OUTPut:POWer?*
Description	Set or inquire normal source output power, unit is -dBm. ● Example: *:SOURce:OUTPut:POWer -20; //set normal source output power -20dBm* Return value -20
Note	<pow> ranges -30 dBm ~ 0dBm
Default	-10dBm

2. 15. :UNIT

:UNIT:POWer	
Command Format	*:UNIT:POWer dBm|dBuW|dBpW|dBmV|dBuV|V|W* *:UNIT:POWer?*
Description	Set or inquire power unit, default unit is dBm. ● Example: *:UNIT:POW dBpW; //set power unit to dBpW* Return Value: dBpW
Note	
Default	dBm

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