

"All new Network Analyzer" Protek A338.



Protek A338

Network Analyzer 8GHz

Programming Manual

SCPI Commands

Version 3.0

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1 Introduction

This Manual contains information on Network Analyzer remote control and its data communication by means of user programs written with SCPI (Standard Commands for Programmable Instruments). SCPI is used for remote control over the Analyzer via GPIB or Ethernet physical interfaces.

1.1 Programming Manual Scope

This Manual directly applies to A333 and A338 Network Analyzers.

1.2 Related Documents

Before reading this Manual, familiarize yourself with Analyzer Operating Manual.

1.3 References

IEEE Standard 488.2–1992, *IEEE Standard Codes, Formats, Protocols and Common Commands for Use with ANSI/IEEE Std 488.1–1987*. IEEE, New York, NY, 1992.

SCPI Standard–1999, *Standard Commands for Programmable Instruments Volume 1: Syntax and Style*. SCPI Consortium, San Diego, CA, 1999.

VXI–11, *TCP/IP Instrument Protocol Specification*. VXIbus Consortium, Inc.

2 Analyzer Interfaces

2.1 GPIB Interface

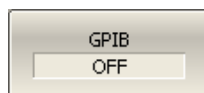
Make sure that your Analyzer is equipped with GPIB interface. This feature is optional (See section 2.3.2 Options in the Operating Manual).

Connect your Analyzer to PC with GPIB board. The connecting cable must have MicroD25 connector from the end of Analyzer (e.g. National Instruments X13 GPIB Cable, MicroD25 to Shielded cable/Standard connector).

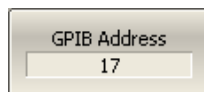
Activate the GPIB remote control function on your Analyzer as described below.



To enable/disable remote control via GPIB interface, use the following softkeys:



System > Misc Setup > GPIB Setup > GPIB ON/OFF.



To set the Analyzer address on the GPIB bus, use the following softkeys:

System > Misc Setup > GPIB Setup > GPIB Address

Note

In a specific moment in time, the remote control over the Analyzer can be performed only via one of the interfaces, GPIB or Ethernet.

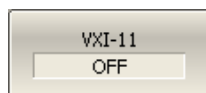
2.2 Ethernet Interface

Your Analyzer comes equipped with Ethernet interface.

Data transfer between the Analyzer and a PC is performed via VXI-11 protocol. This protocol is intended for control over measurement instruments and based on TCP/IP protocol.

Connect your Analyzer to any point of the LAN. The Analyzer can be connected to any network equipment (switch, hub). Use 100BASE-T standard LAN cable with RJ-45 connector.

Activate the function of remote control via VXI-11 protocol on your Analyzer as described below.



To enable/disable remote control via VXI-11 protocol network, use the following softkeys:

System > Misc Setup > Network Setup > VXI-11 ON/OFF

Note

In a specific moment in time, the remote control over the Analyzer can be performed only via one of the interfaces, GPIB or Ethernet.

3 Control Computer

3.1 Computer Interfaces

To use GPIB interface, you need to have your PC equipped with GPIB card and have the corresponding driver installed.

To use Ethernet interface, you need to have your PC connected to a LAN.

3.2 Software Requirements

To establish communication between the Analyzer and the control computer, the software supporting IEEE488.2 (GPIB) and VXI-11 (Ethernet) input/output protocols must be installed on the PC. This can be implemented by the user program, but usually a third party software is used for this purpose. Below are the two most common solutions:

- Programming languages with GPIB support, such as HT Basic.
- VISA library ensures control over measurement instruments by any programming language (C/C++, Visual Basic, MATLAB, LabView, etc). VISA library supports a variety of interfaces and protocols, including IEEE488.2 (GPIB) and VXI-11 (Ethernet) protocols being used in the Analyzer. There are different implementations of VISA library. You can use any of the implementations, for example *National Instruments NI-VISA* or *Agilent IO Libraries Suite*.

3.3 Programming Examples

Examples written in HT Basic, C and LabView languages are represented in Appendix 3 of this Manual.

Examples\GPIB_LAN\BASIC folder contains source codes for the HT Basic language examples.

Examples\GPIB_LAN\C folder contains source codes for the C language examples.

Examples\GPIB_LAN\LabView folder contains source codes for the LabView language examples.

4 SCPI Overview

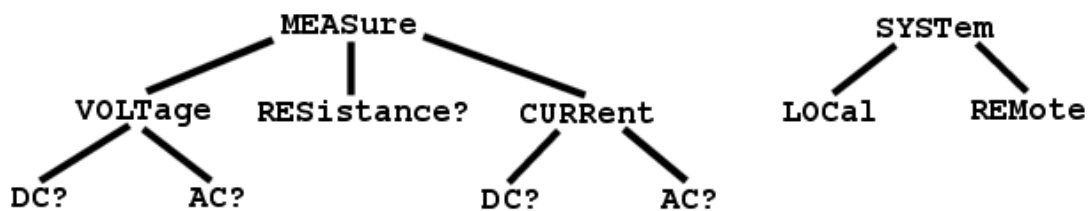
The both interfaces of the Analyzer, GPIB and Ethernet, implement same set of commands based on 1999 SCPI standard (Standard Commands for Programmable Instruments). This command set allows the exchange of character messages.

SCPI is developed by SCPI Consortium (<http://www.scpiconsortium.org>). It is based on IEEE488.2 standard. Unlike IEEE488.2, which is applied to GPIB only, SCPI is compatible with any physical interface (GPIB, Ethernet, USB, RS-232).

The main features of SCPI standard are described below. For a more detailed information on SCPI standard, see the website of SCPI Consortium.

4.1 Command Tree

The SCPI commands are organized in a tree structure. For example:



Each tree structure forms a functional system. The base of the tree is called root, e.g. MEASure and SYSTem. Each functional system can have subsystems of lower level. The final nodes are called leaves. The entire sequence from root to the leaf makes up the command. For example, part of SOURCe functional system looks as follows:

```

: SOURce
  : POWer
    : CENTer
    : START
    : SPAN
    : STOP
    [ : LEVel ]
      : SLOPe
        [ : DATA ]
        : STATE
  
```

This SOURce branch has several levels, where CENTer, START, SPAN, STOP, DATA, STATE are the leaves, which represent the following six commands:

```
: SOURce : POWer : CENTer
```

```

:SOURce:POWer:START
:SOURce:POWer:SPAN
:SOURce:POWer:STOP
:SOURce:POWer[:LEVel]:SLOPe[:DATA]
:SOURce:POWer[:LEVel]:SLOPe:STATe

```

The tree can contain subsystems and leaves with the same names if they belong to different branches, e.g. CENTER leaf is on the tips of different branches:

```

:SOURce                                :SENSe
    :POWer                            :FREQuency
        :CENTer                        :CENTer

```

4.2 Subsystems

A colon (':') separates the subsystems. The subsystems, which follow the colon are of a lower level. For example, in command:

```
:SOURce:POWer:START
```

the start power START is a part of POWER subsystem, which is a part of SOURce subsystem. The stop power is also a part of :SOURce:POWer subsystem. It is specified by:

```
:SOURce:POWer:STOP
```

The first colon in the line can be omitted, for example:

```
SOURce:POWer:STOP
```

4.3 Optional Subsystems

Some subsystems can be specified as optional, if omission of such a subsystem will not lead to ambiguity. This means that the subsystem can be omitted in command line. The optional subsystems are bracketed ("[]"). For example, if full command specification is written as:

```
SOURce:POWer[:LEVel]:SLOPe[:DATA]
```

subsystems LEVel and DATA are optional. Therefore the both commands are valid:

```

SOURce:POWer:LEVel:SLOPe:DATA
SOURce:POWer:SLOPe

```

4.4 Long and Short Formats

Each keyword in a command specification has a long format and a short format. The short format of a command is indicated by capital letters. For example, a command specification:

```
SENSe:FREQuency:CENTer
```

can be written as:

```
SENS:FREQ:CENT
```

```
SENS:FREQ:CENTer
```

Only long or short form of each keyword is acceptable. For example, the following specification is incorrect:

```
:SENS:FREQuen:CEN
```

4.5 Case Sensitivity

The commands are not case sensitive. Upper case and lower case letters are only used to indicate the long and short formats of a command specification. For example, the following commands are equivalent:

```
SENS:FREQ:STAR
```

```
sens:freq:star
```

4.6 Parameters

The commands can have parameters. The parameters are separated from the command by a space. If a command has several parameters, they are separated by commas (',').

4.6.1 Numeric Values

The numeric values are integer or real numbers. These parameters can have measurement units. For example:

```
SENS:FREQ 1000000000
```

```
SENS:FREQ 1000 MHz
```

```
SENS:FREQ 1 GHz
```

```
SENS:FREQ 1E9
```

4.6.1.1 Multiplier Prefixes

The SCPI standard allows specification of the numeric values with multiplier prefix to the measurement units.

Prefix	Multiplier
A	1e-18
F	1e-15
P	1e-12
N	1e-9
U	1e-6
M	1e-3
K	1e3
MA	1e6
G	1e9
T	1e12
PE	1e15
EX	1e18

There are two exceptions to the above designation: prefix M in combination with HZ or OHM means 1e6 (Mega), and not 1e-3 (milli), i.e. MHZ means Megahertz, same as MAHZ.

4.6.1.2 Notations

The SCPI standard allows numeric value specification in different notations. Decimal notation is used by default. To use other notations, specify the numeric values in the following way:

Notation	Prefix	Example
Binary	#B	#B11001010 = 202 ₁₀
Octal	#Q	#Q107 = 71 ₁₀
Hexadecimal	#H	#H10FF = 4351 ₁₀

4.6.2 Booleans

The booleans can assume two values: logical *yes* and logical *no* (ON and OFF), and specified in command as:

ON or 1 – logical yes
OFF or 0 – logical no

For example:

```
DISPlay:ENABle OFF  
DISPlay:ENABle 0
```

4.6.3 Character Data

The SCPI standard allows specification of parameters as character data, as in the following command:

```
TRIGger:SOURce {BUS|IMMediate|EXTernal}
```

the possible values of the character data – "BUS", "IMMediate", "EXTernal".

The character data have long and short format, and the formats are specified in accordance with the same rules as described in Section 4.4.

Apart from that, the character data can be combined with numerical parameters. For example:

```
SENSe:FREQuency:STARt {MINimum|MAXimum|<value>}
```

The following specifications are acceptable:

```
SENSe:FREQuency:STARt MIN  
SENSe:FREQuency:STARt maximum  
SENSe:FREQuency:STARt 1000000
```

4.6.4 String Parameters

In some cases, the instrument can accept parameters made of character strings. Such strings are enclosed with single quotes (') or double quotes ("). For example, the file name in the state saving command:

```
MMEMory:STORe "state01.sta"
```

4.6.5 Numeric Lists

The numeric lists (<numeric list>) are used to specify a variable number of numerical parameters, for example:

```
CALC:LIMit:DATA 2,1,1E9,3E9,0,0,2,1E9,3E9,-3,-3
```

4.7 Query Commands

The query commands read out the parameter values from the instrument. After a query command has been sent, the response should return via remote control interface.

The query commands has a question mark ('?') in the end of the command. Many of the commands have two forms. The form with a question mark writes the parameter, the form without a question mark reads out the parameter. For example:

```
SENSe:FREQuency:StARt 1 MHz
```

```
SENSe:FREQuency:StARt?
```

4.8 Numeric Suffixes

The instrument contains several items of the same type, such as 16 channels, each of which in turn contains 16 traces, etc. A numeric suffix is used to denote the item number in a command. The suffix is added to the keyword of the item (channel, trace, etc). For example, in the following specification the channel number <Ch> and trace number <Tr> indicate the channel and trace, to which this command is addressed:

```
CALCulate<Ch>:PARAmeter<Tr>:DEFine
```

According to this specification, the command referred to the trace 2 of the channel 1 will be written as follows:

```
CALC1:PAR2:DEF
```

The numeric suffix can be omitted. In this case, it is 1 by default. For example, the following commands are equivalent:

```
CALC:PAR:DEF
```

```
CALC1:PAR1:DEF
```

4.9 Compound Commands

It is possible to enter more than one command in the same command line. The commands in the line are separated by a semicolon (;). The specification of the first command is valid for the following command, except for the last leaf before the semicolon. For example:

```
SENS:FREQ:STAR 1 MHZ;STOP 2MHZ
```

If you need to start the next command from the highest level of the structure, this command should start from a colon (':'):

```
SENS:FREQ:STAR 1 MHZ;:CALC:PAR:DEF S21
```

4.10 IEEE488.2 Common Commands Overview

A SCPI compatible instrument must support a set of common commands of IEEE488.2 standard. These commands start with an asterisk (*). The list of such commands see below:

*CLS
*ESE
*ESE?
*ESR?
*IDN?
*OPC
*OPC?
*RST
*SRE
*SRE?
*STB?
*TRG
*WAI

These commands are used for resetting, state queries, etc.

4.11 String Terminator

The <new line> character (ASCII 10) in the last data byte of the command string is used as a command terminator. The string of instructions sent to the instrument is executed after the instruction terminator is received.

4.11.1EOI Signal

This section contains important information on a command string termination in GPIB interface.

In GPIB interface, apart from <new line> character (ASCII 10), EOI (End–Or–Identify) signal is used as a string terminator.

The instrument requires the use of EOI along with the character terminator. That is why you should configure GPIB interface on your PC so that the EOI will always follow the <new line> character (ASCII 10).

Most programs assert EOI with the last string character by default (for example, VISA library).

If you use HT Basic, you need to allow EOI asserting in the beginning of each instrument session. Perform it by specifying "EOL CHR\$(10) END" message in "ASSIGN" command:

```
ASSIGN @NWA TO 717;EOL CHR$(10) END
```

5 Remote Control Commands

5.1 Conventions

The following conventions are used throughout the Manual.

5.1.1 Syntax

The following symbols are used in command syntax:

<>	identifiers enclosed in angular brackets indicated that a particular type of data must be specified
[]	part enclosed in square brackets can be omitted
{ }	part enclosed in curly brackets indicates that you must select one of the items in this part. Individual items are separated by a vertical bar " "
<i>Space</i>	space separates commands from parameters
,	comma separates adjacent parameters
...	ellipses indicates that parameters in that part are omitted

5.1.2 Identifiers

Identifier	Parameter	Description
<numeric>	Number	{<integer> <real>}
<frequency>	Frequency	<numeric>{ [HZ] KHZ MHZ GHZ }
<power>	Power	<numeric>{ [DBM] DBMW DBW KW W MW UW NW }
<time>	Time	<numeric>{ [S] MS US NS PS FS }
<logmag>	Log Amplitude	<numeric>[DB]
<phase>	Phase	<numeric>{ [DEG] MADEG KDEG MDEG UDEG }
<stimulus>	Stimulus	{<frequency> <power> <time>}
<response>	Response	{<logmag> <phase> <time>}
<numeric list>	Numeric List	<numeric 1>,<numeric 2>,...<numeric N>

5.2 IEEE488.2 Common Commands

*CLS

*CLS

<i>Description</i>	Clears the following (no query) • Error Queue • Status Byte Register • Standard Event Status Register • Operation Status Event Register • Questionable Status Event Register • Questionable Limit Status Event Register • Questionable Limit Channel Status Event Register
<i>Target</i>	Status Reporting System
<i>Equivalent Softkeys</i>	None

*ESE

*ESE <numeric>

*ESE?

<i>Description</i>	Sets or reads out the value of the Standard Event Status Enable Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> 0 to 255
<i>Out of Range</i>	Bitwise AND with 255 number
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

***ESR?**

*ESR?

<i>Description</i>	Reads out the value of the Standard Event Status Register. Executing this command clears the register value (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

***IDN?**

*IDN?

<i>Description</i>	Reads out the instrument information string. The string format: <manufacturer>, <model>, <serial number>, <software version/firmware version> (query only). For example: GSI, A338, 08080188, 2.49/02
<i>Target</i>	Instrument
<i>Query Response</i>	String up to 40 characters
<i>Equivalent Softkeys</i>	None

***OPC**

*OPC

<i>Description</i>	Sets the OPC bit (bit 0) of the Standard Event Status Register at the completion of all pending operations (no query).
<i>Target</i>	Status Reporting System
<i>Equivalent Softkeys</i>	None

***OPC?**

*OPC?

<i>Description</i>	1 is read out at the completion of all pending operations (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	1
<i>Equivalent Softkeys</i>	None

***RST**

*RST

<i>Description</i>	Restores the default settings of the instrument (no query). There is difference from presetting the instrument with :SYST:PRES command – in this case the trigger mode is set to <i>Hold</i> .
<i>Target</i>	Instrument
<i>Related Commands</i>	SYSTem:PRESet
<i>Equivalent Softkeys</i>	None

***SRE**

*SRE <numeric>

*SRE?

<i>Description</i>	Sets or reads out the value of the Service Request Enable Register (command/query)
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> 0 to 255.
<i>Out of Range</i>	Bitwise AND with 255 number
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

***STB?**

*STB?

<i>Description</i>	Reads out the value of the Status Byte Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

***TRG**

*TRG

<i>Description</i>	If the trigger source is set to GPIB/LAN (set to BUS with the :TRIG:SOUR command), triggers a sweep. If the trigger source is not set to the bus or the instrument is not waiting for a trigger, the command is ignored. The command is completed before the end of the sweep. (no query)
<i>Target</i>	Instrument
<i>Related Commands</i>	TRIG:SOUR
<i>Equivalent Softkeys</i>	None

***WAI**

*WAI

<i>Description</i>	Waits for the execution of all commands sent before this command. (no query)
<i>Target</i>	Instrument
<i>Equivalent Softkeys</i>	None

5.3 Network Analyzer Commands

ABOR

ABORt

<i>Description</i>	Aborts the sweep and switches the triggers of all the channels to <i>Hold</i> . The channels in <i>Continuous</i> trigger mode switch to waiting for a trigger. If the trigger source is set to <i>Internal</i> , the channel from waiting for a trigger turns to a new sweep. (no query)
<i>Equivalent Softkeys</i>	Stimulus > Trigger > Restart

CALC:CONV

CALCulate<Ch>[:SElected]:CONVersion[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:CONVersion[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of S-parameter conversion function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : S-parameter conversion function ON { OFF 0 } : S-parameter conversion function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Conversion > Conversion

CALC:CONV:FUNC

CALCulate<Ch>[:SElected]:CONVersion:FUNction {ZREFlection|ZTRansmit|YREFlection|YTRansmit|INVersion|ZTSHunt|YTSHunt|CONJugation}

CALCulate<Ch>[:SElected]:CONVersion:FUNction?

<i>Description</i>	Sets or reads out the S-parameter conversion function type (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"ZREFlection" : Reflection equivalent impedance "ZTRansmit" : Transmission equivalent impedance "YREFlection" : Reflection equivalent admittance "YTRansmit" : Transmission equivalent admittance "INVersion" : Inverse S-parameter "ZTSHunt" : Shunt equivalent impedance "YTSHunt" : Shunt equivalent admittance "CONJugation" : S-parameter conjugate
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 217
<i>Query Response</i>	{ ZREF ZTR YREF YTR INV ZTSH YTSH CONJ }
<i>Preset Value</i>	ZREF
<i>Equivalent Softkeys</i>	Analysis > Conversion > { Zr Zt Yr Yt 1/S Z Trans–Shunt Y Trans–Shunt Conjugation }

CALC:CORR:EDEL:TIME

CALCulate<Ch>[:SElected]:CORRection:EDELay:TIME <time>

CALCulate<Ch>[:SElected]:CORRection:EDELay:TIME?

<i>Description</i>	Sets or reads out the value of the electrical delay (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the electrical delay value from –10 to 10
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Scale > Electrical Delay

CALC:CORR:OFFS:PHAS

CALCulate<Ch>[:SElected]:CORRection:OFFSet:PHASe <phase>

CALCulate<Ch>[:SElected]:CORRection:OFFSet:PHASe?

<i>Description</i>	Sets or reads out the value of the phase offset (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<phase> the phase offset value from –360 to 360
<i>Unit</i>	° (degree)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Scale > Phase Offset

CALC:DATA:FDAT?

CALCulate<Ch>[:SElected]:DATA:FDATa?

<i>Description</i>	Reads out the formatted data array (query only). The formatted data array is the data, whose processing is completed including the formatting as the last step. Such data represent the data trace values as they are shown on the screen. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real number in rectangular format, real part in polar and Smith chart formats; <numeric 2n> 0 in rectangular format, imaginary part in polar and Smith chart formats.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	CALC:FORM FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:DATA:FMEM?

CALCulate<Ch>[:SElected]:DATA:FMEMory?

<i>Description</i>	Reads out the formatted memory array (query only). The formatted memory array is the data, whose processing is completed including the formatting as the last step. Such data represent the memory trace values as they are shown on the screen. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real number in rectangular format, real part in polar and Smith chart formats; <numeric 2n> 0 in rectangular format, imaginary part in polar and Smith chart formats.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Notes</i>	If the memory is empty, an error occurs and the command is ignored.
<i>Related Commands</i>	CALC:MATH:MEM CALC:FORM FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:DATA:SDAT?

CALCulate<Ch>[:SElected]:DATA:SDATa?

<i>Description</i>	Reads out the corrected data array (query only). The corrected data array is the data, whose processing is completed excluding the formatting as the last step. Such data represent S-parameter complex values. The array size is 2N, where N is the number of measurement points. For the n-th point, where n from 1 to N: <numeric 2n-1> the real part of corrected measurement; <numeric 2n> the imaginary part of corrected measurement.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:DATA:SMEM?

CALCulate<Ch>[:SElected]:DATA:SMEMory?

<i>Description</i>	Reads out the corrected memory array (query only). The corrected memory array is the data, whose processing is completed excluding the formatting as the last step. Such data represent S-parameter complex values. The array size is 2N, where N is the number of measurement points. For the n-th point, where n from 1 to N: <numeric 2n-1> the real part of corrected measurement memory; <numeric 2n> the imaginary part of corrected measurement memory.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Notes</i>	If the memory is empty, an error occurs and the command is ignored.
<i>Related Commands</i>	CALC:MATH:MEM FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:FILT:TIME

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME[:TYPE] {BPASs|NOTCh}

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME[:TYPE]?

<i>Description</i>	Sets or reads out the gate type of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"BPASs" : Bandpass type "NOTCh" : Notch type
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 219
<i>Query Response</i>	{ BPAS NOTC }
<i>Preset Value</i>	BPAS
<i>Equivalent Softkeys</i>	Analysis > Gating > Type

CALC:FILT:TIME:CEN

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:CENTer <time>

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:CENTer?

<i>Description</i>	Sets or reads out the gate center value of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the center value of the gate, the range varies depending on the frequency span and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Gating > Center

CALC:FILT:TIME:SHAP

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:SHApe {MAXimum|WIDE|NORMal|MINimum}

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:SHApe?

<i>Description</i>	Sets or reads out the gate shape of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"MAXimum" : Maximum shape "WIDE" : Wide shape "NORMal" : Normal shape "MINimum" : Minimum shape
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 218
<i>Query Response</i>	{ MAX WIDE NORM MIN }
<i>Preset Value</i>	NORM
<i>Equivalent Softkeys</i>	Analysis > Gating > Shape > { Maximum Wide Normal Minimum }

CALC:FILT:TIME:SPAN

CALCulate<Ch>[:SELeCted]:FILTer[:GATE]:TIME:SPAN <time>

CALCulate<Ch>[:SELeCted]:FILTer[:GATE]:TIME:SPAN?

<i>Description</i>	Sets or reads out the gate span value of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the span value of the gate, the range varies depending on the frequency span and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	2e-8
<i>Equivalent Softkeys</i>	Analysis > Gating > Span

CALC:FILT:TIME:STAR

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:STARt <time>

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:STARt?

<i>Description</i>	Sets or reads out the gate start value of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the start value of the gate, the range varies depending on the frequency span and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	-1e-8
<i>Equivalent Softkeys</i>	Analysis > Gating > Start

CALC:FILT:TIME:STAT

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:STATe {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Gating function ON { OFF 0 } : Gating function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Gating > Gating

CALC:FILT:TIME:STOP

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:STOP <time>

CALCulate<Ch>[:SElected]:FILTer[:GATE]:TIME:STOP?

<i>Description</i>	Sets or reads out the gate stop value of the gating function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the stop value of the gate, the range varies depending on the frequency span and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	+1e-8
<i>Equivalent Softkeys</i>	Analysis > Gating > Stop

CALC:FORM

CALCulate<Ch>[:SElected]:FORMat {MLOGarithmic|PHASe|GDElay|SLINear|SLOGarithmic|SCOMplex|SMITH|SADMittance|PLINear|PLOGarithmic|POLar|MLINear|SWR|REAL|IMAGinary|UPHase}

CALCulate<Ch>[:SElected]:FORMat?

<i>Description</i>	Sets or reads out the trace format (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"MLOGarithmic" : Logarithmic magnitude "PHASe" : Phase "GDElay" : Group delay time "SLINear" : Smith chart format (Lin) "SLOGarithmic" : Smith chart format (Log) "SCOMplex" : Smith chart format (Real/Imag) "SMITH" : Smith chart format (R + jX) "SADMittance" : Smith chart format (G + jB) "PLINear" : Polar format (Lin) "PLOGarithmic" : Polar format (Log) "POLar" : Polar format (Real/Imag) "MLINear" : Linear magnitude "SWR" : Voltage standing wave ratio "REAL" : Real part "IMAGinary" : Imaginary part "UPHase" : Expanded phase
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 209
<i>Query Response</i>	{ MLOG PHAS GDEL SLIN SLOG SCOM SMIT SADM PLIN PLOG POL MLIN SWR REAL IMAG UPH }
<i>Preset Value</i>	MLOG
<i>Equivalent Softkeys</i>	Format > { Log Mag Phase Group Delay Lin Mag SWR Real Imag Phase > 180 } Format > Smith > { Log/Phase Lin/Phase Real/Imag R+jX G+jB } Format > Polar > { Log/Phase Ling/Phase Real/Imag }

CALC:FSIM:SEND:DEEM:PORT:STAT

CALCulate<Ch>:FSIMulator:SENDEd:DEEMbed:PORT<Pt>:STATe {ON|OFF|1|0}

CALCulate<Ch>:FSIMulator:SENDEd:DEEMbed:PORT<Pt>:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the de-embedding function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	{ON 1} : De-embedding function ON {OFF 0} : De-embedding function OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Fixture Simulator > De-Embedding > Port n

CALC:FSIM:SEND:DEEM:PORT:USER:FIL

CALCulate<Ch>:FSIMulator:SENDEd:DEEMbed:PORT<Pt>:USER:FILEname <string>

CALCulate<Ch>:FSIMulator:SENDEd:DEEMbed:PORT<Pt>:USER:FILEname?

<i>Description</i>	Sets or reads out the name of *.s2p file of the de-embedded circuit of the de-embedding function (command/query). The file contains the circuit S-parameters in Touchstone format.
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<string>, up to 256 characters
<i>Preset Value</i>	""
<i>Notes</i>	If the full path of the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
<i>Equivalent Softkeys</i>	Analysis > Fixture Simulator > De-Embedding > S-parameters File

CALC:FSIM:SEND:PMC:PORT:STAT

CALCulate<Ch>:FSIMulator:SENDEd:DEEMbed:PORT<Pt>:STATe {ON|OFF|1|0}

CALCulate<Ch>:FSIMulator:SENDEd:PMCircuit:PORT<Pt>:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the embedding function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	{ ON 1 } : Embedding function ON { OFF 0 } : Embedding function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Fixture Simulator > Embedding > Port n

CALC:FSIM:SEND:PMC:PORT:USER:FIL

CALCulate<Ch>:FSIMulator:SENDEd:PMCircuit:PORT<Pt>:USER:FILEname <string>

CALCulate<Ch>:FSIMulator:SENDEd:PMCircuit:PORT<Pt>:USER:FILEname?

<i>Description</i>	Sets or reads out the name of *.s2p file of the embedded circuit of the embedding function (command/query). The file contains the circuit S-parameters in Touchstone format.
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<string>, up to 256 characters
<i>Preset Value</i>	""
<i>Notes</i>	If the full path of the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
<i>Equivalent Softkeys</i>	Analysis > Fixture Simulator > Embedding > S-parameters File

CALC:FSIM:SEND:ZCON:PORT:Z0

CALCulate<Ch>:FSIMulator:SENDEd:ZCONversion:PORT<Pt>:Z0[:R] <impedance>

CALCulate<Ch>:FSIMulator:SENDEd:ZCONversion:PORT<Pt>:Z0[:R]?

<i>Description</i>	Sets or reads out the value of the impedance for port impedance conversion function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<impedance> the impedance value from 1e-6 to 1e6
<i>Unit</i>	Ω (Ohm)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	50
<i>Equivalent Softkeys</i>	Analysis > Fixture Simulator > Port Z Conversion > Port n Z0

CALC:FSIM:SEND:ZCON:STAT

CALCulate<Ch>:FSIMulator:SENDEd:ZCONversion:STATe {ON|OFF|1|0}

CALCulate<Ch>:FSIMulator:SENDEd:ZCONversion:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the port impedance conversion function (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Port Z conversion function ON { OFF 0 } : Port Z conversion function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Fixture Simulator > Port Z Conversion > Port Z Conversion

CALC:FUNC:DATA?

CALCulate<Ch>[:SElected]:FUNCTION:DATA?

<i>Description</i>	Reads out the data array, which is the CALC:FUNC:EXEC command analysis result (query only). The array size is 2N, where N is the number of points set by CALC:FUNC:POIN? command. For the n–th point, where n from 1 to N: <numeric 2n–1> the response value in n–th measurement point; <numeric 2n> the stimulus value in n–th measurement point. Always set to 0 for the analysis of mean value, standard deviation, and peak–to–peak value.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	CALC:FUNC:EXEC CALC:FUNC:POIN? FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:FUNC:DOM

CALCulate<Ch>[:SELeCted]:FUNctIon:DOMain[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SELeCted]:FUNctIon:DOMain[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of an arbitrary range use in CALC:FUNC:EXEC command (command/query).
<i>Target</i>	All traces of channel <Ch> (if the coupling is set to ON by the CALC:FUNC:DOM:COUP command), the active trace of channel <Ch> (if otherwise), <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Arbitrary range ON { OFF 0 } : Arbitrary range OFF (entire sweep range)
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Related Commands</i>	CALC:FUNC:EXEC CALC:FUNC:DOM:COUP
<i>Equivalent Softkeys</i>	None

CALC:FUNC:DOM:COUP

CALCulate<Ch>[:SElected]:FUNCtion:DOMain:COUPle {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:FUNCtion:DOMain:COUPle?

<i>Description</i>	Sets or reads out the ON/OFF state of trace coupling for analysis range of the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	All traces of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Coupling ON { OFF 0 } : Coupling OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	1
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:FUNC:DOM:STAR

CALCulate<Ch>[:SElected]:FUNCTION:DOMain:STARt <stimulus>

CALCulate<Ch>[:SElected]:FUNCTION:DOMain:STARt?

<i>Description</i>	Sets the start value of the analysis range of the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	All traces of channel <Ch> (if the coupling is set to ON by the CALC:FUNC:DOM:COUP command), the active trace of channel <Ch> (if otherwise), <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<stimulus> the start value of analysis range
<i>Unit</i>	{ Hz (Hertz) s (second) dBm (decibels above 1 milliwatt) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Related Commands</i>	CALC:FUNC:DOM
<i>Equivalent Softkeys</i>	None

CALC:FUNC:DOM:STOP

CALCulate<Ch>[:SElected]:FUNCtion:DOMain:STOP <stimulus>

CALCulate<Ch>[:SElected]:FUNCtion:DOMain:STOP?

<i>Description</i>	Sets the stop value of the analysis range of the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	All traces of channel <Ch> (if the coupling is set to ON by the CALC:FUNC:DOM:COUP command), the active trace of channel <Ch> (if otherwise), <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<stimulus> the stop value of analysis range
<i>Unit</i>	{ Hz (Hertz) s (second) dBm (decibels above 1 milliwatt) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Related Commands</i>	CALC:FUNC:DOM
<i>Equivalent Softkeys</i>	None

CALC:FUNC:EXEC

CALCulate<Ch>[:SElected]:FUNCTION:EXECute

<i>Description</i>	Executes the analysis specified by the CALC:FUNC:TYPE command. The analysis result can be read out by the CALC:FUNC:DATA? command. (no query)
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Related Commands</i>	CALC:FUNC:TYPE CALC:FUNC:DATA?
<i>Equivalent Softkeys</i>	None

CALC:FUNC:PEXC

CALCulate<Ch>[:SElected]:FUNCTION:PEXCursion <response>

CALCulate<Ch>[:SElected]:FUNCTION:PEXCursion?

<i>Description</i>	Sets the lower limit for the peak excursion value when executing the peak search with the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the lower limit of the peak excursion value, varies depending on the data format
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	3
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:FUNC:POIN?

CALCulate<Ch>[:SElected]:FUNCTION:POINTs?

<i>Description</i>	Reads out the number of points (data pairs) of the analysis result by the CALC:FUNC:EXEC command (query only). Always reads out 1, when the search is executed for the maximum, minimum, mean, standard deviation, peak, and peak-to-peak values. The actual number of points is read out, when the search is executed for all peak or all targets.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric>
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:FUNC:PPOL

CALCulate<Ch>[:SElected]:FUNCTION:PPOLarity {POSitive|NEGative|BOTH}

CALCulate<Ch>[:SElected]:FUNCTION:PPOLarity?

<i>Description</i>	Selects the polarity when performing the peak search with the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"POSitive" : Positive peaks "NEGative" : Negative peaks "BOTH" : Both positive peaks and negative peaks
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ POS NEG BOTH }
<i>Preset Value</i>	POS
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:FUNC:TARG

CALCulate<Ch>[:SElected]:FUNCtion:TARGet <response>

CALCulate<Ch>[:SElected]:FUNCtion:TARGet?

<i>Description</i>	Selects the target level when performing the search for the trace and the target level crosspoints with the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the target value, varies depending on the data format
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:FUNC:TTR

CALCulate<Ch>[:SElected]:FUNCtion:TTRansition {POSitive|NEGative|BOTH}

CALCulate<Ch>[:SElected]:FUNCtion:TTRansition?

<i>Description</i>	Selects the transition type when performing the search for the trace and the target level crosspoints with the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"POSitive" : Positive peaks "NEGative" : Negative peaks "BOTH" : Both positive peaks and negative peaks
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ POS NEG BOTH }
<i>Preset Value</i>	POS
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:FUNC:TYPE

CALCulate<Ch>[:SElected]:FUNCTION:TYPE {PTPeak|STDEV|MEAN|MAXimum|MINimum|PEAK|APEak|ATARget}

CALCulate<Ch>[:SElected]:FUNCTION:TYPE?

<i>Description</i>	Selects the type of analysis executed with the CALC:FUNC:EXEC command (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"PTPeak" : Peak-to-peak (difference between the maximum value and the minimum value) "STDEV" : Standard deviation "MEAN" : Mean value "MAXimum" : Maximum value "MINimum" : Minimum value "PEAK" : Search for peak "APEak" : Search for all the peaks "ATARget" : Search for all targets
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ PTP STDEV MEAN MAX MIN PEAK APE ATAR }
<i>Preset Value</i>	PTP
<i>Related Commands</i>	CALC:FUNC:EXEC
<i>Equivalent Softkeys</i>	None

CALC:LIM

CALCulate<Ch>[:SElected]:LIMit[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:LIMit[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the limit test function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Limit test function ON { OFF 0 } : Limit test function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Limit Test

CALC:LIM:DATA

CALCulate<Ch>[:SElected]:LIMit:DATA <numeric list>

CALCulate<Ch>[:SElected]:LIMit:DATA?

Description	Sets the data array, which is the limit line in the limit test function (command/query). The array size is $1 + 5N$, where N is the number of limit line segments. For the n-th point, where n from 1 to N: <numeric 1> the number of limit line segments N is from 0 to 100. Setting 0 clears the limit line. <numeric $5n-3$> type of the n-th limit line segment 0: Off 1: Upper limit 2: Lower limit 3: Single Point limit <numeric $5n-2$> the stimulus value in the start point of the n-th segment <numeric $5n-1$> the stimulus value in the end point of the n-th segment <numeric $5n-0$> the response value in the start point of the n-th segment <numeric $5n+1$> the response value in the end point of the n-th segment
Target	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Query Response	<numeric 1>, <numeric 2>, ...<numeric $5N+1$> The data transfer format depends on the FORM:DATA command setting.
Notes	If the array size is not $1 + 5N$, where N is <numeric 1>, an error occurs (error code 214). If <numeric $5n-3$> is less than 0 or more than 2, an error occurs (error code 214). When <numeric $5n-2$>, <numeric $5n-1$>, <numeric $5n-0$>, and <numeric $5n+1$> elements are out of allowable range, the value is set to the limit, which is closer to the specified value.
Related Commands	FORM:DATA
Equivalent Softkeys	Analysis > Limit Test > Edit Limit Line

CALC:LIM:DISP

CALCulate<Ch>[:SElected]:LIMit:DISPlay[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:LIMit:DISPlay[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the limit line display of the limit test function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Limit line display ON { OFF 0 } : Limit line display OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Limit Line

CALC:LIM:FAIL?

CALCulate<Ch>[:SElected]:LIMit:FAIL?

<i>Description</i>	Reads out the limit test result (query only).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	1 : Fail 0 : Pass
<i>Equivalent Softkeys</i>	None

CALC:LIM:OFFS:AMPL

CALCulate<Ch>[:SElected]:LIMit:OFFSet:AMPLitude <response>

CALCulate<Ch>[:SElected]:LIMit:OFFSet:AMPLitude?

<i>Description</i>	Sets the value of the limit line offset along Y-axis (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the value of the limit line offset along Y-axis, varies depending on the data format
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Limit Line Offsets > Response Offset

CALC:LIM:OFFS:MARK

CALCulate<Ch>[:SElected]:LIMit:OFFSet:MARKer

<i>Description</i>	Sets the value of the limit line offset along Y-axis to the active marker value (no query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Limit Line Offsets > Marker > Response Ofs

CALC:LIM:OFFS:STIM

CALCulate<Ch>[:SElected]:LIMit:OFFSet:STIMulus <stimulus>

CALCulate<Ch>[:SElected]:LIMit:OFFSet:STIMulus?

<i>Description</i>	Sets the value of the limit line offset along X-axis (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<stimulus> the value of the limit line offset along X-axis
<i>Unit</i>	{ Hz (Hertz) s (second) dBm (decibels above 1 milliwatt) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Limit Lines Offsets > Stimulus Offset

CALC:LIM:REP:ALL?

CALCulate<Ch>[:SElected]:LIMit:REPort:ALL?

<i>Description</i>	Reads out the data array, which is the limit test results (query only). The array size is 4N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 4n–3> the stimulus value in the n–th point; <numeric 4n–2> the limit test result in the n–th point; –1: No limit 0: Fail 1: Pass <numeric 4n–1> the upper limit value in the n–th point (0 – if there is no limit) <numeric 4n–0> the lower limit value in the n–th point (0 – if there is no limit)
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 4N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:LIM:REP:POIN?

CALCulate<Ch>[:SElected]:LIMit:REPort:POINts?

<i>Description</i>	Reads out the number of the measurement points that failed the limit test (query only). The stimulus data array of these points can be read out by the CALC:LIM:REP? command.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric>
<i>Related Commands</i>	CALC:LIM:REP?
<i>Equivalent Softkeys</i>	None

CALC:LIM:REP?

CALCulate<Ch>[:SElected]:LIMit:REPort[:DATA]?

<i>Description</i>	Reads out the data array, which is the stimulus values of the measurement points that failed the limit test (query only). The array size is set by the CALC:LIM:REP:POIN? command.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ... <numeric N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	CALC:LIM:REP:POIN? FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:MARK

CALCulate<Ch>[:SElected]:MARKer<Mk>[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer<Mk>[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of a marker (command/query). Turning ON a marker with the number from 1 to 15 will turn ON all the markers of smaller numbers. Turning OFF a marker with the number from 1 to 15 will turn OFF all the markers of greater numbers (except of the reference marker). Turning ON/OFF the reference marker with number 16 does not turn ON/OFF the markers with the numbers from 1 to 15, but switches these markers to the relative measurement mode.
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Marker ON { OFF 0 } : Marker OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Add Marker Remove Marker Markers > Reference Marker

CALC:MARK:ACT

CALCulate<Ch>:SElected]:MARKer<Mk>:ACTivate

<i>Description</i>	Sets the active marker (no query). If the marker is not ON, this function will turn the marker ON. Turning ON a marker with the number from 1 to 15 will turn ON all the markers of smaller numbers. Turning ON the reference marker with number 16 does not turn ON the markers with the numbers from 1 to 15, but switches these markers to the relative measurement mode.
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Markers > Select > Marker n Markers > Reference Marker

CALC:MARK:BWID

CALCulate<Ch>[:SElected]:MARKer:BWIDth[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer:BWIDth[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the bandwidth search function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Bandwidth search function ON { OFF 0 } : Bandwidth search function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Marker Math > Bandwidth Search > Bandwidth Search

CALC:MARK:BWID:DATA?

CALCulate<Ch>[:SElected]:MARKer<Mk>:BWIDth:DATA?

<i>Description</i>	Reads out the bandwidth search result (query only). The bandwidth search can performed relatively to the marker <Mk>, or relatively to the absolute maximum value of the trace (in this case the number of the marker is ignored), what is set by the CALC:MARK:BWID:REF command. The data include 4 elements: <numeric 1> Bandwidth; <numeric 2> Center frequency; <numeric 3> Q value; <numeric 4> Loss;
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 4>
<i>Related Commands</i>	CALC:MARK:BWID:REF
<i>Notes</i>	If the bandwidth search is impossible, all the read out values are 0. If the search is performed relatively to a maker, which is OFF, an error occurs (error code 204).
<i>Equivalent Softkeys</i>	None

CALC:MARK:BWID:REF

CALCulate<Ch>[:SElected]:MARKer:BWIDth:REFerence {MAXimum|MARKer}

CALCulate<Ch>[:SElected]:MARKer:BWIDth:REFerence?

<i>Description</i>	Selects the reference point for the bandwidth search function: reference marker or absolute maximum value of the trace (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"MARKer" : Bandwidth search relative to the reference marker "MAXimum" : Bandwidth search relative to the absolute maximum of the trace
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ MAX MARK }
<i>Preset Value</i>	MAX
<i>Equivalent Softkeys</i>	Markers > Marker Math > Bandwidth Search > Search Ref To

CALC:MARK:BWID:THR

CALCulate<Ch>[:SElected]:MARKer<Mk>:BWIDth:THReshold <response>

CALCulate<Ch>[:SElected]:MARKer<Mk>:BWIDth:THReshold?

<i>Description</i>	Sets the bandwidth definition value. (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the bandwidth definition value, the range varies depending on the data format
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	−3
<i>Equivalent Softkeys</i>	Markers > Marker Math > Bandwidth Search > Bandwidth Value

CALC:MARK:BWID:TYPE

CALCulate<Ch>[:SElected]:MARKer:BWIDth:TYPE {BPASs|NOTCh}

CALCulate<Ch>[:SElected]:MARKer:BWIDth:TYPE?

<i>Description</i>	Sets the type of the bandwidth search function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"BPASs" : Bandpass "NOTCh" : Notch
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ BPAS NOTC }
<i>Preset Value</i>	BPAS
<i>Equivalent Softkeys</i>	Markers > Marker Math > Bandwidth Search > Type

CALC:MARK:COUN

CALCulate<Ch>[:SElected]:MARKer:COUNT <numeric>

CALCulate<Ch>[:SElected]:MARKer:COUNT?

<i>Description</i>	Sets the number of the turned ON markers (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric>, range from 0 to 16
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

CALC:MARK:COUP

CALCulate<Ch>[:SElected]:MARKer:COUPle {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer:COUPle?

<i>Description</i>	Sets or reads out the ON/OFF state of the marker coupling function (command/query).
<i>Target</i>	All the traces of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Marker coupling ON { OFF 0 } : Marker coupling OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Marker > Properties > Marker Couple

CALC:MARK:FUNC:DOM

CALCulate<Ch>[:SElected]:MARKer:FUNCtion:DOMain[:STATE] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer:FUNCtion:DOMain[:STATE]?

<i>Description</i>	Sets or reads out the ON/OFF state of the marker search range (command/query).
<i>Target</i>	All traces of channel <Ch> (if the marker search range coupling is set to ON by the CALC:MARK:FUNC:DOM:COUP command), The active trace of channel <Ch> (if otherwise), <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Marker search range ON { OFF 0 } : Marker search range OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Marker Search > Search Range

CALC:MARK:FUNC:DOM:COUP

CALCulate<Ch>[:SElected]:MARKer:FUNCtion:DOMain:COUPle {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer:FUNCtion:DOMain:COUPle?

<i>Description</i>	Sets or reads out the ON/OFF state of marker search range coupling for different traces (command/query).
<i>Target</i>	All the traces of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Marker search range coupling ON { OFF 0 } : Marker search range coupling OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Markers > Marker Search > Couple

CALC:MARK:FUNC:DOM:STAR

CALCulate<Ch>[:SElected]:MARKer:FUNCTION:DOMain:STARt <stimulus>

CALCulate<Ch>[:SElected]:MARKer:FUNCTION:DOMain:STARt?

<i>Description</i>	Sets or reads out the start value of the marker search range (command/query).
<i>Target</i>	All traces of channel <Ch> (if the marker search range coupling is set to ON by the CALC:MARK:FUNC:DOM:COUP command), The active trace of channel <Ch> (if otherwise), <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<stimulus> the start value of the marker search
<i>Unit</i>	{ Hz (Hertz) s (second) dBm (decibels above 1 milliwatt) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	3e5
<i>Equivalent Softkeys</i>	Markers > Marker Search > Search Start

CALC:MARK:FUNC:DOM:STOP

CALCulate<Ch>[:SElected]:MARKer:FUNCTION:DOMain:STOP <stimulus>

CALCulate<Ch>[:SElected]:MARKer:FUNCTION:DOMain:STOP?

<i>Description</i>	Sets or reads out the stop value of the marker search range (command/query).
<i>Target</i>	All traces of channel <Ch> (if the marker search range coupling is set to ON by the CALC:MARK:FUNC:DOM:COUP command), The active trace of channel <Ch> (if otherwise), <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<stimulus> the stop value of the marker search
<i>Unit</i>	{ Hz (Hertz) s (second) dBm (decibels above 1 milliwatt) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	3.2e9 (A333) 8.0e9 (A338)
<i>Equivalent Softkeys</i>	Markers > Marker Search > Search Stop

CALC:MARK:FUNC:EXEC

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCtion:EXECute

<i>Description</i>	Executes the marker search according to the specified criterion. The type of the marker search is set by the CALC:MARK:FUNC:TYPE command. (no query)
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Related Commands</i>	CALC:MARK:FUNC:TYPE CALC:MARK:FUNC:DOM
<i>Equivalent Softkeys</i>	Markers > Marker Search > { Maximum Minimum } Markers > Marker Search > Peak > { Search Peak Search Max Peak Search Peak Left Search Peak Right } Markers > Marker Search > Target > { Search Target Search Target Left Search Target Right }

CALC:MARK:FUNC:PEXC

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCtion:PEXCursion <response>

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCtion:PEXCursion?

<i>Description</i>	Sets or reads out the peak excursion value, when the marker search for peak is performed by the CALC:MARK:FUNC:EXEC command (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the peak excursion value, the range varies depending on the data format
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Markers > Marker Search > Peak > Peak Excursion

CALC:MARK:FUNC:PPOL

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNction:PPOLarity {POSitive|NEGative|BOTH}

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNction:PPOLarity?

<i>Description</i>	Selects the peak polarity, when the marker search for peak is performed by the CALC:MARK:FUNC:EXEC command (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"POSitive" : Positive polarity "NEGative" : Negative polarity "BOTH" : Both positive polarity and negative polarity
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ POS NEG BOTH }
<i>Preset Value</i>	POS
<i>Related Commands</i>	CALC:MARK:FUNC:EXEC
<i>Equivalent Softkeys</i>	Markers > Marker Search > Peak > Peak Polarity > { Positive Negative Both }

CALC:MARK:FUNC:TARG

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCTION:TARGet <response>

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCTION:TARGet?

<i>Description</i>	Sets or reads out the target value, when the marker search for target is performed by the CALC:MARK:FUNC:EXEC command (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the target value, the range varies depending on the data format
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Marker Search > Target > Target Value

CALC:MARK:FUNC:TRAC

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCTION:TRACking {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNCTION:TRACking?

<i>Description</i>	Sets or reads out the ON/OFF state of the marker search tracking function (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Marker search tracking ON { OFF 0 } : Marker search tracking OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Marker Search > Tracking

CALC:MARK:FUNC:TTR

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNction:TTRansition {POSitive|NEGative|BOTH}

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNction:TTRansition?

<i>Description</i>	Selects the type of the target transition, when the marker search for transition is performed by the CALC:MARK:FUNC:EXEC command (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"POSitive" : Positive target transition "NEGative" : Negative target transition "BOTH" : Both positive target transition and negative target transition
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ POS NEG BOTH }
<i>Preset Value</i>	POS
<i>Related Commands</i>	CALC:MARK:FUNC:EXEC
<i>Equivalent Softkeys</i>	Marker > Marker Search > Target > Target Transition > { Positive Negative Both }

CALC:MARK:FUNC:TYPE

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNction:TYPE {MAXimum|MINimum|PEAK|LPEak|RPEak|TARGet|LTARget|RTARget}

CALCulate<Ch>[:SElected]:MARKer<Mk>:FUNction:TYPE?

<i>Description</i>	Selects the type of the marker search, which is performed by the CALC:MARK:FUNC:EXEC command (command/query).
<i>Target</i>	Marker <Mk> the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"MAXimum" : Maximum value search "MINimum" : Minimum value search "PEAK" : Peak search "LPEak" : Peak search to the left from the marker "RPEak" : Peak search to the right from the marker "TARGet" : Target search "LTARget" : Target search to the left from the marker "RTARget" : Target search to the right from the marker
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ MAX MIN PEAK LPE RPE TARG LTAR RTAR }
<i>Preset Value</i>	MAX
<i>Related Commands</i>	CALC:MARK:FUNC:EXEC
<i>Equivalent Softkeys</i>	Markers > Marker Search > { Maximum Minimum } Markers > Marker Search > Peak > { Search Peak Search Max Peak Search Peak Left Search Peak Right } Markers > Marker Search > Target > { Search Target Search Target Left Search Target Right }

CALC:MARK:REF

CALCulate<Ch>[:SElected]:MARKer:REFerence[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MARKer:REFerence[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the reference marker (command/query). When the reference marker is turned ON, all the values of the other markers turn to relative values.
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Reference marker ON { OFF 0 } : Reference marker OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Reference Marker

CALC:MARK:SET

CALCulate<Ch>[:SElected]:MARKer<Mk>:SET {STARt|STOP|CENTer|RLEVel|DELay}

<i>Description</i>	Sets the value of the specified item to the value of the position of the marker (no query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"STARt" : Sweep start value set to the stimulus value of the marker position. "STOP" : Sweep stop value set to the stimulus value of the marker position. "CENTer" : Sweep center value set to the stimulus value of the marker position. "RLEVel" : Reference value set to the response value of the marker position. "DELay" : Delay value set to the response value of the marker position.
<i>Out of Range</i>	The command is ignored.
<i>Equivalent Softkeys</i>	Markers > Marker Functions > { Marker→Start Marker→Stop Marker →Center Marker→Ref Value Marker→Delay }

CALC:MARK:X

CALCulate<Ch>[:SElected]:MARKer<Mk>:X <stimulus>

CALCulate<Ch>[:SElected]:MARKer<Mk>:X?

<i>Description</i>	Sets or reads out the stimulus value of the marker (command/query).
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<stimulus> the stimulus value of the marker, the range is from the stimulus start value to the stimulus stop value currently set
<i>Unit</i>	{ Hz (Hertz) s (second) dBm (decibels above 1 milliwatt) }
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	Stimulus center value
<i>Equivalent Softkeys</i>	Markers > Edit Stimulus

CALC:MARK:Y?

CALCulate<Ch>[:SElected]:MARKer<Mk>:Y?

<i>Description</i>	Reads out the response value of the marker (query only). If the reference marker is turned ON, the values of the markers from 1 to 15 are read out as relative values to the reference marker. The data include 2 elements: <numeric 1> real number in rectangular format, real part in polar and Smith chart formats; <numeric 2> 0 in rectangular format, imaginary part in polar and Smith chart formats.
<i>Target</i>	Marker <Mk> of the active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Mk>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>
<i>Related Commands</i>	CALC:MARK:REF
<i>Equivalent Softkeys</i>	None

CALC:MATH:FUNC

CALCulate<Ch>[:SElected]:MATH:FUNCtion {NORMal|SUBTract|DIVide|ADD|MULTiply}

CALCulate<Ch>[:SElected]:MATH:FUNCtion?

<i>Description</i>	Selects the math operation between the measurement data and the memory trace data. The math result replaces the data trace. If the data trace is not saved, the command is ignored (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"DIVide" : Division <i>Data / Mem.</i> "MULTiply" : Multiplication <i>Data x Mem.</i> "ADD" : Addition <i>Data + Mem.</i> "SUBTract" : Subtraction <i>Data – Mem.</i> "NORMal" : No math
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 210.
<i>Query Response</i>	{ NORM SUBT DIV ADD MULT }
<i>Preset Value</i>	NORM
<i>Related Commands</i>	CALC:MATH:MEM
<i>Equivalent Softkeys</i>	Display > Data Math > { Data/Mem Data*Mem Data+Mem Data–Mem OFF }

CALC:MATH:MEM

CALCulate<Ch>[:SElected]:MATH:MEMorize

<i>Description</i>	Saves the measurement data to the memory trace. Automatically turns on the display the memory trace (no query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Display > Data→Memory

CALC:MST

CALCulate<Ch>[:SElected]:MSTatistics[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MSTatistics[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the math statistics display (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Statistics display ON { OFF 0 } : Statistics display OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Marker Math > Statistics > Statistics

CALC:MST:DATA?

CALCulate<Ch>[:SElected]:MSTatistics:DATA?

<i>Description</i>	Reads out the math statistics values (query only). The statistics function is applied either over the whole range (for all the trace), or within the range specified by CALC:MST:DOM command (the range limits are determined by two markers). The data include 3 elements: <numeric 1> Mean value; <numeric 2> Standard deviation; <numeric 3> Peak-to-peak (difference between the maximum value and the minimum value).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Related Commands</i>	CALC:MST:DOM
<i>Equivalent Softkeys</i>	None

CALC:MST:DOM

CALCulate<Ch>[:SElected]:MSTatistics:DOMain[:STATE] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:MSTatistics:DOMain[:STATE]?

<i>Description</i>	Sets or reads out the ON/OFF state of the math statistics range (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ON 1} : Statistics range ON {OFF 0} : Statistics range OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Marker Math > Statistics > Statistics Range

CALC:MST:DOM:STAR

CALCulate<Ch>[:SElected]:MSTatistics:DOMain[:MARKer]:STARt <numeric>

CALCulate<Ch>[:SElected]:MSTatistics:DOMain[:MARKer]:STARt?

<i>Description</i>	Sets or reads out the number of the marker, which specifies the start frequency of the math statistics range (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> marker number from 1 to 16
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Markers > Marker Math > Statistics > Statistics Start

CALC:MST:DOM:STOP

CALCulate<Ch>[:SElected]:MSTatistics:DOMain[:MARKer]:STOP <numeric>

CALCulate<Ch>[:SElected]:MSTatistics:DOMain[:MARKer]:STOP?

<i>Description</i>	Sets or reads out the number of the marker, which specifies the stop frequency of the math statistics range (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> marker number from 1 to 16
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	2
<i>Equivalent Softkeys</i>	Markers > Marker Math > Statistics > Statistics Stop

CALC:PAR:COUN

CALCulate<Ch>:PARameter:COUNT <numeric>

CALCulate<Ch>:PARameter:COUNT?

<i>Description</i>	Sets or reads out the number of traces in the channel (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the number of the trace in the channel from 1 to 16
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Display > Num of Traces

CALC:PAR:DEF

CALCulate<Ch>:PARAmeter<Tr>:DEFine {S11|S21|S12|S22|A|B|R1|R2}

CALCulate<Ch>:PARAmeter<Tr>:DEFine?

<i>Description</i>	Sets the measurement parameter of the trace (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"S11" : S11 parameter "S21" : S21 parameter "S12" : S12 parameter "S22" : S22 parameter "A" : Receiver A "B" : Receiver B "R1" : Receiver R1 "R2" : Receiver R2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 208.
<i>Query Response</i>	{ S11 S21 S12 S22 A B R1 R2 }
<i>Preset Value</i>	Depends on the trace number. Tr 1, Tr 5, Tr 9, Tr 13: "S11" Tr 2, Tr 6, Tr 10, Tr 14: "S21" Tr 3, Tr 7, Tr 11, Tr 15: "S12" Tr 4, Tr 8, Tr 12, Tr 16: "S22"
<i>Equivalent Softkeys</i>	Measurement > Measurement > S11 S21 S12 S22 Measurement > Measurement > Absolute > { A(1) B(1) R1(1) A(2) B(2) R2(2) }

CALC:PAR:SEL

CALCulate<Ch>:PARameter<Tr>:SELEct

<i>Description</i>	Sets the active trace in channel <Ch> (no query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Notes</i>	If the trace number is greater than the number of the traces displayed in the channel, an error occurs and the command is ignored.
<i>Related Commands</i>	CALC:PAR:COUN
<i>Equivalent Softkeys</i>	Display > Active Trace/Channel > Active Trace

CALC:PAR:SPOR

CALCulate<Ch>:PARameter<Tr>:SPORt <port>

CALCulate<Ch>:PARameter<Tr>:SPORt?

<i>Description</i>	Sets or reads out the number of the receiver port, when performing absolute measurements (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the receiver port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 208.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Measurement > Measurement > Absolute > { A(1) B(1) R1(1) A(2) B(2) R2(2) }

CALC:RLIM

CALCulate<Ch>[:SElected]:RLIMit[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:RLIMit[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the ripple limit test (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Ripple limit test ON { OFF 0 } : Ripple limit test OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Ripple Limit > Ripple Test

CALC:RLIM:DATA

CALCulate<Ch>[:SElected]:RLIMit:DATA <numeric list>

CALCulate<Ch>[:SElected]:RLIMit:DATA?

Description	Sets the data array, which is the limit line for the ripple limit function (command/query). The array size is $1 + 4N$, where N is the number of limit line segments. For the n-th point, where n from 1 to N: <numeric 1> the number of limit line segments N is the integer from 0 to 12. Setting 0 clears the limit line. <numeric $4n-2$> type of the n-th limit line segment 0: Off. 1: On <numeric $4n-1$> the stimulus value in the beginning point of the n-th segment <numeric $4n-0$> the stimulus value in the end point of the n-th segment <numeric $4n+1$> the ripple limit value of the n-th segment
Target	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Query Response	<numeric 1>, <numeric 2>, ...<numeric $4N+1$> The data transfer format depends on the FORM:DATA command setting.
Notes	If the array size is not $1 + 4N$, where N is <numeric 1>, an error occurs (error code 214). If <numeric $4n-2$> is less than 0 or more than 1, an error occurs (error code 214). When <numeric $4n-1$>, <numeric $4n-0$>, and <numeric $4n+1$> elements are out of allowable range, the value is set to the limit, which is closer to the specified value.
Related Commands	FORM:DATA
Equivalent Softkeys	Analysis > Ripple Limit > Edit Ripple Limit

CALC:RLIM:DISP:LINE

CALCulate<Ch>[:SElected]:RLIMit:DISPlay:LINE {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:RLIMit:DISPlay:LINE?

<i>Description</i>	Sets or reads out the ON/OFF state of the ripple limit line display (command/query).
<i>Target</i>	Active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Ripple limit line ON { OFF 0 } : Ripple limit line OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Ripple Limit > Ripple Limit

CALC:RLIM:DISP:SEL

CALCulate<Ch>[:SElected]:RLIMit:DISPlay:SElect <numeric>

CALCulate<Ch>[:SElected]:RLIMit:DISPlay:SElect?

<i>Description</i>	Sets or reads out the number of the ripple limit test band selected for the ripple value display (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric>, range from 1 to 12
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Analysis > Ripple Limit > Ripple Value Band

CALC:RLIM:DISP:VAL

CALCulate<Ch>[:SElected]:RLIMit:DISPlay:VALue {OFF|ABSolute|MARgin}

CALCulate<Ch>[:SElected]:RLIMit:DISPlay:VALue?

<i>Description</i>	Selects the display type of the ripple value in the specified band (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"OFF" : Ripple value display OFF "ABSolute" : Absolute value "MARgin" : Margin (difference between the ripple limit and the absolute value)
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ OFF ABS MAR }
<i>Preset Value</i>	OFF
<i>Equivalent Softkeys</i>	Analysis > Ripple Limit > Ripple Value

CALC:RLIM:FAIL?

CALCulate#[:SElected]:RLIMit:FAIL?

<i>Description</i>	Reads out the ripple limit test result (query only).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	1 : Fail 0 : Pass
<i>Equivalent Softkeys</i>	None

CALC:RLIM:REP?

CALCulate<Ch>[:SElected]:RLIMit:REPort[:DATA]?

<i>Description</i>	Reads out the data array, which is the ripple limit test results (query only). The array size is 1+3N, where N is the number of ripple limit bands. For the n–th point, where n from 1 to N: <numeric 1> N total number of the bands <numeric 3n–1> n number of the band <numeric 3n–0> Ripple value in the n–th band <numeric 3n+1> Ripple limit test result in the n–th band: 0: Pass 1: Fail
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 3N+1> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	FORM:DATA
<i>Equivalent Softkeys</i>	None

CALC:SMO

CALCulate<Ch>[:SElected]:SMOothing[:STATe] {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:SMOothing[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the trace smoothing function (command/query).
<i>Target</i>	Active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Trace smoothing ON { OFF 0 } : Trace smoothing OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Average > Smoothing

CALC:SMO:APER

CALCulate<Ch>[:SElected]:SMOothing:APERture <numeric>

CALCulate<Ch>[:SElected]:SMOothing:APERture?

<i>Description</i>	Sets or reads out the smoothing aperture, when performing smoothing function (command/query).
<i>Target</i>	Active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the smoothing aperture from 0.01 to 20
<i>Unit</i>	% (percent)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Average > Smo Aperture

CALC:TRAC:DATA:FDAT?

CALCulate<Ch>:TRACe<Tr>:DATA:FDATa?

<i>Description</i>	Reads out the formatted data array (query only). The formatted data array is the data, whose processing is completed including the formatting as the last step. Such data represent the data trace values as they are shown on the screen. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real number in rectangular format, real part in polar and Smith chart formats; <numeric 2n> 0 in rectangular format, imaginary part in polar and Smith chart formats.
<i>Target</i>	The specified trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	CALC:DATA:FDAT
<i>Equivalent Softkeys</i>	None

CALC:TRAC:DATA:FMEM?

CALCulate<Ch>:TRACe<Tr>:DATA:FMEMory?

<i>Description</i>	Reads out the formatted memory array (query only). The formatted memory array is the data, whose processing is completed including the formatting as the last step. Such data represent the memory trace values as they are shown on the screen. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real number in rectangular format, real part in polar and Smith chart formats; <numeric 2n> 0 in rectangular format, imaginary part in polar and Smith chart formats.
<i>Target</i>	The specified trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Notes</i>	If the memory is empty, an error occurs and the command is ignored.
<i>Related Commands</i>	CALC:DATA:FMEM
<i>Equivalent Softkeys</i>	None

CALC:TRAC:DATA:SDAT?

CALCulate<Ch>:TRACe<Tr>:DATA:SDATa?

<i>Description</i>	Reads out the corrected data array (query only). The corrected data array is the data, whose processing is completed excluding the formatting as the last step. Such data represent S-parameter complex values. The array size is 2N, where N is the number of measurement points. For the n-th point, where n from 1 to N: <numeric 2n-1> the real part of corrected measurement; <numeric 2n> the imaginary part of corrected measurement.
<i>Target</i>	The specified trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	CALC:DATA:SDAT
<i>Equivalent Softkeys</i>	None

CALC:TRAC:DATA:SMEM?

CALCulate<Ch>:TRACe<Tr>:DATA:SMEMory?

<i>Description</i>	Reads out the corrected memory array (query only). The corrected memory array is the data, whose processing is completed excluding the formatting as the last step. Such data represent S-parameter complex values. The array size is 2N, where N is the number of measurement points. For the n-th point, where n from 1 to N: <numeric 2n-1> the real part of corrected measurement memory; <numeric 2n> the imaginary part of corrected measurement memory.
<i>Target</i>	The specified trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N> The data transfer format depends on the FORM:DATA command setting.
<i>Notes</i>	If the memory is empty, an error occurs and the command is ignored.
<i>Related Commands</i>	CALC:DATA:SMEM
<i>Equivalent Softkeys</i>	None

CALC:TRAN:TIME

CALCulate<Ch>[:SElected]:TRANSform:TIME[:TYPE] {BPASs|LPASs}

CALCulate<Ch>[:SElected]:TRANSform:TIME[:TYPE]?

<i>Description</i>	Selects the transformation type for the time domain transformation function: bandpass response or direct current circuit (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"BPASs" Bandpass "LPASs" Lowpass
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ BPAS LPAS }
<i>Preset Value</i>	BPAS
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Type > { Bandpass Lowpass Step Lowpass Impulse }

CALC:TRAN:TIME:CENT

CALCulate<Ch>[:SElected]:TRANSform:TIME:CENTer <time>

CALCulate<Ch>[:SElected]:TRANSform:TIME:CENTer?

<i>Description</i>	Sets or reads out the time domain center value, when the time domain transformation function is turned ON (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the time domain center value, the range varies depending on the specified frequency range and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Center

CALC:TRAN:TIME:IMP:WIDT

CALCulate<Ch>[:SElected]:TRANSform:TIME:IMPulse:WIDTh <time>

CALCulate<Ch>[:SElected]:TRANSform:TIME:IMPulse:WIDTh?

<i>Description</i>	Sets or reads out the impulse width (time domain transformation resolution), coupled with the Kaiser–Bessel window shape β parameter. The impulse width setting changes the β parameter, and setting of β parameter changes the impulse width (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the impulse width, the range varies depending on the specified frequency range and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Window > Impulse Width (when the transformation type is set to Bandpass or Lowpass Impulse)

CALC:TRAN:TIME:KBES

CALCulate<Ch>[:SElected]:TRANSform:TIME:KBESsel <numeric>

CALCulate<Ch>[:SElected]:TRANSform:TIME:KBESsel?

<i>Description</i>	Sets or reads out the β parameter, which controls the Kaiser–Bessel window shape, when performing time domain transformation (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> β parameter from 0 to 13
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	6
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Window > Kaiser Beta

CALC:TRAN:TIME:LPFR

CALCulate<Ch>[:SElected]:TRANSform:TIME:LPFRequency

<i>Description</i>	Changes the frequency range to match with the lowpass type of the time domain transformation function (no query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Set Frequency Low Pass

CALC:TRAN:TIME:SPAN

CALCulate<Ch>[:SElected]:TRANSform:TIME:SPAN <time>

CALCulate<Ch>[:SElected]:TRANSform:TIME:SPAN?

<i>Description</i>	Sets or reads out the time domain span value, when the time domain transformation function is turned ON (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the time domain span value, the range varies depending on the specified frequency range and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	2e-8
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Span

CALC:TRAN:TIME:STAR

CALCulate<Ch>[:SElected]:TRANSform:TIME:STARt <time>

CALCulate<Ch>[:SElected]:TRANSform:TIME:STARt?

<i>Description</i>	Sets or reads out the time domain start value, when the time domain transformation function is turned ON (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the time domain start value, the range varies depending on the specified frequency range and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	-1e-8
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Start

CALC:TRAN:TIME:STAT

CALCulate<Ch>[:SElected]:TRANSform:TIME:STATe {ON|OFF|1|0}

CALCulate<Ch>[:SElected]:TRANSform:TIME:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the time domain transformation function (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Time domain transformation ON { OFF 0 } : Time domain transformation OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Time Domain

CALC:TRAN:TIME:STEP:RTIM

CALCulate<Ch>[:SElected]:TRANSform:TIME:STEP:RTIME <time>

CALCulate<Ch>[:SElected]:TRANSform:TIME:STEP:RTIME?

<i>Description</i>	Sets or reads out the rise time of the step signal (time domain transformation resolution), coupled with the Kaiser–Bessel window shape β parameter. The impulse width setting changes the β parameter, and setting of β parameter changes the impulse width (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the impulse width, the range varies depending on the specified frequency range and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Window > Impulse Width (when the transformation type is set to Lowpass Step)

CALC:TRAN:TIME:STIM

CALCulate<Ch>[:SElected]:TRANSform:TIME:STIMulus {IMPulse|STEP}

CALCulate<Ch>[:SElected]:TRANSform:TIME:STIMulus?

<i>Description</i>	Selects the stimulus type for the time domain transformation function: impulse or step (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"IMPulse" Impulse "STEP" Step
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ IMP STEP }
<i>Preset Value</i>	IMP
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Type > { Bandpass Lowpass Step Lowpass Impulse }

CALC:TRAN:TIME:STOP

CALCulate<Ch>[:SElected]:TRANSform:TIME:STOP <time>

CALCulate<Ch>[:SElected]:TRANSform:TIME:STOP?

<i>Description</i>	Sets or reads out the time domain stop value, when the time domain transformation function is turned ON (command/query).
<i>Target</i>	The active trace of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the time domain stop value, the range varies depending on the specified frequency range and the number of points
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	+1e-8
<i>Equivalent Softkeys</i>	Analysis > Time Domain > Stop

DISP:COL:BACK

DISPlay:COLor:BACK <numeric 1>,<numeric 2>,<numeric 3>

DISPlay:COLor:BACK?

<i>Description</i>	Sets or reads out the background color for trace display (command/query).
<i>Parameter</i>	<numeric 1> Red value R from 0 to 255; <numeric 2> Green value G from 0 to 255; <numeric 3> Blue value B from 0 to 255.
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Preset Value</i>	0, 0, 0
<i>Equivalent Softkeys</i>	Display > Properties > Color > Background > { Red Green Blue }

DISP:COL:GRAT

DISPlay:COLor:GRATicule <numeric 1>,<numeric 2>,<numeric 3>

DISPlay:COLor:GRATicule?

<i>Description</i>	Sets or reads out the grid and the graticule label color for trace display (command/query).
<i>Parameter</i>	<numeric 1> Red value R from 0 to 255; <numeric 2> Green value G from 0 to 255; <numeric 3> Blue value B from 0 to 255.
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Preset Value</i>	160, 160, 164
<i>Equivalent Softkeys</i>	Display > Properties > Color > Grid > { Red Green Blue }

DISP:COL:RES

DISPlay:COLor:RESet

<i>Description</i>	Restores the display settings to the default values (no query).
<i>Equivalent Softkeys</i>	Display > Properties > Set Defaults

DISP:COL:TRAC:DATA

DISPlay:COLor:TRACe<Tr>:DATA <numeric 1>,<numeric 2>,<numeric 3>

DISPlay:COLor:TRACe<Tr>:DATA?

<i>Description</i>	Sets or reads out the data trace color (command/query).
<i>Target</i>	Trace <Tr>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric 1> Red value R from 0 to 255; <numeric 2> Green value G from 0 to 255; <numeric 3> Blue value B from 0 to 255.
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Preset Value</i>	Varies depending on the trace number.
<i>Equivalent Softkeys</i>	Display > Properties > Color > Data Trace > { Red Green Blue }

DISP:COL:TRAC:MEM

DISPlay:COLor:TRACe<Tr>:MEMory <numeric 1>,<numeric 2>,<numeric 3>

DISPlay:COLor:TRACe<Tr>:MEMory?

<i>Description</i>	Sets or reads out the memory trace color (command/query).
<i>Target</i>	Trace <Tr>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric 1> Red value R from 0 to 255; <numeric 2> Green value G from 0 to 255; <numeric 3> Blue value B from 0 to 255.
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Preset Value</i>	Varies depending on the trace number.
<i>Equivalent Softkeys</i>	Display > Properties > Color > Memory Trace > { Red Green Blue }

DISP:ENAB

DISPlay:ENABle {ON|OFF|1|0}

DISPlay:ENABle?

<i>Description</i>	Sets or reads out the ON/OFF state of the display update function (command/query).
<i>Parameter</i>	{ ON 1 } : Display update ON { OFF 0 } : Display update OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Display > Update

DISP:FSIG

DISPlay:FSIGn {ON|OFF|1|0}

DISPlay:FSIGn?

<i>Description</i>	Sets or reads out the ON/OFF state of the <i>Fail</i> sign display, when performing limit test or ripple limit test (command/query).
<i>Parameter</i>	{ON 1} : <i>Fail</i> sign display ON {OFF 0} : <i>Fail</i> sign display OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Fail Sign Analysis > Ripple Limit > Fail Sign

DISP:IMAG

DISPlay:IMAGe {NORMal|INVert}

DISPlay:IMAGe?

<i>Description</i>	Sets or reads out the inverted color display of the data traces (command/query).
<i>Parameter</i>	"NORMal" : Normal display "INVert" : Inverted color display
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{NORM INV}
<i>Preset Value</i>	NORM
<i>Equivalent Softkeys</i>	Display > Properties > Invert Color

DISP:MAX

DISPlay:MAXimize {ON|OFF|1|0}

DISPlay:MAXimize?

<i>Description</i>	Sets or reads out the ON/OFF state of the window maximization of the active channel (command/query).
<i>Parameter</i>	{ON 1} : Maximization ON {OFF 0} : Maximization OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Display > Active Trace/Channel > Maximize channel

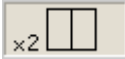
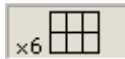
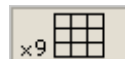
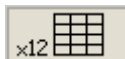
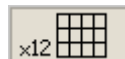
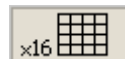
DISP:SPL

DISPlay:SPLit <numeric>

DISPlay:SPLit?

<i>Description</i>	Sets or reads out the layout of the channel windows on the screen (command/query). The channel window layout on the screen see below.
<i>Parameter</i>	<numeric> the number of the channel window layout from 1 to 16
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Display > Allocate channels

Channel window layout on the screen

1: 	2: 	3: 	4: 
5: 	6: 	7: 	8: 
9: 	10: 	11: 	12: 
13: 	14: 	15: 	16: 

DISP:UPD

DISPlay:UPDate[:IMMediate]

<i>Description</i>	Updates the display once, when the display update is set to OFF by the DISP:ENAB command (no query).
<i>Related Commands</i>	DISP:ENAB
<i>Equivalent Softkeys</i>	None

DISP:WIND:ACT

DISPlay:WINDow<Ch>:ACTivate

<i>Description</i>	Sets the active channel (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Notes</i>	At attempt to set to the active channel the channel, which is not displayed by the DISP:SPL command, an error occurs.
<i>Related Commands</i>	DISP:SPL
<i>Equivalent Softkeys</i>	Display > Active Trace / Channel > Active Channel

DISP:WIND:ANN:MARK:ALIG

DISPlay:WINDow<Ch>:ANNotation:MARKer:ALIGn[:TYPE] {NONE|VERTical|HORizontal}

DISPlay:WINDow<Ch>:ANNotation:MARKer:ALIGn[:TYPE]?

<i>Description</i>	Sets or reads out the alignment mode of the marker display position of each trace, when the only active trace display feature is turned OFF by the DISP:WIND:ANN:MARK:SING command (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"VERTical" : Vertical alignment "HORizontal" : Horizontal alignment "NONE" : No alignment
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ NONE VERT HOR }
<i>Preset Value</i>	NONE
<i>Related Commands</i>	DISP:WIND:ANN:MARK:SING
<i>Equivalent Softkeys</i>	Markers > Properties > Align > { Vertical Horizontal OFF }

DISP:WIND:ANN:MARK:SING

DISPlay:WINDow<Ch>:ANNotation:MARKer:SINGle[:STATE] {ON|OFF|1|0}

DISPlay:WINDow<Ch>:ANNotation:MARKer:SINGle[:STATE]?

<i>Description</i>	Sets or reads out the ON/OFF state of the marker display for the active trace only (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Only active trace markers display ON { OFF 0 } : Only active trace markers display OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Markers > Properties > Active Only

DISP:WIND:MAX

DISPlay:WINDow<Ch>:MAXimize {ON|OFF|1|0}

DISPlay:WINDow<Ch>:MAXimize?

<i>Description</i>	Sets or reads out the ON/OFF state of the active trace maximization of the specified channel (command/query).
<i>Parameter</i>	{ ON 1 } : Maximization ON { OFF 0 } : Maximization OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Display > Active Trace/Channel > Maximize Trace

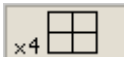
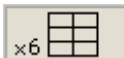
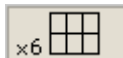
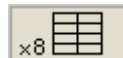
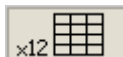
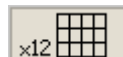
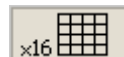
DISP:WIND:SPL

DISPlay:WINDow<Ch>:SPLit <numeric>

DISPlay:WINDow<Ch>:SPLit?

<i>Description</i>	Sets or reads out the layout of the graph in the channel window (command/query). The graph layout in the channel window see below.
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the number of the graph layout from 1 to 16
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Display > Allocate Traces

Graph layout in the channel window

1: 	2: 	3: 	4: 
5: 	6: 	7: 	8: 
9: 	10: 	11: 	12: 
13: 	14: 	15: 	16: 

DISP:WIND:TITL

DISPlay:WINDow<Ch>:TITLe[:STATe] {ON|OFF|1|0}

DISPlay:WINDow<Ch>:TITLe[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the channel title display (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Channel title display ON { OFF 0 } : Channel title display OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Display > Title Label

DISP:WIND:TITL:DATA

DISPlay:WINDow<Ch>:TITLe:DATA <string>

DISPlay:WINDow<Ch>:TITLe:DATA?

<i>Description</i>	Sets or reads out the channel title label (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<string>, up to 256 characters
<i>Query Response</i>	<string>
<i>Preset Value</i>	""
<i>Equivalent Softkeys</i>	Display > Edit Title Label

DISP:WIND:TRAC:ANN:MARK:POS:X

DISPlay:WINDow<Ch>:TRACe<Tr>:ANNotation:MARKer:POSition:X <numeric>

DISPlay:WINDow<Ch>:TRACe<Tr>:ANNotation:MARKer:POSition:X?

<i>Description</i>	Sets or reads out the display position of the marker value on the X-axis by a percentage of the display width (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the display position of the marker value on the X-axis from 0 to 100
<i>Unit</i>	% (percent)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Properties > Data X Position

DISP:WIND:TRAC:ANN:MARK:POS:Y

DISPlay:WINDow<Ch>:TRACe<Tr>:ANNotation:MARKer:POSition:Y <numeric>

DISPlay:WINDow<Ch>:TRACe<Tr>:ANNotation:MARKer:POSition:Y?

<i>Description</i>	Sets or reads out the display position of the marker value on the Y-axis by a percentage of the display height (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the display position of the marker value on the Y-axis from 0 to 100
<i>Unit</i>	% (percent)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Markers > Properties > Data Y Position

DISP:WIND:TRAC:MEM

DISPlay:WINDow<Ch>:TRACe<Tr>:MEMory[:STATe] {ON|OFF|1|0}

DISPlay:WINDow<Ch>:TRACe<Tr>:MEMory[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the memory trace display (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ON 1} : Memory trace display ON {OFF 0} : Memory trace display OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Notes</i>	If the memory is empty, an error occurs and the command is ignored.
<i>Equivalent Softkeys</i>	Display > Display > Memory Data & Memory (ON) Display > Display > { Data OFF } (OFF)

DISP:WIND:TRAC:STAT

DISPlay:WINDow<Ch>:TRACe<Tr>:STATe {ON|OFF|1|0}

DISPlay:WINDow<Ch>:TRACe<Tr>:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the data trace display (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ON 1} : Data trace display ON {OFF 0} : Data trace display OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Display > Display > Data Data & Memory (ON) Display > Display > { Memory OFF } (OFF)

DISP:WIND:TRAC:Y:AUTO

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:AUTO

<i>Description</i>	Executes the auto scale function for the trace (no query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Scale > Auto Scale

DISP:WIND:TRAC:Y:PDIV

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:PDIVision <response>

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:PDIVision?

<i>Description</i>	Sets or reads out the trace scale. Sets the scale per division, when the data format is the rectangular format. Sets the full scale value, when the data format is the Smith chart format or the polar format.
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the scale value from 10E-18 to 1E18
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	Varies depending on the format. Logarithmic Magnitude: 10 dB/Div Phase: 40 °/Div Expand Phase: 100 °/Div Group Delay: 10e-9 s/Div Smith Chart, Polar, SWR: 1 /Div Linear Magnitude: 0.1 /Div Real part, Imaginary part: 0.2 /Div
<i>Equivalent Softkeys</i>	Scale > Scale

DISP:WIND:TRAC:Y:RLEV

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RLEVel <response>

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RLEVel?

<i>Description</i>	Sets the value of the reference line (response value on the reference line). For the rectangular format only (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<response> the reference value from 10E-18 to 1E18
<i>Unit</i>	{ dB (decibel) ° (degree) s (second) }
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0 (except for SWR: 1)
<i>Equivalent Softkeys</i>	Scale > Ref Value

DISP:WIND:TRAC:Y:RPOS

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RPOSition <numeric>

DISPlay:WINDow<Ch>:TRACe<Tr>:Y[:SCALe]:RPOSition?

<i>Description</i>	Sets the position of the reference line. For the rectangular format only (command/query).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the reference line position from 0 to the number of the scale divisions (set by the DISP:WIND:Y:DIV command, 10 by default)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	5 (except for SWR: 0)
<i>Equivalent Softkeys</i>	Scale > Ref Position

DISP:WIND:X:SPAC

DISPlay:WINDow<Ch>:X:SPACing {LINear|OBASe}

DISPlay:WINDow<Ch>:X:SPACing?

<i>Description</i>	Sets or reads out the display method of the graph horizontal axis for the segment sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"LINear" : Frequency base (linear frequency axis) "OBASe" : Order base (linear axis of the point numbers)
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ LIN OBAS }
<i>Preset Value</i>	LIN
<i>Related Commands</i>	SENS:SWE:TYPE
<i>Equivalent Softkeys</i>	Stimulus > Segment Table > Segment Display

DISP:WIND:Y:DIV

DISPlay:WINDow<Ch>:Y[:SCALe]:DIVisions <numeric>

DISPlay:WINDow<Ch>:Y[:SCALe]:DIVisions?

<i>Description</i>	Sets the number of the vertical scale divisions. For the rectangular format only (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the number of the vertical scale divisions from 4 to 30
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	10
<i>Resolution</i>	2
<i>Equivalent Softkeys</i>	Scale > Divisions

FORM:BORD

FORMat:BORDer {NORMal|SWAPped}

FORMat:BORDer?

<i>Description</i>	Sets or reads out the transfer order of each byte in data, when the binary data transfer format is set by the FORM:DATA command (command/query).
<i>Parameter</i>	"NORMal" : Normal (from the most significant byte) "SWAPped" : Swapped (from the least significant byte)
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ NORM SWAP }
<i>Preset Value</i>	NORM
<i>Related Commands</i>	FORM:DATA
<i>Equivalent Softkeys</i>	None

FORM:DATA

FORMat:DATA {ASCIi|REAL|REAL32}

FORMat:DATA?

<i>Description</i>	Sets or reads out the data transfer format, when responding to the following queries: CALC:DATA:FDAT? CALC:DATA:FMEM? CALC:DATA:SDAT? CALC:DATA:SMEM? CALC:FUNC:DATA? CALC:LIM:DATA? CALC:LIM:REP? CALC:LIM:REP:ALL? CALC:RLIM:DATA? CALC:RLIM:REP? SENS:FREQ:DATA? SENS:SEGM:DATA? (command/query)
<i>Parameter</i>	"ASCIi" : Character format "REAL" : Binary format (IEEE–64 floating point) "REAL32" : Binary format (IEEE–32 floating point)
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ASC REAL REAL32}
<i>Preset Value</i>	ASC
<i>Related Commands</i>	FORM:BORD
<i>Equivalent Softkeys</i>	None

HCOP

HCOPy[:IMMediate]

<i>Description</i>	Prints out the image displayed on the screen without previewing (no query).
<i>Equivalent Softkeys</i>	System > Print > Print Embedded

HCOP:ABOR

HCOPy:ABORt

<i>Description</i>	Aborts the printout (no query).
<i>Equivalent Softkeys</i>	None

HCOP:DATE:STAM

HCOPy:DATE:STAMp {ON|OFF|1|0}

HCOPy:DATE:STAMp?

<i>Description</i>	Sets or reads out the ON/OFF state of the current date and time printout in the upper right corner (command/query).
<i>Parameter</i>	{ON 1} : Date & time printout ON {OFF 0} : Date & time printout OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	System > Print > Print Date & Time

HCOP:IMAG

HCOPy:IMAGe {NORMal|INVert}

HCOPy:IMAGe?

<i>Description</i>	Sets or reads out the inverted color image printout (command/query).
<i>Parameter</i>	"NORMal" : Normal printout "INVert" : Inverted color printout
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ NORM INV }
<i>Preset Value</i>	NORM
<i>Equivalent Softkeys</i>	System > Print > Invert Image

HCOP:PAIN

HCOPy:PAINt {COLor|GRAY|BW}

HCOPy:PAINt?

<i>Description</i>	Sets or reads out the color chart for the image printout (command/query).
<i>Parameter</i>	"COLor" : Color printout "GRAY" : Grayscale printout "BW" : Black&white printout
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{ COL GRAY BW }
<i>Preset Value</i>	BW
<i>Equivalent Softkeys</i>	System > Print > Print Color

INIT

INITiate<Ch>[:IMMediate]

<i>Description</i>	Sets the channel to the single trigger mode. Before this command is sent, the channel must be in hold state, otherwise an error occurs (error code 213) and the command is ignored. On completion of the sweep, the channel goes back into the hold state. The command is completed before the end of the sweep. (no query)
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Notes</i>	The sweep start in single trigger mode depends on the trigger source. If the trigger is set to internal, the sweep will start immediately upon the single mode activation. If the trigger is set otherwise, the sweep will start when the trigger signal is received.
<i>Related Commands</i>	TRIG:SOUR
<i>Equivalent Softkeys</i>	Stimulus > Trigger > Single

INIT:CONT

INITiate<Ch>:CONTinuous {ON|OFF|1|0}

INITiate<Ch>:CONTinuous?

<i>Description</i>	Sets or reads out the ON/OFF state of the continuous trigger initiation mode. If the continuous trigger initiation mode is set to OFF, the channel tuns to the hold state (command /query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Continuous trigger initiation mode ON { OFF 0 } : Continuous trigger initiation mode OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	1
<i>Notes</i>	The sweep start in continuous trigger initiation mode depends on the trigger source. If the trigger is set to internal, the sweeps will go immediately one after another. If the trigger is set otherwise, the sweep will start when the trigger signal is received.
<i>Related Commands</i>	TRIG:SOUR
<i>Equivalent Softkeys</i>	Stimulus > Trigger > Continuous Stimulus > Trigger > Hold

MMEM:COPY

MMEMory:COPY <string1>,<string2>

<i>Description</i>	Copies a file (no query).
<i>Parameter</i>	<string1> Source file name <string2> Destination file name
<i>Equivalent Softkeys</i>	None

MMEM:DEL

MMEMory:DELeTe <string>

<i>Description</i>	Deletes a file (no query).
<i>Parameter</i>	<string> File name
<i>Equivalent Softkeys</i>	None

MMEM:LOAD

MMEMory:LOAD[:STATe] <string>

<i>Description</i>	Recalls the specified instrument state file. The file must be saved by the MMEM:STOR command (no query).
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \State subdirectory of the main directory will be searched for the file. The instrument state file has *.sta extension by default.
<i>Equivalent Softkeys</i>	Save/Recall > Recall State > State...

MMEM:LOAD:CHAN

MMEMory:LOAD:CHANnel[:STATe] {A|B|C|D}

<i>Description</i>	Recalls the instrument state for the active channel. The file must be saved in one of the four memory registers by the MMEM:STOR:CHAN command (no query).
<i>Target</i>	Active channel set by the DISP:WIND:ACT command
<i>Parameter</i>	"A" : Recall from register A "B" : Recall from register B "C" : Recall from register C "D" : Recall from register D
<i>Out of Range</i>	The command is ignored.
<i>Equivalent Softkeys</i>	Save/Recall > Recall Channel > { State A B C D }

MMEM:LOAD:CKIT

MMEMory:LOAD:CKIT<Ck> <string>

<i>Description</i>	Recalls the definition file for the calibration kit. The file must be saved by the MMEM:STOR:CKIT command (no query).
<i>Target</i>	Calibration kit <Ck>, <Ck>={ [1] 2 3 4 5 6 7 8 9 10 11 }
<i>Parameter</i>	<string> Fine name
<i>Notes</i>	If the full path of the file is not specified, the \CalKit subdirectory of the main directory will be searched for the file. The calibration kit definition file has *.ckd extension by default.
<i>Equivalent Softkeys</i>	None

MMEM:LOAD:LIM

MMEMory:LOAD:LIMit <string>

<i>Description</i>	Recalls the limit table file. The file must be saved by the MMEM:STOR:LIM command (no query).
<i>Target</i>	Active trace of the active channel, set by the CALC:PAR:SEL command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \Limit subdirectory of the main directory will be searched for the file. The limit table file has *.lim extension by default.
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Edit Limit Line > Restore Limit Table

MMEM:LOAD:PLOS

MMEMory:LOAD:PLOs<Pt> <string>

<i>Description</i>	Recalls the loss compensation file. The file must be saved by the MMEM:STOR:PLOS command (no query).
<i>Target</i>	Port <Pt> of the active channel, set by the DISP:WIND:ACT command <Pt>={ [1] 2 }
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \CalKit subdirectory of the main directory will be searched for the file. The loss compensation file has *.lct extension by default.
<i>Equivalent Softkeys</i>	Calibration > Power Calibration > Loss Compens > Import Loss Table

MMEM:LOAD:RLIM

MMEMory:LOAD:RLIMit <string>

<i>Description</i>	Recalls the ripple limit table file. The file must be saved by MMEM:STOR:RLIM the command (no query).
<i>Target</i>	Active trace of the active channel, set by the CALC:PAR:SEL command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the <i>\Limit</i> subdirectory of the main directory will be searched for the file. The ripple limit file has *.rlm extension by default.
<i>Equivalent Softkeys</i>	Analysis > Ripple Limit > Edit Ripple Limit > Restore Ripple Limit Table

MMEM:LOAD:SEGM

MMEMory:LOAD:SEGment <string>

<i>Description</i>	Recalls the segment table file. The file must be saved by the MMEM:STOR:SEGM command (no query).
<i>Target</i>	Active channel, set by the DISP:WIND:ACT command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the <i>\Segment</i> subdirectory of the main directory will be searched for the file. The segment file has *.seg extension by default.
<i>Equivalent Softkeys</i>	Stimulus > Segment Table > Recall...

MMEM:MDIR

MMEMory:MDIRectory <string>

<i>Description</i>	Creates a new directory (no query).
<i>Parameter</i>	<string> Directory full name
<i>Equivalent Softkeys</i>	None

MMEM:STOR

MMEMory:STORe[:STATe] <string>

<i>Description</i>	Saves the instrument state into a file (no query).
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \State subdirectory of the main directory will be searched for the file. The state file has *.sta extension by default.
<i>Equivalent Softkeys</i>	Save/Recall > Save State > State...

MMEM:STOR:CHAN

MMEMory:STORe:CHANnel[:STATe] {A|B|C|D}

<i>Description</i>	Saves the instrument state of the items set for the active channel into one of the four memory registers (no query).
<i>Target</i>	Active channel set by the DISP:WIND:ACT command
<i>Parameter</i>	"A" : Save to register A "B" : Save to register B "C" : Save to register C "D" : Save to register D
<i>Out of Range</i>	The command is ignored.
<i>Equivalent Softkeys</i>	Save/Recall > Save Channel > { State A B C D }

MMEM:STOR:CHAN:CLE

MMEMory:STORe:CHANnel:CLEar

<i>Description</i>	Clears the memory of the channel state saved by the MMEM:STOR:CHAN command (no query).
<i>Equivalent Softkeys</i>	Save/Recall > Save Channel > Clear States

MMEM:STOR:CKIT

MMEMory:STORe:CKIT<Ck> <string>

<i>Description</i>	Saves the definition file for the calibration kit (no query).
<i>Target</i>	Calibration kit <Ck>, <Ck>={ [1] 2 3 4 5 6 7 8 9 10 11 }
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \CalKit subdirectory of the main directory will be searched for the file. The calibration kit definition file has *.ckd extension by default.
<i>Equivalent Softkeys</i>	None

MMEM:STOR:FDAT

MMEMory:STORe:FDATa <string>

<i>Description</i>	Saves the CSV formatted data into a file (no query).
<i>Target</i>	Active trace of the active channel, set by the CALC:PAR:SEL command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \CSV subdirectory of the main directory will be searched for the file. The file has *.csv extension by default.
<i>Equivalent Softkeys</i>	Save/Recall > Save Trace Data

MMEM:STOR:IMAG

MMEMory:STORe:IMAGe <string>

<i>Description</i>	Saves the display image in BMP or PNG format into a file (no query).
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \Image subdirectory of the main directory will be searched for the file. If the file has *.png extension, the file had PNG format, in all the other cases the file has BMP format.
<i>Equivalent Softkeys</i>	System > Print > Print Windows > Save as...

MMEM:STOR:LIM

MMEMory:STORe:LIMit <string>

<i>Description</i>	Saves the limit table into a file (no query).
<i>Target</i>	Active trace of the active channel, set by the CALC:PAR:SEL command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \Limit subdirectory of the main directory will be searched for the file. The file has *.lim extension by default.
<i>Equivalent Softkeys</i>	Analysis > Limit Test > Edit Limit Line > Save Limit Table

MMEM:STOR:PLOS

MMEMory:STORe:PLOSS<Pt> <string>

<i>Description</i>	Saves the loss compensation table into a file (no query).
<i>Target</i>	Port <Pt> of the active channel, set by the DISP:WIND:ACT command <Pt>={ [1] 2 }
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \CalKit subdirectory of the main directory will be searched for the file. The loss compensation file has *.lct extension by default.
<i>Equivalent Softkeys</i>	Calibration > Power Calibration > Loss Compens > Export Loss Table

MMEM:STOR:RLIM

MMEMory:STORe:RLIMit <string>

<i>Description</i>	Saves the ripple limit table into a file (no query).
<i>Target</i>	Active trace of the active channel, set by the CALC:PAR:SEL command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \Limit subdirectory of the main directory will be searched for the file. The ripple limit file has *.rlm extension by default.
<i>Equivalent Softkeys</i>	Analysis > Ripple Limit > Edit Ripple Limit > Save Ripple Limit Table

MMEM:STOR:SEGM

MMEMory:STORe:SEGMENT <string>

<i>Description</i>	Save the segment table in a file (no query).
<i>Target</i>	Active channel, set by the DISP:WIND:ACT command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \Segment subdirectory of the main directory will be searched for the file. The segment file has *.seg extension by default.
<i>Equivalent Softkeys</i>	Stimulus > Segment Table > Save...

MMEM:STOR:SNP

MMEMory:STORe:SNP[:DATA] <string>

<i>Description</i>	Saves the measured S-parameters of the active channel into a Touchstone file. The file type (1-port or 2-port) is set by the MMEM:STOR:SNP:TYPE:S1P and MMEM:STOR:SNP:TYPE:S2P commands. 1-port type file saves one reflection parameter: S11 or S22. 2-port type file saves all the four parameters: S11, S21, S12, S22. (no query)
<i>Target</i>	Active channel, set by the DISP:WIND:ACT command
<i>Parameter</i>	<string> File name
<i>Notes</i>	If the full path of the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file. The 1-port measurement file has *.slp extension; the 2-port measurement file has *.s2p extension.
<i>Equivalent Softkeys</i>	Save/Recall > Save Data to Touchstone File > Save File...

MMEM:STOR:SNP:FORM

MMEMory:STORe:SNP:FORMat {RI|DB|MA}

MMEMory:STORe:SNP:FORMat?

<i>Description</i>	Sets the data format for the S-parameter saving by the MMEM:STOR:SNP command (command/query).
<i>Target</i>	Active channel, set by the DISP:WIND:ACT command
<i>Parameter</i>	"MA" : Logarithmic Magnitude / Angle format "DB" : Linear Magnitude / Angle format "RI" : Real part /Imaginary part format
<i>Out of Range</i>	The command is ignored.
<i>Query Response</i>	{RI DB MA}
<i>Preset Value</i>	RI
<i>Equivalent Softkeys</i>	Save/Recall > Save Data to Touchstone File > Format

MMEM:STOR:SNP:TYPE:S1P

MMEMory:STORe:SNP:TYPE:S1P <port>

MMEMory:STORe:SNP:TYPE:S1P?

<i>Description</i>	Sets the *.s1p file type and the port number (selects S11 or S22 parameter), when saving S-parameters by the MMEM:STOR:SNP command (command/query).
<i>Target</i>	Active channel, set by the DISP:WIND:ACT command
<i>Parameter</i>	<port> port number from 1 (S11) to 2 (S22)
<i>Out of Range</i>	An error occurs. Error code: 222.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Save/Recall > Save Data to Touchstone File > Type > 1-Port (s1p) Save/Recall > Save Data to Touchstone File > Select Port

MMEM:STOR:SNP:TYPE:S2P

MMEMory:STORe:SNP:TYPE:S2P <port1>,<port2>

MMEMory:STORe:SNP:TYPE:S2P?

<i>Description</i>	Sets the *.s2p file type and the port numbers, when saving S-parameters by the MMEM:STOR:SNP command (command/query).	
<i>Target</i>	Active channel, set by the DISP:WIND:ACT command	
<i>Parameter</i>	<port1>	First port number (reads out 1, ignored when written)
	<port2>	Second port number (reads out 2, ignored when written)
<i>Query Response</i>	<numeric1>,<numeric2>	
<i>Equivalent Softkeys</i>	Save/Recall > Save Data to Touchstone File > Type > 2–Port (s2p)	

MMEM:STOR:STYP

MMEMory:STORe:STYPe {STATe|CSTate|DSTate|CDSTate}

MMEMory:STORe:STYPe?

<i>Description</i>	Selects the type of the instrument or channel state saving by the MMEM:STOR:CHAN command (command/query).
<i>Parameter</i>	"STATe" : Measurement conditions "CSTate" : Measurement conditions and calibration tables "DSTate" : Measurement conditions and data traces "CDSTate" : Measurement conditions, calibration tables and data traces
<i>Out of Range</i>	An error occurs. Error code: 205.
<i>Query Response</i>	{ STAT CST DST CDST }
<i>Preset Value</i>	CST
<i>Equivalent Softkeys</i>	Save/Recall > Save Type

MMEM:TRAN?

MMEMory:TRANsfer? <string>

<i>Description</i>	Transfers the contents of a specified file from the instrument to the external computer (command/query).
<i>Parameter</i>	<string> the file name with the full path
<i>Query Response</i>	Block data transfer format. For example: #6001000<binary block with length of 1000 bytes> #6 Symbol # introduces the data block. The next number indicates how many of the following digits describe the length of the data block; 001000 Length of the data block;
<i>Notes</i>	The file must be 20 Mbytes or less.
<i>Equivalent Softkeys</i>	None

OUTP

OUTPut[:STATe] {ON|OFF|1|0}

OUTPut[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the stimulus signal output. Measurements cannot be performed when the stimulus signal output is set to OFF (command/query).
<i>Parameter</i>	{ON 1} : Stimulus signal output ON {OFF 0} : Stimulus signal output OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Stimulus > Power > RF Out

SENS:AVER

SENSe<Ch>:AVERage[:STATe] {ON|OFF|1|0}

SENSe<Ch>:AVERage[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the averaging function (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Averaging ON { OFF 0 } : Averaging OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Average > Averaging

SENS:AVER:CLE

SENSe<Ch>:AVERage:CLEar

<i>Description</i>	Restarts the averaging process, when averaging function is set to ON (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Related Commands</i>	SENS:AVER
<i>Equivalent Softkeys</i>	None

SENS:AVER:COUN

SENSe<Ch>:AVERage:COUNT <numeric>

SENSe<Ch>:AVERage:COUNT?

<i>Description</i>	Sets or reads out the averaging factor, when the averaging function is set to ON (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the averaging factor from 1 to 999
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	10
<i>Related Commands</i>	SENS:AVER
<i>Equivalent Softkeys</i>	Average > Avg Factor

SENS:BAND

SENSe<Ch>:BANDwidth[:RESolution] <frequency>

SENSe<Ch>:BANDwidth[:RESolution]?

SENS:BWID

SENSe<Ch>:BWIDth[:RESolution] <frequency>

SENSe<Ch>:BWIDth[:RESolution]?

<i>Description</i>	Sets or reads out the IF bandwidth (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<frequency> the IF bandwidth value from 1 to 30000
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	10000
<i>Resolution</i>	In steps of 1, 1.5, 2, 3, 5, 7
<i>Equivalent Softkeys</i>	Average > IF Bandwidth

SENS:CORR:CLE

SENSe<Ch>:CORRection:CLEar

<i>Description</i>	Clears the calibration coefficient table (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	None

SENS:CORR:COEF

SENSe<Ch>:CORRection:COEFFicient[:DATA] {ER|ED|ES|ET|EX|EL},
<rcvport>,<srcport>,<numeric list>

SENSe<Ch>:CORRection:COEFFicient[:DATA]? {ER|ED|ES|ET|EX|EL},
<rcvport>,<srcport>

<i>Description</i>	Writes or reads out the calibration coefficient data array (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the calibration coefficients <numeric 2n> imaginary part of the calibration coefficients
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	Error term selection. "ER": Reflection tracking "ED": Directivity "ES": Source match "ET": Transmission tracking "EX": Isolation "EL": Load match <rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2 <numeric list>, calibration coefficient array When ES, ER, or ED is used, the numbers of the ports <rcvport> and <srcport> must be the same. When EL, ET, or EX is used, the numbers of the ports <rcvport> and <srcport> must be different.
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Notes</i>	The written calibration coefficients become effective only after the SENS:CORR:COEF:SAVE command is executed.
<i>Related Commands</i>	SENS:CORR:COEF:SAVE
<i>Equivalent Softkeys</i>	None

SENS:CORR:COEF:METH:ERES

SENSe<Ch>:CORRection:COEFficient:METHod:ERESponse <rcvport>,<srcport>

<i>Description</i>	Selects the ports and sets the <i>1-path 2-port calibration</i> type, when the written calibration coefficients are made effective by the SENS:CORR:COEF:SAVE command (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
<i>Related Commands</i>	SENS:CORR:COEF:SAVE
<i>Equivalent Softkeys</i>	None

SENS:CORR:COEF:METH:OPEN

SENSe<Ch>:CORRection:COEFficient:METHod[:RESPonse]:OPEN <port>

<i>Description</i>	Selects the port and sets the <i>response calibration (Open)</i> type, when the written calibration coefficients are made effective by the SENS:CORR:COEF:SAVE command (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2
<i>Out of Range</i>	An error occurs. Error code: 222.
<i>Related Commands</i>	SENS:CORR:COEF:SAVE
<i>Equivalent Softkeys</i>	None

SENS:CORR:COEF:METH:SHOR

SENSe<Ch>:CORRection:COEFFicient:METHod[:RESponse]:SHORT <port>

Description	Selects the port and sets the <i>response calibration (Short)</i> type, when the written calibration coefficients are made effective by the SENS:CORR:COEF:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<port> the number of the port from 1 to 2
Out of Range	An error occurs. Error code: 222.
Related Commands	SENS:CORR:COEF:SAVE
Equivalent Softkeys	None

SENS:CORR:COEF:METH:SOLT1

SENSe<Ch>:CORRection:COEFFicient:METHod:SOLT1 <port>

Description	Selects the port and sets the <i>full 1-port calibration</i> type, when the written calibration coefficients are made effective by the SENS:CORR:COEF:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<port> the number of the port from 1 to 2
Out of Range	An error occurs. Error code: 222.
Related Commands	SENS:CORR:COEF:SAVE
Equivalent Softkeys	None

SENS:CORR:COEF:METH:SOLT2

SENSe<Ch>:CORRection:COEFficient:METHod:SOLT2 <rcvport>,<srcport>

Description	Selects the ports and sets the <i>full 2-port calibration</i> type, when the written calibration coefficients are made effective by the SENS:CORR:COEF:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Related Commands	SENS:CORR:COEF:SAVE
Equivalent Softkeys	None

SENS:CORR:COEF:METH:THRU

SENSe<Ch>:CORRection:COEFficient:METHod[:RESPonse]:THRU <rcvport>,<srcport>

Description	Selects the ports and sets the <i>response calibration (Thru)</i> type, when the written calibration coefficients are made effective by the SENS:CORR:COEF:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220).
Related Commands	SENS:CORR:COEF:SAVE
Equivalent Softkeys	None

SENS:CORR:COEF:SAVE

SENSe<Ch>:CORRection:COEFFicient:SAVE

<i>Description</i>	Enables the written calibration coefficients depending on the selected calibration type. On completion of the command the error correction automatically turns ON. At the attempt to execute this command before all the needed calibration coefficients are written, an error occurs and the command is ignored (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Related Commands</i>	Calibration type selection: SENS:CORR:COEF:METH:ERES SENS:CORR:COEF:METH:OPEN SENS:CORR:COEF:METH:SHOR SENS:CORR:COEF:METH:THRU SENS:CORR:COEF:METH:SOLT1 SENS:CORR:COEF:METH:SOLT2 Calibration coefficient writing: SENS:CORR:COEF
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:CKIT

SENSe<Ch>:CORRection:COLLect:CKIT[:SElect] <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT[:SElect]?

<i>Description</i>	Sets or reads out the number of the selected calibration kit (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the number of the calibration kit from 1 to 11
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Calibration > Cal Kit > Cal Kit n

SENS:CORR:COLL:CKIT:LAB

SENSe<Ch>:CORRection:COLLect:CKIT:LABel <string>

SENSe<Ch>:CORRection:COLLect:CKIT:LABel?

<i>Description</i>	Sets or reads out the calibration kit label (command/query).
<i>Target</i>	Calibration kit, selected for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<string>, up to 254 characters
<i>Query Response</i>	<string>
<i>Preset Value</i>	Varies depending on the number of the calibration kit.
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Label

SENS:CORR:COLL:CKIT:ORD:LOAD

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:LOAD <port>,<numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:LOAD? <port>

<i>Description</i>	Sets or reads out the number of the calibration standard of the load type, used for the measurement of the specified port (command/query).
<i>Target</i>	Calibration kit, selected for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2 <numeric> the number of the standard from 1 to the number of standards in the calibration kit
<i>Out of Range</i>	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the load standard number, an error occurs (error code: 220).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Load n > Connection

SENS:CORR:COLL:CKIT:ORD:OPEN

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:OPEN <port>,<numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:OPEN? <port>

<i>Description</i>	Sets or reads out the number of the calibration standard of the open type, used for the measurement of the specified port (command/query).
<i>Target</i>	Calibration kit, selected for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2 <numeric> the number of the standard from 1 to the number of standards in the calibration kit
<i>Out of Range</i>	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the open standard number, an error occurs (error code: 220).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Open n > Connection

SENS:CORR:COLL:CKIT:ORD:SHOR

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:SHORt <port>,<numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:SHORt? <port>

<i>Description</i>	Sets or reads out the number of the calibration standard of the short type, used for the measurement of the specified port (command/query).
<i>Target</i>	Calibration kit, selected for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2 <numeric> the number of the standard from 1 to the number of standards in the calibration kit
<i>Out of Range</i>	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the short standard number, an error occurs (error code: 220).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Short n > Connection

SENS:CORR:COLL:CKIT:ORD:THRU

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:THRU <rcvport>,<srcport>,<numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:ORDer:THRU? <rcvport>,<srcport>

<i>Description</i>	Sets or reads out the number of the calibration standard of the thru type, used for the measurement between the <rcvport> and <srcport> ports (command/query).
<i>Target</i>	Calibration kit, selected for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2 <numeric> the number of the standard from 1 to the number of standards in the calibration kit
<i>Out of Range</i>	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222). If the specified standard number is not the thru standard number, an error occurs (error code: 220).
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Thru n > Connection

SENS:CORR:COLL:CKIT:RES

SENSe<Ch>:CORRection:COLLect:CKIT:RESet

<i>Description</i>	Resets the calibration kit to the factory settings (no query).
<i>Target</i>	Calibration kit, selected for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Calibration > Restore Cal Kit

SENS:CORR:COLL:CKIT:STAN:ARB

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:ARBitrary <impedance>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:ARBitrary?

<i>Description</i>	Sets or reads out the value of the arbitrary impedance for the load standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<impedance> the arbitrary impedance value from –1E18 to 1E18
<i>Unit</i>	Ω (Ohm)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	50 or 75, depending on the selected calibration kit
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Load n > Arb. Impedance

SENS:CORR:COLL:CKIT:STAN:C0

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C0 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C0?

<i>Description</i>	Sets or reads out the C0 value for the open calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the C0 value from –1E18 to 1E18
<i>Unit</i>	1E–15 F (Farad)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Open n > C0 10^{–15} F

SENS:CORR:COLL:CKIT:STAN:C1

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C1 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C1?

<i>Description</i>	Sets or reads out the C1 value for the open calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the C1 value from –1E18 to 1E18
<i>Unit</i>	1E–27 F/Hz (Farad/Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Open n > C1 10^{–27} F/Hz

SENS:CORR:COLL:CKIT:STAN:C2

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C2 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C2?

<i>Description</i>	Sets or reads out the C2 value for the open calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the C2 value from $-1\text{E}18$ to $1\text{E}18$
<i>Unit</i>	$1\text{E}-36 \text{ F/Hz}^2$ (Farad/Hertz ²)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Open n > C2 10^{-36} F/Hz^2

SENS:CORR:COLL:CKIT:STAN:C3

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C3 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:C3?

<i>Description</i>	Sets or reads out the C3 value for the open calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the C3 value from $-1\text{E}18$ to $1\text{E}18$
<i>Unit</i>	$1\text{E}-45 \text{ F/Hz}^3$ (Farad/Hertz ³)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Open n > C3 10^{-45} F/Hz^3

SENS:CORR:COLL:CKIT:STAN:DEL

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:DELaY <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:Delay?

<i>Description</i>	Sets or reads out the offset delay value for the calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the offset delay value form –1E18 to 1E18
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > { Open Short Load Thru } > Offset Delay

SENS:CORR:COLL:CKIT:STAN:L0

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L0 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L0?

<i>Description</i>	Sets or reads out the L0 value for the short calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the L0 value from –1E18 to 1E18
<i>Unit</i>	1E–12 H (Henry)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Short n > L0 10^{–12} H

SENS:CORR:COLL:CKIT:STAN:L1

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L1 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L1?

<i>Description</i>	Sets or reads out the L1 value for the short calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the L1 value from $-1\text{E}18$ to $1\text{E}18$
<i>Unit</i>	$1\text{E}-24$ H/Hz (Henry/Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Short n > L1 10^{-24} H/Hz

SENS:CORR:COLL:CKIT:STAN:L2

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L2 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L2?

<i>Description</i>	Sets or reads out the L2 value for the short calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the L2 value from $-1\text{E}18$ to $1\text{E}18$
<i>Unit</i>	$1\text{E}-33$ H/Hz ² (Henry/Hertz ²)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Short n > L2 10^{-33} H/Hz²

SENS:CORR:COLL:CKIT:STAN:L3

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L3 <numeric>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:L3?

<i>Description</i>	Sets or reads out the L3 value for the short calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 ... N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<numeric> the L3 value from $-1\text{E}18$ to $1\text{E}18$
<i>Unit</i>	$1\text{E}-42 \text{ H/Hz}^3$ (Henry/Hertz ³)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > Short n > L3 10^{-42} H/Hz^3

SENS:CORR:COLL:CKIT:STAN:LAB

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:LABel <string>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:LABel?

<i>Description</i>	Sets or reads out the label for the calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 ... N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<string>, up to 254 characters
<i>Query Response</i>	<string>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > { Open Short Load Thru } > Label

SENS:CORR:COLL:CKIT:STAN:LOSS

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:LOSS <loss>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:LOSS?

<i>Description</i>	Sets or reads out the offset loss value for the calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<loss> the offset loss value from –1E18 to 1E18
<i>Unit</i>	Ω/s (Ohm/second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > { Open Short Load Thru } > Offset Loss

SENS:CORR:COLL:CKIT:STAN:TYPE

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:TYPE {OPEN|SHORT|LOAD|THRU|NONE}

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:TYPE?

<i>Description</i>	Sets or reads out the type of calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	"OPEN" : Open "SHORT" : Short "LOAD" : Load "THRU" : Thru "NONE" : Not defined
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 216.
<i>Query Response</i>	{ OPEN SHOR LOAD THRU NONE }
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > { Open Short Load Thru } > STD Type

SENS:CORR:COLL:CKIT:STAN:Z0

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:Z0 <impedance>

SENSe<Ch>:CORRection:COLLect:CKIT:STAN<Std>:Z0?

<i>Description</i>	Sets or reads out the offset Z0 value for the calibration standard (command/query).
<i>Target</i>	Standard <Std> of the calibration kit specified for channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Std>={ [1] 2 . . . N }, where N – the number of the standards in the calibration kit
<i>Parameter</i>	<impedance> the offset Z0 value from –1E18 to 1E18
<i>Unit</i>	Ω (Ohm)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	50 or 75, depending on the selected calibration kit
<i>Equivalent Softkeys</i>	Calibration > Edit Cal Kit > { Open Short Load Thru } > Offset Z0

SENS:CORR:COLL:CLE

SENSe<Ch>:CORRection:COLLect:CLEar

<i>Description</i>	Clears the measurement values of the calibration standards (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Calibration > Calibrate > { Response (Open) Response (Short) Response (Thru) One Path 2–Port Cal Full 1–Port Cal Full 2–Port Cal } > Cancel > OK

SENS:CORR:COLL:ECAL:INF?

SENSe:CORRection:COLLect:ECAL:INFormation?

<i>Description</i>	Gets information of the AutoCal Module connected to the Network Analyzer (query only).
<i>Target</i>	AutoCal Module
<i>Query Response</i>	The query returns information in a string with comma separated fields. Autocal Module Information: - Model Name, - Serial Number, - Current Temperature of AutoCal Module, Selected Characterization Information: - Characterization Name, - Characterization Date and Time, - Min Frequency, - Max Frequency, - Number of Points, - Characterization Temperature, - PortA Connector, - PortB Connector, - PortA Adapter, - PortB Adapter, - Analyzer, - Location, - Operator.
<i>Equivalent Softkeys</i>	Calibration > AutoCal > Characterization Info...

SENS:CORR:COLL:ECAL:ORI:STAT

SENSe:CORRection:COLLect:ECAL:ORientation:STATe {ON|OFF|1|0}

SENSe:CORRection:COLLect:ECAL:ORientation:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the Auto-Orientation function used when executing AutoCal (command/query).
<i>Target</i>	AutoCal
<i>Parameter</i>	{ON 1} : Auto-Orientation function ON {OFF 0} : Auto-Orientation function OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > AutoCal > Orientation > Auto-Orientation

SENS:CORR:COLL:ECAL:PATH

SENSe:CORRection:COLLect:ECAL:PATH <numeric1>,<numeric2>

SENSe:CORRection:COLLect:ECAL:PATH? <numeric1>

<i>Description</i>	Sets or reads out the AutoCal module port number which is connected to a specified port of Network Analyzer (command/query).
<i>Target</i>	AutoCal
<i>Parameter</i>	<numeric1> : Network Analyzer Port Number, <numeric2> : AutoCal Module Port Number, 1: Port A of AutoCal Module 2: Port B of AutoCal Module
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Calibration > AutoCal > Orientation > Port 1 Port 2

SENS:CORR:COLL:ECAL:SOLT1

SENSe<Ch>:CORRection:COLLect:ECAL:SOLT1 <port>

<i>Description</i>	Executes 1-port calibration of the specified port of specified channel (Ch) using the AutoCal module (command only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> : Port Number
<i>Equivalent Softkeys</i>	Calibration > AutoCal > 1-Port AutoCal > Port 1 Port 2

SENS:CORR:COLL:ECAL:SOLT2

SENSe<Ch>:CORRection:COLLect:ECAL:SOLT2 <port1>,<port2>

<i>Description</i>	Executes full 2-port calibration between the specified 2 ports of specified channel (Ch) using the AutoCal module (command only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port1> : Port Number <port2> : Port Number
<i>Equivalent Softkeys</i>	Calibration > AutoCal > 2-Port AutoCal

SENS:CORR:COLL:ECAL:UCH

SENSe:CORRection:COLLect:ECAL:UChar {CHAR0|CHAR1|CHAR2|CHAR3}

SENSe:CORRection:COLLect:ECAL:UChar?

<i>Description</i>	Sets or reads out the Characteristic used when executing AutoCal (factory or user characterization). (command/query).
<i>Target</i>	AutoCal
<i>Parameter</i>	"CHAR0" : factory characterization "CHAR1" : user characterization 1 "CHAR2" : user characterization 2 "CHAR3" : user characterization 3
<i>Query Response</i>	{CHAR0 CHAR1 CHAR2 CHAR3}
<i>Preset Value</i>	CHAR0
<i>Equivalent Softkeys</i>	Calibration > AutoCal > Characterization

SENS:CORR:COLL:ECAL:UTHR:STAT

SENSe:CORRection:COLLect:ECAL:UTHRu:STATe {ON|OFF|1|0}

SENSe:CORRection:COLLect:ECAL:UTHRu:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the Unknown Thru feature used when executing AutoCal (command/query).
<i>Target</i>	AutoCal
<i>Parameter</i>	{ON 1} : Unknown Thru feature ON {OFF 0} : Unknown Thru feature OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	0
<i>Note</i>	A338 only
<i>Equivalent Softkeys</i>	Calibration > AutoCal > Unkn Thru

SENS:CORR:COLL:DATA:ISOL

SENSe<Ch>:CORRection:COLLect:DATA:ISOLation <rcvport>,<srcport>,<numeric list>

SENSe<Ch>:CORRection:COLLect:DATA:ISOLation? <rcvport>,<srcport>

<i>Description</i>	Writes or reads out the array of the isolation calibration measurements performed between the receiver port <rcvport> and the source port <srcport> (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the measurement <numeric 2n> imaginary part of the measurement
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2 <numeric list> the isolation measurement data array
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Related Commands</i>	SENS:CORR:COLL:ISOL
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:DATA:LOAD

SENSe<Ch>:CORRection:COLLect:DATA:LOAD <port>,<numeric list>

SENSe<Ch>:CORRection:COLLect:DATA:LOAD? <port>

<i>Description</i>	Writes or reads out the array of the <i>load</i> calibration standard measurements for the port <port> (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the measurement <numeric 2n> imaginary part of the measurement
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2 <numeric list> the data array of the <i>load</i> standard measurement
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Related Commands</i>	SENS:CORR:COLL:LOAD
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:DATA:OPEN

SENSe<Ch>:CORRection:COLLect:DATA:OPEN <port>,<numeric list>

SENSe<Ch>:CORRection:COLLect:DATA:OPEN? <port>

<i>Description</i>	Writes or reads out the array of the <i>open</i> calibration standard measurements for the port <port> (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the measurement <numeric 2n> imaginary part of the measurement
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2 <numeric list> the data array of the <i>open</i> standard measurement
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Related Commands</i>	SENS:CORR:COLL:OPEN
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:DATA: SHOR

SENSe<Ch>:CORRection:COLLect:DATA:SHORt <port>,<numeric list>

SENSe<Ch>:CORRection:COLLect:DATA: SHORt? <port>

<i>Description</i>	Writes or reads out the array of the <i>short</i> calibration standard measurements for the port <port> (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the measurement <numeric 2n> imaginary part of the measurement
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2 <numeric list> the data array of the <i>short</i> standard measurement
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Related Commands</i>	SENS:CORR:COLL:SHOR
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:DATA:THRU:MATC

SENSe<Ch>:CORRection:COLLect:DATA:THRU:MATCh <rcvport>,<srcport>,<numeric list>

SENSe<Ch>:CORRection:COLLect:DATA:THRU:MATCh? <rcvport>,<srcport>

<i>Description</i>	Writes or reads out the array of the reflection measurements of the <i>thru</i> standard connected between the receiver port <rcvport> and the source port <srcport> (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the measurement <numeric 2n> imaginary part of the measurement
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2 <numeric list> the data array of the reflection measurements using the <i>thru</i> standard
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Related Commands</i>	SENS:CORR:COLL:THRU
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:DATA:THRU:TRAN

SENSe<Ch>:CORRection:COLLect:DATA:THRU:TRANsmission <rcvport>,
<srcport>,<numeric list>

SENSe<Ch>:CORRection:COLLect:DATA:THRU:TRANsmission? <rcvport>,
<srcport>

<i>Description</i>	Writes or reads out the array of the transmission measurements performed between the receiver port <rcvport> and the source port <srcport> using the <i>thru</i> standard (command/query). The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 2n–1> real part of the measurement <numeric 2n> imaginary part of the measurement
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2 <numeric list> the data array of the transmission measurements using the <i>thru</i> standard
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 2N>
<i>Related Commands</i>	SENS:CORR:COLL:THRU
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:ISOL

SENSe<Ch>:CORRection:COLLect[:ACQuire]:ISOLation <rcvport>,<srcport>

<i>Description</i>	Measures the isolation calibration data between the receiver port <rcvport> and the source port <srcport> (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Response (Thru) > Isolation (Optional) Calibration > Calibrate > One Path 2–Port Cal > Isolation (Optional) Calibration > Calibrate > Full 2–Port Cal > Isolation (Optional)

SENS:CORR:COLL:LOAD

SENSe<Ch>:CORRection:COLLect[:ACQuire]:LOAD <port>

Description	Measures the calibration data of the <i>load</i> standard for the specified port (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<port> the number of the port from 1 to 2
Out of Range	Error occurs. The command is ignored. Error code: 222.
Notes	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
Equivalent Softkeys	Calibration > Calibrate > Response (Open) > Load (Optional) Calibration > Calibrate > Response (Short) > Load (Optional) Calibration > Calibrate > Full 1–Port Cal > Load Calibration > Calibrate > One Path 2–Port Cal > Load Calibration > Calibrate > Full 2–Port Cal > Port n Load

SENS:CORR:COLL:METH:ERES

SENSe<Ch>:CORRection:COLLect:METHod:ERESponse <rcvport>,<srcport>

<i>Description</i>	Selects the ports and sets the <i>one path 2-port calibration</i> type for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
<i>Related Commands</i>	SENS:CORR:COLL:SAVE
<i>Equivalent Softkeys</i>	Calibration > Calibrate > One Path 2-Port Cal > Select Port

SENS:CORR:COLL:METH:OPEN

SENSe<Ch>:CORRection:COLLect:METHod[:RESponse]:OPEN <port>

<i>Description</i>	Selects the port and sets the <i>response calibration (Open)</i> type for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Related Commands</i>	SENS:CORR:COLL:SAVE
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Response (Open) > Select Port

SENS:CORR:COLL:METH: SHOR

SENSe<Ch>:CORRection:COLLect:METHod[:RESponse]:SHORT <port>

<i>Description</i>	Selects the port and sets the <i>response calibration (Short)</i> type for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Related Commands</i>	SENS:CORR:COLL:SAVE
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Response (Short) > Select Port

SENS:CORR:COLL:METH:SOLT1

SENSe<Ch>:CORRection:COLLect:METHod:SOLT1 <port>

<i>Description</i>	Selects the port and sets the <i>full 1-port calibration</i> type for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Related Commands</i>	SENS:CORR:COLL:SAVE
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Full 1-Port Cal > Select Port

SENS:CORR:COLL:METH:SOLT2

SENSe<Ch>:CORRection:COLLect:METHod:SOLT2 <rcvport>,<srcport>

Description	Selects the ports and sets the <i>full 2-port calibration</i> type for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
Related Commands	SENS:CORR:COLL:SAVE
Equivalent Softkeys	Calibration > Calibrate > Full 2-Port Cal

SENS:CORR:COLL:METH:THRU

SENSe<Ch>:CORRection:COLLect:METHod[:RESPonse]:THRU <rcvport>,<srcport>

Description	Selects the ports and sets the <i>response calibration (Thru)</i> type for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
Related Commands	SENS:CORR:COLL:SAVE
Equivalent Softkeys	Calibration > Calibrate > Response (Thru) > Select Port

SENS:CORR:COLL:METH:TYPE?

SENSe<Ch>:CORRection:COLLect:METHod:TYPE?

<i>Description</i>	Reads out the calibration type selected for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:COLL:SAVE command (query only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	"RESPO" : Response (Open) "RESPS" : Response (Short) "RESPT" : Response (Thru) "SOLT1" : Full 1–port calibration "SOLT2" : Full 2–port calibration "1PATH" : One path 2–port calibration "NONE" : Not defined
<i>Equivalent Softkeys</i>	None

SENS:CORR:COLL:OPEN

SENSe<Ch>:CORRection:COLLect[:ACQuire]:OPEN <port>

<i>Description</i>	Measures the calibration data of the <i>open</i> standard for the specified port (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Response (Open) > Open Calibration > Calibrate > Full 1–Port Cal > Open Calibration > Calibrate > One Path 2–Port Cal > Open Calibration > Calibrate > Full 2–Port Cal > Port n Open

SENS:CORR:COLL:SAVE

SENSe<Ch>:CORRection:COLLect:SAVE

<i>Description</i>	Calculates the calibration coefficients from the calibration standards measurements depending on the selected calibration type. On completion of the command, all the calibration standards measurements are cleared and the error correction automatically turns ON. At the attempt to execute this command before all the needed standards are measured, an error occurs and the command is ignored (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Related Commands</i>	Calibration type selection: SENS:CORR:COLL:METH:OPEN SENS:CORR:COLL:METH:SHOR SENS:CORR:COLL:METH:THRU SENS:CORR:COLL:METH:ERES SENS:CORR:COLL:METH:SOLT1 SENS:CORR:COLL:METH:SOLT2 Calibration standards measurement: SENS:CORR:COLL:ISOL SENS:CORR:COLL:LOAD SENS:CORR:COLL:OPEN SENS:CORR:COLL:SHOR SENS:CORR:COLL:THRU
<i>Equivalent Softkeys</i>	Calibration > Calibrate > { Response (Open) Response (Short) Response (Thru) One Path 2–Port Cal Full 1–Port Cal Full 2–Port Cal } > Apply

SENS:CORR:COLL:SHOR

SENSe<Ch>:CORRection:COLLect[:ACQuire]:SHORt <port>

<i>Description</i>	Measures the calibration data of the <i>short</i> standard for the specified port (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<port> the number of the port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Response (Short) > Short Calibration > Calibrate > Full 1–Port Cal > Short Calibration > Calibrate > One Path 2–Port Cal > Short Calibration > Calibrate > Full 2–Port Cal > Port n Short

SENS:CORR:COLL:THRU

SENSe<Ch>:CORRection:COLLect[:ACQuire]:THRU <rcvport>,<srcport>

<i>Description</i>	Measures the calibration data of the <i>thru</i> standard between the receiver port <rcvport> and the source port <srcport> (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Calibrate > Response (Thru) > Thru Calibration > Calibrate > One Path 2–Port Cal > Thru Calibration > Calibrate > Full 2–Port Cal > Port 1–2 Thru

SENS:CORR:EXT

SENSe<Ch>:CORRection:EXTension[:STATe] {ON|OFF|1|0}

SENSe<Ch>:CORRection:EXTension[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the port extension function (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Port extension function ON { OFF 0 } : Port extension function OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Port Extensions > Extension

SENS:CORR:EXT:PORT:FREQ

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:FREQuency{ [1] | 2 } <frequency>

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:FREQuency{ [1] | 2 }?

<i>Description</i>	Sets or reads out the values of the frequency 1 and frequency 2 to calculate the loss for the port extension function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<frequency> the frequency value from 3E5 to 3.2E9 (A333), from 3E5 to 8.0E9 (A338)
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1E9
<i>Equivalent Softkeys</i>	Calibration > Port Extensions > Loss > { Freq1 Freq2 }

SENS:CORR:EXT:PORT:INCL

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:INCLude{[1]|2}[[:STATe]
{ON|OFF|1|0}

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:INCLude{[1]|2}[[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the compensation of the loss 1 and loss 2 for the port extension function (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Loss compensation ON { OFF 0 } : Loss compensation OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Port Extensions > Loss > { Loss1 Loss2 }

SENS:CORR:EXT:PORT:LDC

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:LDC <loss>

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:LDC?

<i>Description</i>	Sets or reads out the loss value at DC for the port extension function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<loss> the loss value from –200 to 200
<i>Unit</i>	dB (decibel)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Port Extensions > Loss > Loss at DC

SENS:CORR:EXT:PORT:LOSS

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:LOSS{ [1] | 2 } <loss>

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:LOSS{ [1] | 2 }?

<i>Description</i>	Sets or reads out the values of the loss 1 and loss 2 for the port extension function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<loss> the loss value from –200 to 200
<i>Unit</i>	dB (decibel)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Port Extensions > Loss > { Loss1 Loss2 }

SENS:CORR:EXT:PORT:TIME

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:TIME <time>

SENSe<Ch>:CORRection:EXTension:PORT<Pt>:TIME?

<i>Description</i>	Sets or reads out the electrical delay value for the port extension function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<time> the electrical delay value from –10 to 10
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Port Extensions > { Extension Port1 Extension Port2 }

SENS:CORR:IMP

SENSe:CORRection:IMPedance[:INPut][:MAGNitude] <impedance>

SENSe:CORRection:IMPedance[:INPut][:MAGNitude]?

<i>Description</i>	Sets or reads out the system impedance Z0 (command/query)
<i>Parameter</i>	<impedance> the Z0 value from 0.001 to 1000
<i>Unit</i>	Ω (Ohm)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	50
<i>Equivalent Softkeys</i>	Calibration > System Z0

SENS:CORR:COLL:OFFS:CLE

SENSe<Ch>:CORRection:COLLect:OFFSet:CLEar

<i>Description</i>	Clears the scalar mixer calibration coefficient table (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	None

SENS:CORR:OFFS:COLL:CLE

SENSe<Ch>:CORRection:OFFSet:COLLect:CLEar

<i>Description</i>	Clears the calibration measurement data of scalar mixer calibration when the frequency offset feature is ON (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Cancel

SENS:CORR:OFFS:COLL:LOAD

SENSe<Ch>:CORRection:OFFSet:COLLect[:ACQuire]:LOAD <numeric1>,
<numeric2>

<i>Description</i>	Measures the calibration data of the load standard of the specified port when the frequency offset feature is on for scalar mixer calibration (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric1> Measurement port number <numeric2> Frequency port number.
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222).
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Load

SENS:CORR:OFFS:COLL:METH:SMIX2

SENSe<Ch>:CORRection:OFFSet:COLLect:METHod:SMIX2 <numeric1>,
<numeric2>

Description	Selects the ports and sets the <i>scalar mixer calibration</i> type when the frequency offset feature is on for the calculation of the calibration coefficients on completion of the calibration executed by the SENS:CORR:OFFS:COLL:SAVE command (no query).
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Parameter	<numeric1> Port number 1; <numeric2> Port number 2.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
Equivalent Softkeys	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration

SENS:CORR:OFFS:COLL:OPEN

SENSe<Ch>:CORRection:OFFSet:COLLect[:ACQuire]:OPEN <numeric1>,
<numeric2>

<i>Description</i>	Measures the calibration data of the open standard of the specified port when the frequency offset feature is on for scalar mixer calibration (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric1> Measurement port number <numeric2> Frequency port number.
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222).
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Open

SENS:CORR:OFFS:COLL:PMETer

SENSe<Ch>:CORRection:OFFSet:COLLect[:ACQuire]:PMETer <numeric1>,
<numeric2>,<numeric3>

<i>Description</i>	Measures the scalar-mixer calibration data using the power meter when the frequency offset feature is ON (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric1> Measurement port number <numeric2> Frequency port number. <numeric3> Reserved.
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222).
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Power > Port n @Freq m

SENS:CORR:OFFS:COLL:SHOR

SENSe<Ch>:CORRection:OFFSet:COLLect[:ACQuire]:SHORt <numeric1>,
<numeric2>

<i>Description</i>	Measures the calibration data of the short standard of the specified port when the frequency offset feature is on for scalar mixer calibration (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric1> Measurement port number <numeric2> Frequency port number.
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222).
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Short

SENS:CORR:OFFS:COLL:THRU

SENSe<Ch>:CORRection:OFFSet:COLLect[:ACQuire]:THRU <numeric1>,
<numeric2>

<i>Description</i>	Measures the calibration data of the thru standard of the specified port when the frequency offset feature is on for scalar mixer calibration (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric1> Response port number; <numeric2> Stimulus port number.
<i>Out of Range</i>	If an incorrect port number is specified, an error occurs (error code: 222). If the same port numbers are specified, an error occurs (error code: 220). The command is ignored.
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Thru

SENS:CORR:OFFS:COLL:SAVE

SENSe<Ch>:CORRection:OFFSet:COLLect:SAVE

<i>Description</i>	Calculates the calibration coefficient for the selected calibration type (scalar mixer calibration only) from the calibration data measured with the frequency offset feature is ON. If this command is executed before all necessary calibration data for calculating the calibration coefficient is measured, an error occurs when executed (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Related Commands</i>	SCPI.SENSE(<i>Ch</i>).CORRection.OFFSet.COLLect.METHod.SMIX2 SCPI.SENSE(<i>Ch</i>).CORRection.OFFSet.COLLect.ACQuire.LOAD SCPI.SENSE(<i>Ch</i>).CORRection.OFFSet.COLLect.ACQuire.OPEN SCPI.SENSE(<i>Ch</i>).CORRection.OFFSet.COLLect.ACQuire.SHORT SCPI.SENSE(<i>Ch</i>).CORRection.OFFSet.COLLect.ACQuire.THROUGH SCPI.SENSE(<i>Ch</i>).CORRection.OFFSet.COLLect.ACQuire.PMETER
<i>Equivalent Softkeys</i>	Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Apply

SENS:CORR:REC

SENSe<Ch>:CORRection:RECEiver<Pt>[:STATe] {ON|OFF|1|0}

SENSe<Ch>:CORRection:RECEiver<Pt>[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the receiver correction for the specified port (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	{ ON 1 } : Receiver correction ON { OFF 0 } : Receiver correction OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Receiver Calibration > Correction

SENS:CORR:REC:COLL:ACQ

SENSe<Ch>:CORRection:RECEiver<Pt>:COLLect:ACQuire <srcport>

<i>Description</i>	Executes the receiver calibration for the specified port <Pt>, using the specified source port <srcport> (no query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<srcport>, the number of the source port from 1 to 2
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 222.
<i>Notes</i>	The command start the measurement for the channel independently of the trigger and trigger source settings. The command waits for the completion of the measurement.
<i>Equivalent Softkeys</i>	Calibration > Receiver Calibration > Take Cal Sweep

SENS:CORR:STAT

SENSe<Ch>:CORRection:STATe {ON|OFF|1|0}

SENSe<Ch>:CORRection:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the error correction (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Error correction ON { OFF 0 } : Error correction OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Correction

SENS:CORR:TYPE?

SENSe<Ch>:CORRection:TYPE<Tr>?

<i>Description</i>	Reads out the applied calibration type and the port numbers for the specified trace (query only).
<i>Target</i>	Trace <Tr> of channel <Ch>, <Tr>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	{ RESPO RESPS RESPT SOLT1 SOLT2 1PATH NONE }, <srcport> , <rcvport> Where: "RESPO" : Response (Open) "RESPS" : Response (Short) "RESPT" : Response (Thru) "SOLT1" : Full 1–port calibration "SOLT2" : Full 2–port calibration "1PATH" : One path 2–port calibration "NONE" : Not defined <rcvport>, the number of the receiver port from 1 to 2 <srcport>, the number of the source port from 1 to 2
<i>Equivalent Softkeys</i>	None

SENSe:FREQ

SENSe<Ch>:FREQuency[:CW] <frequency>

SENSe<Ch>:FREQuency[:FIXed] <frequency>

SENSe<Ch>:FREQuency[:CW] ?

SENSe<Ch>:FREQuency[:FIXed] ?

<i>Description</i>	Sets or reads out the fixed frequency for the power sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<frequency> the CW frequency value from 3E5 to 3.2E9 (A333), from 3E5 to 8.0E9 (A338)
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	3E5
<i>Equivalent Softkeys</i>	Stimulus > Power > CW Freq

SENS:FREQ:DATA?

SENSe<Ch>:FREQuency:DATA?

<i>Description</i>	Reads out the array of the measurement points frequency (query only). The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric n> the frequency value at the n–th measurement point
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	FORM:DATA
<i>Equivalent Softkeys</i>	None

SENS:FREQ:CEN

SENSe<Ch>:FREQuency:CENter <frequency>

SENSe<Ch>:FREQuency:CENter?

<i>Description</i>	Sets or reads out the stimulus center value of the sweep range for linear or logarithmic sweep type (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<frequency> the stimulus center value from 3E5 to 3.2E9 (A333), from 3E5 to 8.0E9 (A338)
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1.60015E9 (A333), 4.00015E9 (A338)
<i>Equivalent Softkeys</i>	Stimulus > Center

SENS:FREQ:SPAN

SENSe<Ch>:FREQuency:SPAN <frequency>

SENSe<Ch>:FREQuency:SPAN?

<i>Description</i>	Sets or reads out the stimulus span value of the sweep range for linear or logarithmic sweep type (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<frequency> the stimulus span value from from 0 to 3.19997E9 (A333), from 0 to 7.9997E9 (A338)
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	7.9997E9 (A338) 3.1997E9 (A333)
<i>Equivalent Softkeys</i>	Stimulus > Span

SENS:FREQ:STAR

SENSe<Ch>:FREQuency:STARt <frequency>

SENSe<Ch>:FREQuency:STARt?

<i>Description</i>	Sets or reads out the stimulus start value of the sweep range for linear or logarithmic sweep type (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<frequency> the stimulus start value from 3E5 to 3.2E9 (A333), from 3E5 to 8.0E9 (A338)
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	3E5
<i>Equivalent Softkeys</i>	Stimulus > Start

SENS:FREQ: STOP

SENSe<Ch>:FREQuency:STOP <frequency>

SENSe<Ch>:FREQuency:STOP?

<i>Description</i>	Sets or reads out the stimulus stop value of the sweep range for linear or logarithmic sweep type (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<frequency> the stimulus stop value from 3E5 to 3.2E9 (A333), from 3E5 to 8.0E9 (A338)
<i>Unit</i>	Hz (Hertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	3.2E9 (A333) 8.0E9 (A338)
<i>Equivalent Softkeys</i>	Stimulus > Stop

SENS:OFFS

SENSe<Ch>:OFFSet[:STATe] {ON|OFF|1|0}

SENSe<Ch>:OFFSet[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the frequency offset feature (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : frequency offset ON { OFF 0 } : frequency offset OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Frequency Offset

SENS:OFFS:ADJ

SENSe<Ch>:OFFSet:ADJust[:STATe] {ON|OFF|1|0}

SENSe<Ch>:OFFSet:ADJust[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the frequency offset adjust feature (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : frequency offset adjust ON { OFF 0 } : frequency offset adjust OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Offset Adjust > Offset Adjust

SENS:OFFS:ADJ:CONT

SENSe<Ch>:OFFSet:ADJust:CONTinuous[:STATe] {ON|OFF|1|0}

SENSe<Ch>:OFFSet:ADJust:CONTinuous[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the continuous frequency offset adjust feature (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : continuous frequency offset adjust ON { OFF 0 } : continuous frequency offset adjust OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Offset Adjust > Continuous Adjust

SENS:OFFS:ADJ:CONT:PER

SENSe<Ch>:OFFSet:ADJust:CONTinuous:PERiod <numeric>

SENSe<Ch>:OFFSet:ADJust:CONTinuous:PERiod?

<i>Description</i>	Sets or reads out the period for continuous offset adjust feature (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the period for continuous offset adjust feature: 1 – 3 sec; 2 – 10 sec; 3 – 30 sec.
<i>Unit</i>	n/a
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	2
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Offset Adjust > Adjust Period

SENS:OFFS:ADJ:EXEC

SENSe<Ch>:OFFSet:ADJust:EXECute

<i>Description</i>	Executes the offset adjust when the frequency offset feature is ON (no query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Offset Adjust > Adjust Immediate

SENS:OFFS:ADJ:PORT

SENSe<Ch>:OFFSet:ADJust:PORT <numeric>

SENSe<Ch>:OFFSet:ADJust:PORT?

<i>Description</i>	Sets or reads out the port number for frequency offset adjust feature (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> port number 1 to 2;
<i>Unit</i>	n/a
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Offset Adjust > Select Port

SENS:OFFS:ADJ:VAL

SENSe<Ch>:OFFSet:ADJust:VALue <hertz>

SENSe<Ch>:OFFSet:ADJust:VALue?

<i>Description</i>	Sets or reads out the frequency offset adjust value of the offset adjust feature (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<hertz> adjust value of the offset adjust feature from –5E5 to 5E5;
<i>Unit</i>	Hz
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Offset Adjust > Adjust Value

SENS:OFFS:PORT:DATA?

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:DATA?

<i>Description</i>	Reads out the array of the measurement points frequency when the frequency offset feature is ON (query only). The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric n> the frequency value at the n–th measurement point
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric N> The data transfer format depends on the FORM:DATA command setting.
<i>Related Commands</i>	FORM:DATA
<i>Equivalent Softkeys</i>	None

SENS:OFFS:PORT:DIV

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:DIVisor <numeric>

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:DIVisor?

<i>Description</i>	Sets or reads out the basic frequency range divisor when the frequency offset feature is ON (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<numeric> divisor from 1 to 100;
<i>Unit</i>	n/a
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Port n > Divider

SENS:OFFS:PORT:MULT

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:MULTiplier <numeric>

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:MULTiplier?

<i>Description</i>	Sets or reads out the basic frequency range multiplier when the frequency offset feature is ON (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<numeric> multiplier from –100 to 100;
<i>Unit</i>	n/a
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Port n > Multiplier

SENS:OFFS:PORT:OFFS

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:OFFSet <hertz>

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:OFFSet?

<i>Description</i>	Sets or reads out the basic frequency range offset when the frequency offset feature is ON (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	<hertz> offset from -1e12 to 1e12;
<i>Unit</i>	Hz
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Port n > Offset

SENS:OFFS:PORT:STAR?

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:STARt?

<i>Description</i>	Reads out the frequency sweep start when the frequency offset feature is ON (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Unit</i>	Hz
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Port n > Start

SENS:OFFS:PORT:STOP?

SENSe<Ch>:OFFSet:PORT<Pt>[:FREQuency]:STOP?

<i>Description</i>	Reads out the frequency sweep stop when the frequency offset feature is ON (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Unit</i>	Hz
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	Stimulus > Frequency Offset > Port n > Stop

SENS:ROSC:SOUR

SENSe<Ch>:ROSCillator:SOURce {INTernal|EXTernal}

SENSe<Ch>:ROSCillator:SOURce?

<i>Description</i>	Sets or reads out the internal or external source of the reference frequency of 10 MHz (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"INTernal" : Internal source of the reference frequency "EXTernal" : External source of the reference frequency
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 224.
<i>Query Response</i>	{ INT EXT }
<i>Preset Value</i>	INT
<i>Equivalent Softkeys</i>	System > Misc Setup > Ref Source

SENS:SEGM:DATA

SENSe<Ch>:SEGMENT:DATA {INTernal|EXTernal}

SENSe<Ch>:SEGMENT:DATA?

Description	Sets or reads out the array of the segment sweep table (command/query). The array has the following format: <pre>{ <Buf>, <Flag1>, <Flag2>, <Flag3>, <Flag4>, <Flag5>, <N>, <Start 1>, <Stop 1>, <NOP 1> [, <IFBW 1>] [, <Pow 1>] [, <Del 1>] [, <Time 1>], <Start 2>, <Stop 2>, <NOP 2> [, <IFBW 2>] [, <Pow 2>] [, <Del 2>] [, <Time 2>], ... <Start N>, <Stop N>, <NOP N> [, <IFBW N>] [, <Pow N>] [, <Del N>] [, <Time N>] }</pre> <Buf> : Always 5, <Flag1> : Stimulus start setting (0 – start/stop, 1 – center/span), <Flag2> : Setting of the <IFBW> field (0 – disabled, 1 – enabled), <Flag3> : Setting of the <Pow> field (0 – disabled, 1 – enabled), <Flag4> : Setting of the field (0 – disabled, 1 – enabled), <Flag5> : Setting of the <Time> field (0 – disabled, 1 – enabled), <N> : Number of segments, <Start n> : Start value of the n–th segment, <Stop n> : Stop value of the n–th segment, <NOP n> : Number of points of the n–th segment, <IFBW n> : IF bandwidth of the n–th segment (if enabled), <Pow n> : Power of the n–th segment (if enabled), <Del n> : Measurement delay of the n–th segment (if enabled), <Time n> : Reserved for future use (if enabled)
Target	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
Query Response	<numeric 1>,<numeric 2>,...<numeric 7+M×N> Where, N – the number of the segments, M – depends on the values of the flags $M = 3 + \text{<Flag2>} + \text{<Flag3>} + \text{<Flag4>} + \text{<Flag5>}$
Equivalent Softkeys	Stimulus / Segment Table

SENS:SWE:POIN

SENSe<Ch>:SWEep:POINts <numeric>

SENSe<Ch>:SWEep:POINts?

<i>Description</i>	Sets or reads out the number of measurement points (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> the number of measurement points from 2 to 500001 (A338), from 2 to 200001 (A333)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	201
<i>Equivalent Softkeys</i>	Stimulus > Points

SENSe:SWE:POIN:TIME

SENSe<Ch>:SWEep:POINt:TIME <time>

SENSe<Ch>:SWEep:POINt:TIME?

<i>Description</i>	Sets or reads out the delay before measurement in each measurement point (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<time> the measurement delay value from 0 to 0.3
<i>Resolution</i>	5E-6
<i>Unit</i>	s (second)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Meas Delay

SENS:SWE:TYPE

SENSe<Ch>:SWEep:TYPE {LINear|LOGarithmic|SEGMENT|POWer}

SENSe<Ch>:SWEep:TYPE?

<i>Description</i>	Sets or reads out the sweep type (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	"LINear" : Linear frequency sweep "LOGarithmic" : Logarithmic frequency sweep "SEGMENT" : Segment frequency sweep "POWer " : Power sweep
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 206.
<i>Query Response</i>	{ LIN LOG SEGM POW }
<i>Preset Value</i>	LIN
<i>Equivalent Softkeys</i>	Stimulus > Sweep Type

SERV:CHAN:ACT?

SERVice:CHANnel:ACTive?

<i>Description</i>	Reads out the active channel number (query only).
<i>Query Response</i>	<numeric> from 1 to 16
<i>Equivalent Softkeys</i>	None

SERV:CHAN:COUN?

SERvice:CHANnel:COUNT?

<i>Description</i>	Reads out the maximum number of the channels (query only).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SERV:CHAN:TRAC:ACT?

SERvice:CHANnel<Ch>:TRACe:ACTive?

<i>Description</i>	Read out the active trace number of the channel (query only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric> from 1 to 16
<i>Equivalent Softkeys</i>	None

SERV:CHAN:TRAC:COUN?

SERvice:CHANnel:TRACe:COUNT?

<i>Description</i>	Reads out the maximum number of the traces in the channel (query only).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SERV:PORT:COUN?

SERvice:PORT:COUNT?

<i>Description</i>	Reads out the number of the ports (query only).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SERV:SWE:FREQ:MAX?

SERVICE:SWEep:FREQuency:MAXimum?

<i>Description</i>	Reads out the upper limit of the measurement frequency (query only).
<i>Query Response</i>	<numeric>
<i>Unit</i>	Hz (Hertz)
<i>Equivalent Softkeys</i>	None

SERV:SWE:FREQ:MIN?

SERVICE:SWEep:FREQuency:MINimum?

<i>Description</i>	Reads out the lower frequency of the measurement frequency (query only).
<i>Query Response</i>	<numeric>
<i>Unit</i>	Hz (Hertz)
<i>Equivalent Softkeys</i>	None

SERV:SWE:POIN?

SERVICE:SWEep:POINts?

<i>Description</i>	Reads out the maximum number of the measurement points (query only).
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SOUR:POW

SOURce<Ch>:POWer[:LEVel][:IMMediate][:AMPLitude] <power>

SOURce<Ch>:POWer[:LEVel][:IMMediate][:AMPLitude]?

<i>Description</i>	Sets or reads out the power level for the frequency sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<power> the power level from –55 to +10
<i>Resolution</i>	0.05
<i>Unit</i>	dBm (decibels above 1 milliwatt)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Power > Power

SOUR:POW:CENT

SOURce<Ch>:POWer:CENTer <power>

SOURce<Ch>:POWer:CENTer?

<i>Description</i>	Sets or reads out the center value of the power sweep range (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<power> the power sweep center value from –55 to +10
<i>Resolution</i>	0.025
<i>Unit</i>	dBm (decibels above 1 milliwatt)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	–22.5
<i>Equivalent Softkeys</i>	Stimulus > Center

SOUR:POW:PORT:CORR

SOURce<Ch>:POWer:PORT<Pt>:CORRection[:STATe] {ON|OFF|1|0}

SOURce<Ch>:POWer:PORT<Pt>:CORRection[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the power correction function (command/query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Parameter</i>	{ ON 1 } : Power correction ON { OFF 0 } : Power correction OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Calibration > Power Calibration > Correction

SOUR:POW:PORT:CORR:COLL

SOURce<Ch>:POWer:PORT<Pt>:CORRection:COLLect[:ACQuire]

<i>Description</i>	Measures the power calibration data for the port <Pt> using the power meter controlled via USB or USB/GPIB. Calculates calibration coefficients on completion of the measurement, and turns ON the power correction for the port (no query).
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Equivalent Softkeys</i>	Calibration > Power Calibration > Calibrate

SOUR:POW:PORT:CORR:DATA

SOURce<Ch>:POWer:PORT<Pt>:CORRection:DATA <numeric list>

SOURce<Ch>:POWer:PORT<Pt>:CORRection:DATA?

<i>Description</i>	Sets or reads out the power correction array (command/query). The array size is 1+2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: <numeric 1> the number of the table rows N integer from 0 to 10001; <numeric 2n> the frequency of the n–th row of the table from 300 kHz to 8.0 GHz; <numeric 2n+1> power correction value of the n–th row of the table from –10 to +10 dB;
<i>Target</i>	Port <Pt> of channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 } <Pt>={ [1] 2 }
<i>Query Response</i>	<numeric 1>, <numeric 2>, ...<numeric 4N+1> The data transfer format depends on the FORM:DATA command setting.
<i>Notes</i>	If the array size is not 1 + 2N, where N is equal to <numeric 1>, an error occurs (error code 200). If the <numeric 2n> and <numeric 2n+1> values are out of the allowable range, the value of the limit, which is closer to the specified value will be set.
<i>Related Commands</i>	SOUR:POW:PORT:CORR:COLL
<i>Equivalent Softkeys</i>	None

SOUR:POW:SLOP

SOURce<Ch>:POWer[:LEVel]:SLOPe[:DATA] <power>

SOURce<Ch>:POWer[:LEVel]:SLOPe[:DATA]?

<i>Description</i>	Sets or reads out the power slope value for the frequency sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<power> the power slope value from –2 to +2
<i>Resolution</i>	0.1
<i>Unit</i>	dB/GHz (decibel/gigahertz)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Power > Slope [dB/GHz]

SOUR:POW:SLOP:STAT

SOURce<Ch>:POWer[:LEVel]:SLOPe:STATe {ON|OFF|1|0}

SOURce<Ch>:POWer[:LEVel]:SLOPe:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the power slope for the frequency sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	{ ON 1 } : Power slope ON { OFF 0 } : Power slope OFF
<i>Query Response</i>	{ 0 1 }
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	Stimulus > Power > Slope [ON/OFF]

SOUR:POW:SPAN

SOURce<Ch>:POWer:SPAN <power>

SOURce<Ch>:POWer:SPAN?

<i>Description</i>	Sets or reads out the power span for the power sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<power> the power sweep span value from 0 to 65
<i>Resolution</i>	0.05
<i>Unit</i>	dBm (decibels above 1 milliwatt)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65
<i>Equivalent Softkeys</i>	Stimulus > Span

SOUR:POW:STAR

SOURce<Ch>:POWer:STARt <power>

SOURce<Ch>:POWer:STARt?

<i>Description</i>	Sets or reads out the power sweep start for the power sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<power> the power sweep start from –55 to +10
<i>Resolution</i>	0.05
<i>Unit</i>	dBm (decibels above 1 milliwatt)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	–55
<i>Equivalent Softkeys</i>	Stimulus > Start

SOUR:POW:STOP

SOURce<Ch>:POWer:STOP <power>

SOURce<Ch>:POWer:STOP?

<i>Description</i>	Sets or reads out the power sweep stop for the power sweep (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<power> the power sweep stop from –55 to +10
<i>Resolution</i>	0.05
<i>Unit</i>	dBm (decibels above 1 milliwatt)
<i>Out of Range</i>	Sets the value of the limit, which is closer to the specified value.
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	10
<i>Equivalent Softkeys</i>	Stimulus > Stop

STAT:OPER?

STATus:OPERation[:EVENT]?

<i>Description</i>	Reads out the value of the Operation Status Event Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:OPER:COND?

STATus:OPERation:CONDition?

<i>Description</i>	Reads out the value of the Operation Status Condition Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:OPER:ENAB

STATus:OPERation:ENABle <numeric>

STATus:OPERation:ENABle?

<i>Description</i>	Sets or reads out the value of the Operation Status Enable Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:OPER:NTR

STATus:OPERation:NTRansition <numeric>

STATus:OPERation:NTRansition?

<i>Description</i>	Sets or reads out the value of the Negative transition filter of the Operation Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:OPER:PTR

STATus:OPERation:PTRansition <numeric>

STATus:OPERation:PTRansition?

<i>Description</i>	Sets or reads out the value of the Positive transition filter of the Operation Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65535
<i>Equivalent Softkeys</i>	None

STAT:PRES

STATus:PRESet

<i>Description</i>	Resets all the status registers to the factory settings (no query).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:COND?

STATus:QUEStionable:CONDition?

<i>Description</i>	Reads out the value of the Questionable Status Condition Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:ENAB

STATus:QUEStionable:ENABle <numeric>

STATus:QUEStionable:ENABle?

<i>Description</i>	Sets or reads out the value of the Questionable Status Enable Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:CHAN:COND?

STATus:QUEStionable:LIMit:CHANnel<Ch>:CONDition?

<i>Description</i>	Reads out the value of the Questionable Limit Channel Status Condition Register (query only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:CHAN:ENAB

STATus:QUEStionable:LIMit:CHANnel<Ch>:ENABle <numeric>

STATus:QUEStionable:LIMit:CHANnel<Ch>:ENABle?

<i>Description</i>	Sets or reads out the value of the Questionable Limit Channel Status Enable Register (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:CHAN:NTR

STATus:QUEStionable:LIMit:CHANnel<Ch>:NTRansition <numeric>

STATus:QUEStionable:LIMit:CHANnel<Ch>:NTRansition?

<i>Description</i>	Sets or reads out the value of the Negative transition filter of the Questionable Limit Channel Status Register (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:CHAN:PTR

STATus:QUEStionable:LIMit:CHANnel<Ch>:PTRansition <numeric>

STATus:QUEStionable:LIMit:CHANnel<Ch>:PTRansition?

<i>Description</i>	Sets or reads out the value of the Positive transition filter of the Questionable Limit Channel Status Register (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65535
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:CHAN?

STATus:QUEStionable:LIMit:CHANnel<Ch>[:EVENT]?

<i>Description</i>	Reads out the value of the Questionable Limit Channel Status Event Register (query only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:COND?

STATus:QUEStionable:LIMit:CONDition?

<i>Description</i>	Reads out the value of the Questionable Limit Status Condition Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:ENAB

STATus:QUEStionable:LIMit:ENABle <numeric>

STATus:QUEStionable:LIMit:ENABle?

<i>Description</i>	Sets or reads out the value of the Questionable Limit Status Enable Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:NTR

STATus:QUEStionable:LIMit:NTRansition <numeric>

STATus:QUEStionable:LIMit:NTRansition?

<i>Description</i>	Sets or reads out the value of the Negative transition filter of the Questionable Limit Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM:PTR

STATus:QUEStionable:LIMit:PTRansition <numeric>

STATus:QUEStionable:LIMit:PTRansition?

<i>Description</i>	Sets or reads out the value of the Positive transition filter of the Questionable Limit Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65535
<i>Equivalent Softkeys</i>	None

STAT:QUES:LIM?

STATus:QUEStionable:LIMit[:EVENT]?

<i>Description</i>	Reads out the value of the Questionable Limit Status Event Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:NTR

STATus:QUEStionable:NTRansition <numeric>

STATus:QUEStionable:NTRansition?

<i>Description</i>	Sets or reads out the value of the Negative transition filter of the Questionable Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:PTR

STATus:QUEStionable:PTRansition <numeric>

STATus:QUEStionable:PTRansition?

<i>Description</i>	Sets or reads out the value of the Positive transition filter of the Questionable Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65535
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:CHAN:COND?

STATus:QUEStionable:RLIMit:CHANnel<Ch>:CONDition?

<i>Description</i>	Reads out the value of the Questionable Ripple Limit Channel Status Condition Register (query only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:CHAN:ENAB

STATus:QUEStionable:RLIMit:CHANnel<Ch>:ENABle <numeric>

STATus:QUEStionable:RLIMit:CHANnel<Ch>:ENABle?

<i>Description</i>	Sets or reads out the value of the Questionable Ripple Limit Channel Status Enable Register (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:CHAN:NTR

STATus:QUEStionable:RLIMit:CHANnel<Ch>:NTRansition <numeric>

STATus:QUEStionable:RLIMit:CHANnel<Ch>:NTRansition?

<i>Description</i>	Sets or reads out the value of the Negative transition filter of the Questionable Ripple Limit Channel Status Register (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:CHAN:PTR

STATus:QUEStionable:RLIMit:CHANnel<Ch>:PTRansition <numeric>

STATus:QUEStionable:RLIMit:CHANnel<Ch>:PTRansition?

<i>Description</i>	Sets or reads out the value of the Positive transition filter of the Questionable Ripple Limit Channel Status Register (command/query).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65535
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:CHAN?

STATus:QUEStionable:RLIMit:CHANnel<Ch>[:EVENT]?

<i>Description</i>	Reads out the value of the Questionable Ripple Limit Channel Status Event Register (query only).
<i>Target</i>	Channel <Ch>, <Ch>={ [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 }
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:COND?

STATus:QUEStionable:RLIMit:CONDition?

<i>Description</i>	Reads out the value of the Questionable Ripple Limit Status Condition Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:ENAB

STATus:QUEStionable:RLIMit:ENABle <numeric>

STATus:QUEStionable:RLIMit:ENABle?

<i>Description</i>	Sets or reads out the value of the Questionable Ripple Limit Status Enable Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:NTR

STATus:QUEStionable:RLIMit:NTRansition <numeric>

STATus:QUEStionable:RLIMit:NTRansition?

<i>Description</i>	Sets or reads out the value of the Negative transition filter of the Questionable Ripple Limit Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	0
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM:PTR

STATus:QUEStionable:RLIMit:PTRansition <numeric>

STATus:QUEStionable:RLIMit:PTRansition?

<i>Description</i>	Sets or reads out the value of the Positive transition filter of the Questionable Ripple Limit Status Register (command/query).
<i>Target</i>	Status Reporting System
<i>Parameter</i>	<numeric> from 0 to 65535
<i>Out of Range</i>	Bit-to-bit AND with numeric 65535
<i>Query Response</i>	<numeric>
<i>Preset Value</i>	65535
<i>Equivalent Softkeys</i>	None

STAT:QUES:RLIM?

STATus:QUEStionable:RLIMit[:EVENT]?

<i>Description</i>	Reads out the value of the Questionable Ripple Limit Status Event Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

STAT:QUES?

STATus:QUEStionable[:EVENT]?

<i>Description</i>	Reads out the value of the Questionable Status Event Register (query only).
<i>Target</i>	Status Reporting System
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SYST:BEEP:COMP:IMM

SYSTem:BEEPer:COMPlete:IMMediate

<i>Description</i>	Generates a beep to notify of the completion of the operation (no query).
<i>Equivalent Softkeys</i>	System > Misc Setup > Beeper > Test Beep Complete

SYST:BEEP:COMP:STAT

SYSTem:BEEPer:COMPlete:STATe {ON|OFF|1|0}

SYSTem:BEEPer:COMPlete:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the beeper notifying of the completion of the operation (command/query).
<i>Parameter</i>	{ON 1} : Completion beeper ON {OFF 0} : Completion beeper OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	System > Misc Setup > Beeper > Beep complete

SYST:BEEP:WARN:IMM

SYSTem:BEEPer:WARNing:IMMediate

<i>Description</i>	Generates a beep to notify of warning (no query).
<i>Equivalent Softkeys</i>	System > Misc Setup > Beeper > Test Beep Warning

SYST:BEEP:WARN:STAT

SYSTem:BEEPer:WARNing:STATe {ON|OFF|1|0}

SYSTem:BEEPer:WARNing:STATe?

<i>Description</i>	Sets or reads out the ON/OFF state of the beeper notifying of warning (command/query).
<i>Parameter</i>	{ON 1} : Warning beeper ON {OFF 0} : Warning beeper OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	System > Misc Setup > Beeper > Beep Warning

SYST:COMM:ECAL:TEMP:SENS?

SYSTem:COMMunicate:ECAL:TEMPerature:SENSor?

<i>Description</i>	Reads out the temperature of the AutoCal module connected to the instrument (query only).
<i>Target</i>	AutoCal module
<i>Unit</i>	°C
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SYST:COMM:ECAL:IMP

SYSTem:COMMunicate:ECAL:IMPedance <port>, {OPEN|SHORT|LOAD}

SYSTem:COMMunicate:ECAL:IMPedance? <port>

<i>Description</i>	Sets or reads out the impedance state of the specified port of AutoCal module (command/query).
<i>Parameters</i>	<port> : Port number of the AutoCal module "OPEN" : OPEN impedance state "SHORT" : SHORT impedance state "LOAD" : LOAD impedance state
<i>Query Response</i>	{ OPEN SHOR LOAD THRU }
<i>Preset Value</i>	LOAD
<i>Equivalent Softkeys</i>	None

SYST:COMM:ECAL:THRU

SYSTem:COMMunicate:ECAL:THRU <port1>,<port2>

<i>Description</i>	Sets the thru state between the specified 2 ports of AutoCal module (command only).
<i>Parameters</i>	<port1> : Port number of the AutoCal module <port2> : Port number of the AutoCal module
<i>Equivalent Softkeys</i>	None

SYST:CORR

SYSTem:CORRection[:STATe] {ON|OFF|1|0}

SYSTem:CORRection[:STATe]?

<i>Description</i>	Sets or reads out the ON/OFF state of the system error correction (command/query).
<i>Parameter</i>	{ON 1} : System error correction ON {OFF 0} : System error correction OFF
<i>Query Response</i>	{0 1}
<i>Preset Value</i>	1
<i>Equivalent Softkeys</i>	System > Misc Setup > System Correction

SYST:DATE

SYSTem:DATE <numeric 1>,<numeric 2>,<numeric 3>

SYSTem:DATE?

<i>Description</i>	Sets or reads out the current date (command/query).
<i>Parameter</i>	<numeric 1> year from 1900 to 2100; <numeric 2> month from 1 to 12; <numeric 3> day from 1 to 31.
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Equivalent Softkeys</i>	None

SYST:ERR?

SYSTem:ERRor[:NEXT]?

<i>Description</i>	Reads out the error message of the error occurred when executing the SCPI commands, from the FIFO (First In First Out) error queue stored in the instrument. The read out error is deleted from the error queue. The *CLS command clears the error queue. The maximum size of the queue is 100 messages (query only).
<i>Query Response</i>	<numeric>, <string> Where: <numeric> error code <string> error message If there is no error in the queue, "0, No error" is read out.
<i>Equivalent Softkeys</i>	None

SYST:LOC

SYSTem:LOCal

<i>Description</i>	Sets the instrument to the local operation mode, when all the keys on the front panel, mouse and the touch screen are active (no query).
<i>Related Commands</i>	SYST:REM SYST:RWL
<i>Equivalent Softkeys</i>	None

SYST:PRES

SYSTem:PRESet

<i>Description</i>	Resets the instrument to the factory settings (no query).
<i>Notes</i>	The difference from the *RST: command is that the trigger is set to the <i>Continuous</i> trigger mode.
<i>Related Commands</i>	*RST
<i>Equivalent Softkeys</i>	System > Preset > OK

SYST:REM

SYSTem:REMOte

<i>Description</i>	Sets the instrument to the remote operation mode, when all the keys on the front panel, mouse and the touch screen are not active, except for one key labeled Return to Local . Pushing this button will reset the instrument to the local operation mode (no query).
<i>Related Commands</i>	SYST:LOC SYST:RWL
<i>Equivalent Softkeys</i>	None

SYST:RWL

SYSTem:RWLock

<i>Description</i>	Sets the instrument to the remote operation mode, when all the keys on the front panel, mouse and the touch screen are not active. Only SYST:LOC or SYST:REM command can release this remote operation mode (no query).
<i>Related Commands</i>	SYST:LOC SYST:REM
<i>Equivalent Softkeys</i>	None

SYST:TEMP:SENS?

SYSTem:TEMPerature:SENSor? <index>

<i>Description</i>	Reads out the specified sensor temperature inside the instrument (query only).
<i>Target</i>	Instrument
<i>Parameters</i>	<index> : Sensor number
<i>Unit</i>	°C
<i>Query Response</i>	<numeric>
<i>Equivalent Softkeys</i>	None

SYST:TIME

SYSTem:TIME <numeric 1>,<numeric 2>,<numeric 3>

SYSTem:TIME?

<i>Description</i>	Sets or reads out the current time (command/query).
<i>Parameter</i>	<numeric 1> hours from 0 to 23; <numeric 2> minutes from 0 to 59; <numeric 3> seconds from 0 to 59.
<i>Query Response</i>	<numeric 1>, <numeric 2>, <numeric 3>
<i>Equivalent Softkeys</i>	None

TRIG

TRIGger[:SEquence][:IMMediate]

<i>Description</i>	Generates a trigger, independently of the trigger source setting (except for the <i>External</i>). If the trigger source is set to <i>External</i>, an error occurs (error code 221) and the command is ignored. If the instrument is not in the waiting for a trigger state (sweep is in progress or all the channels are set to <i>Hold</i>), an error occurs (error code 211) and the command is ignored. The command is completed before the end of the sweep. (no query)
<i>Related Commands</i>	TRIG:SOUR INIT:CONT INIT:IMM
<i>Equivalent Softkeys</i>	None

TRIG:SING

TRIGger[:SEquence]:SINGle

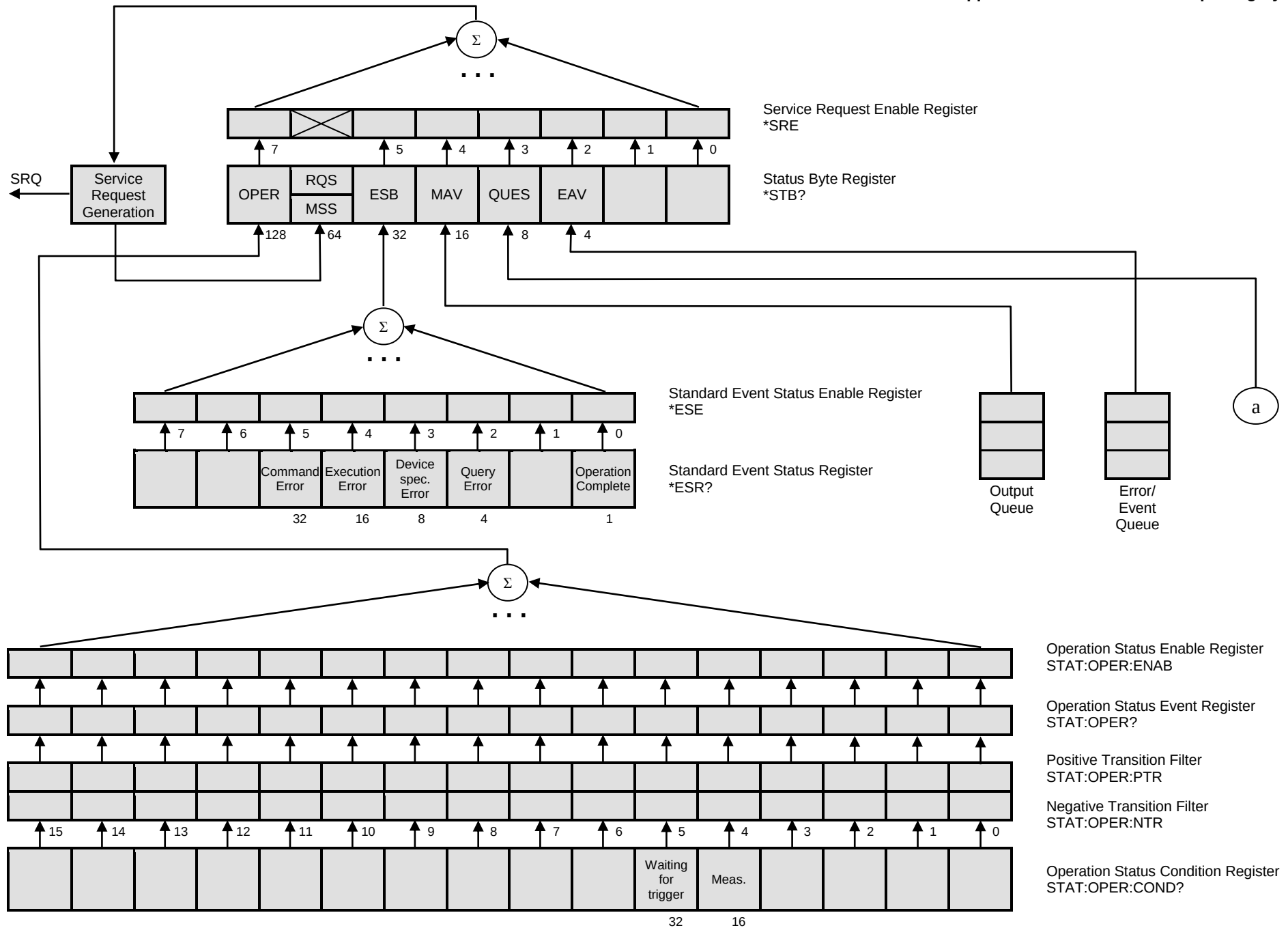
<i>Description</i>	Generates a trigger, independently of the trigger source setting (except for the <i>External</i>). If the trigger source is set to <i>External</i>, an error occurs (error code 221) and the command is ignored. If the instrument is not in the waiting for a trigger state (sweep is in progress or all the channels are set to <i>Hold</i>), an error occurs (error code 211) and the command is ignored. The command is not completed before the end of the sweep (waiting for the completion of the sweep of all the channels). (no query)
<i>Related Commands</i>	TRIG:SOUR INIT:CONT INIT:IMM
<i>Equivalent Softkeys</i>	None

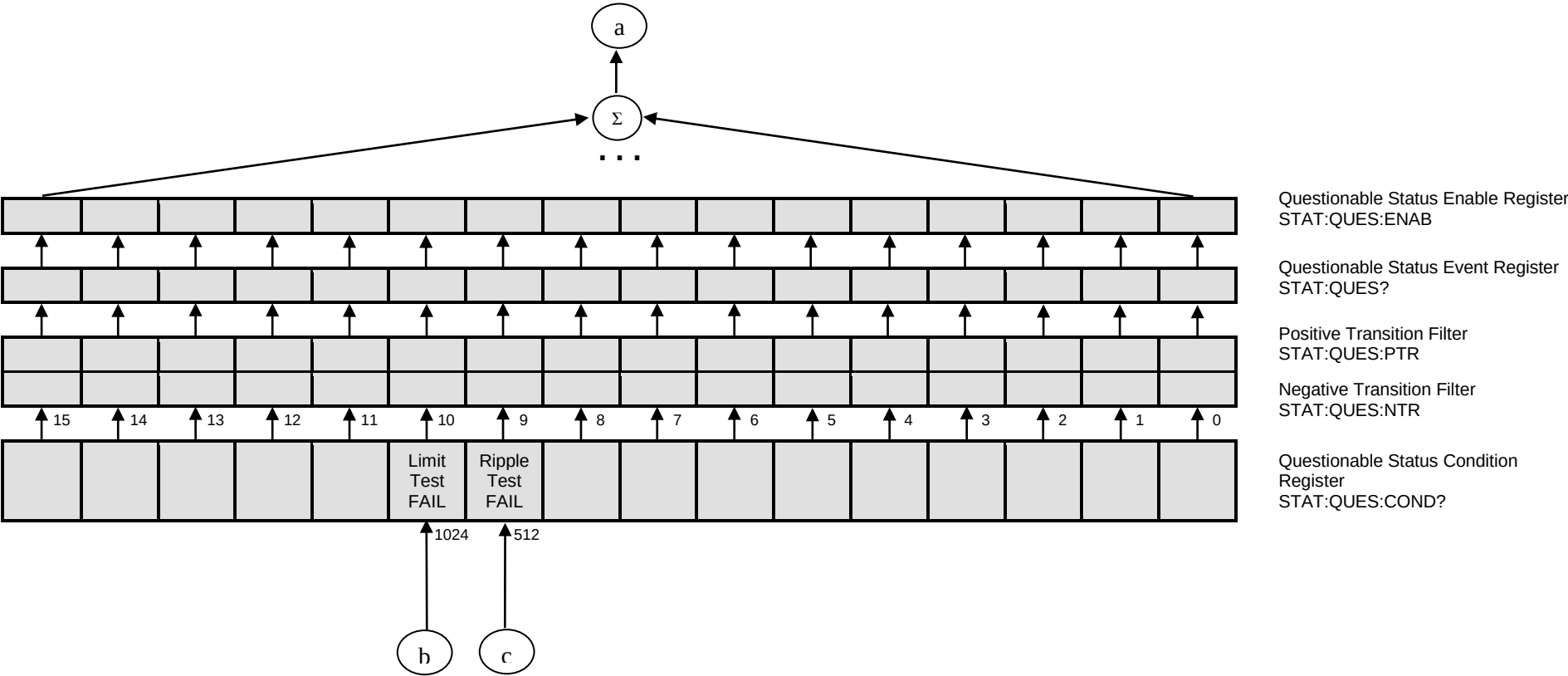
TRIG:SOUR

TRIGger[:SEQuence]:SOURce {INTernal|EXTernal|MANual|BUS}

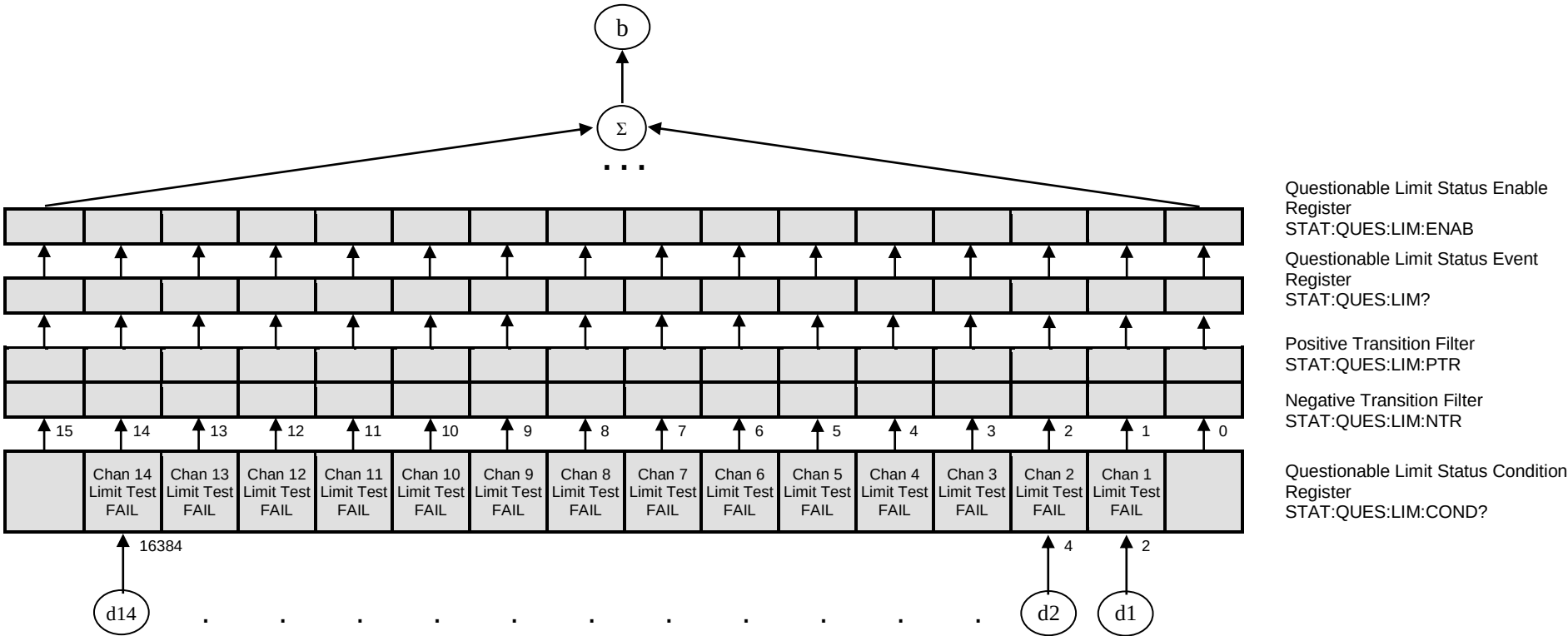
TRIGger[:SEQuence]:SOURce?

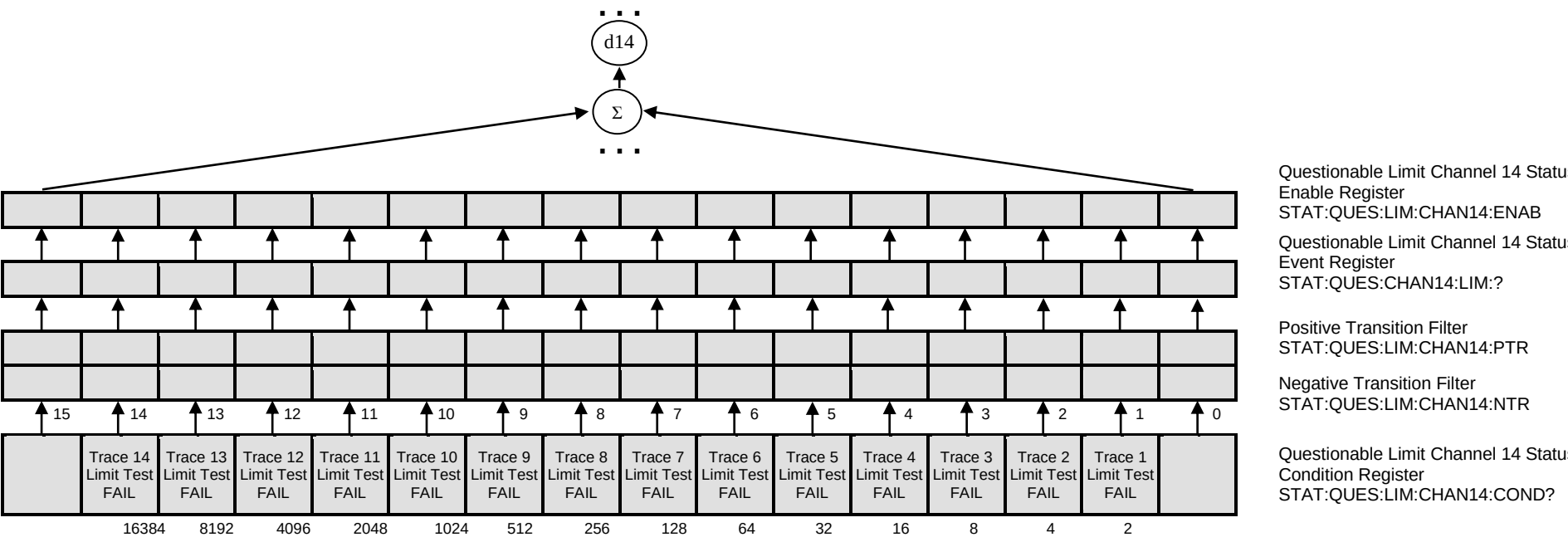
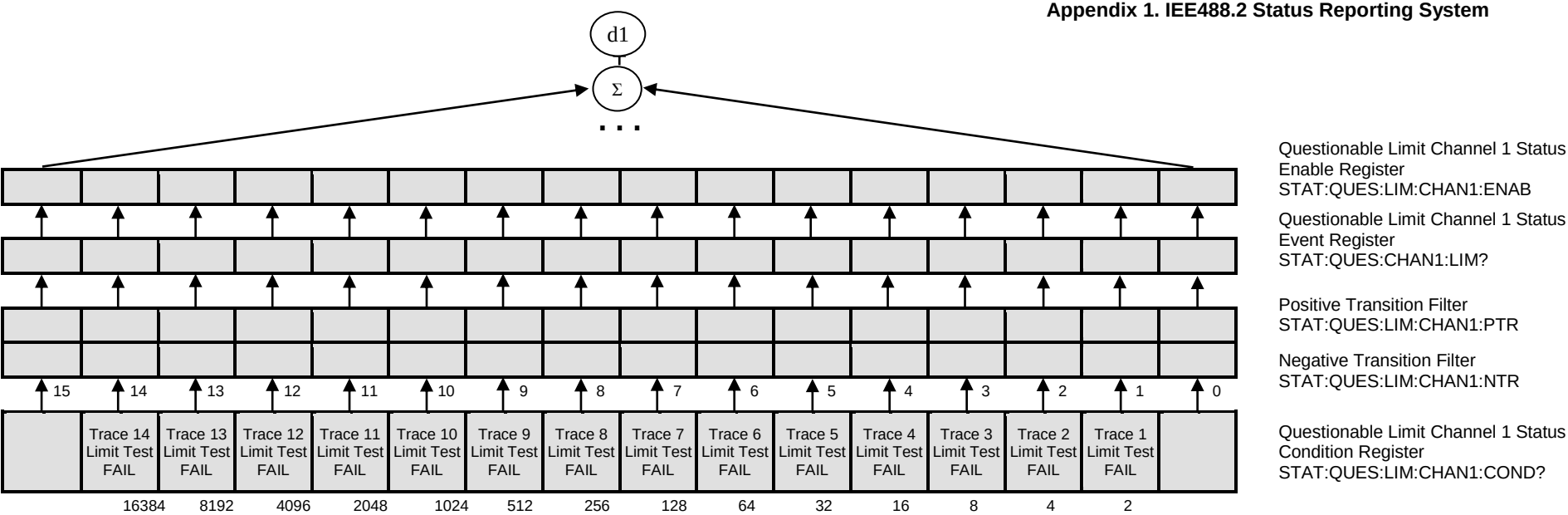
<i>Description</i>	Sets or reads out the sweep trigger source (command/query).
<i>Parameter</i>	"INTernal" : Internal "EXTernal" : External "MANual" : Manual "BUS" : Bus
<i>Out of Range</i>	Error occurs. The command is ignored. Error code: 205
<i>Query Response</i>	{ INT EXT MAN BUS }
<i>Preset Value</i>	INT
<i>Related Commands</i>	TRIG TRIG:SING *TRG
<i>Equivalent Softkeys</i>	Stimulus > Trigger > Trigger Source > { Internal External Manual Bus }



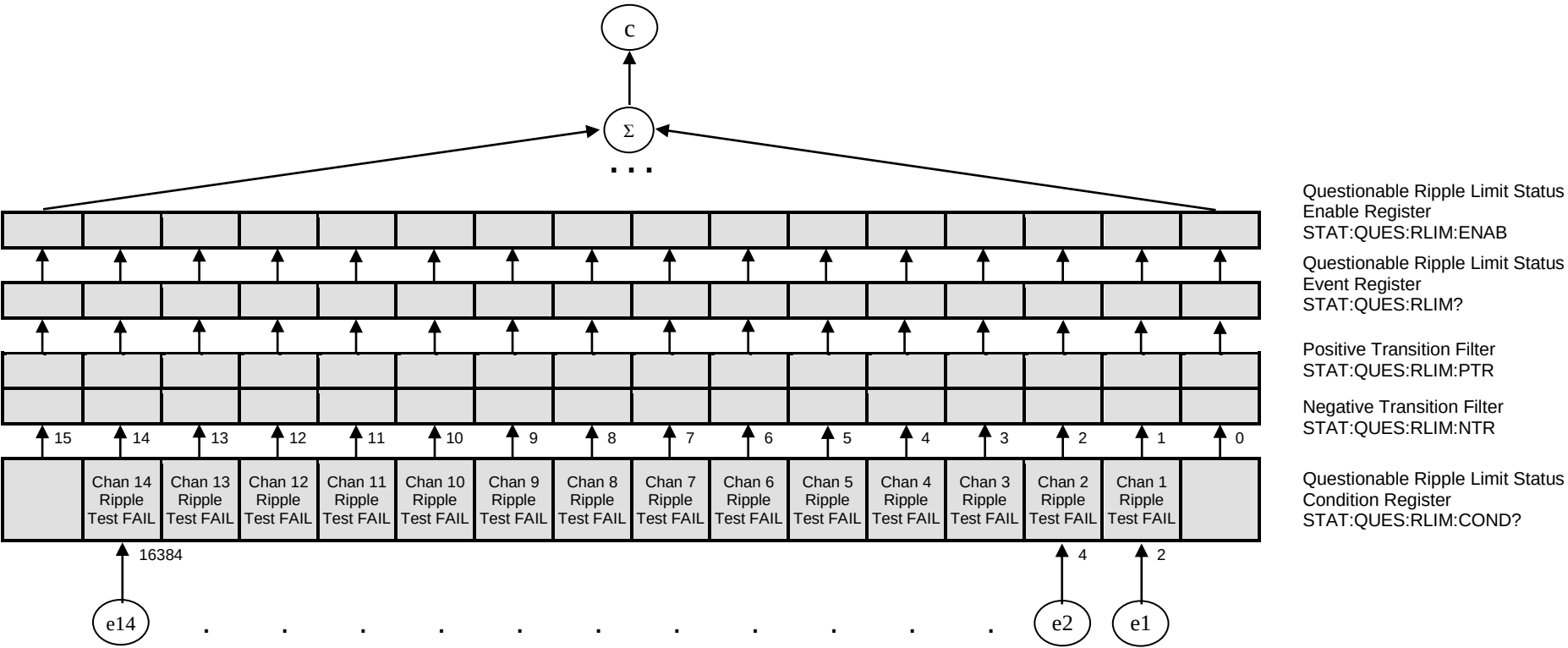


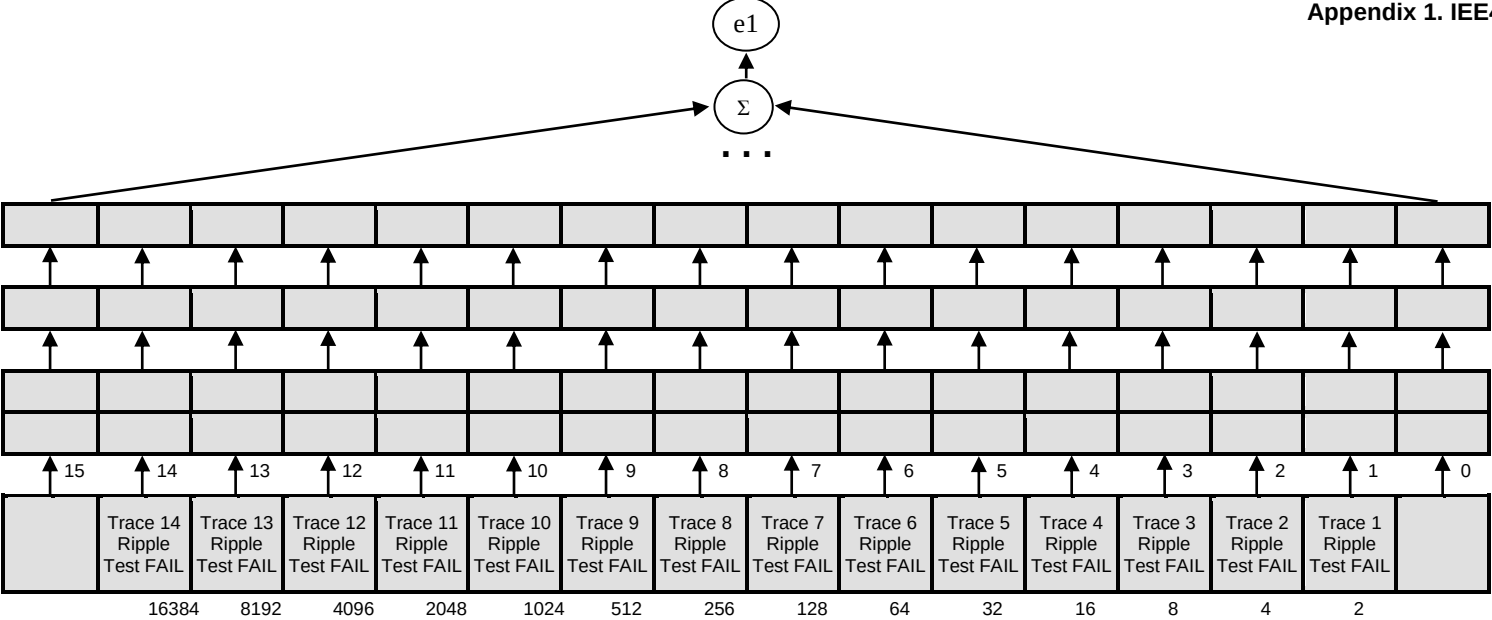
Appendix 1. IEE488.2 Status Reporting System





Appendix 1. IEE488.2 Status Reporting System





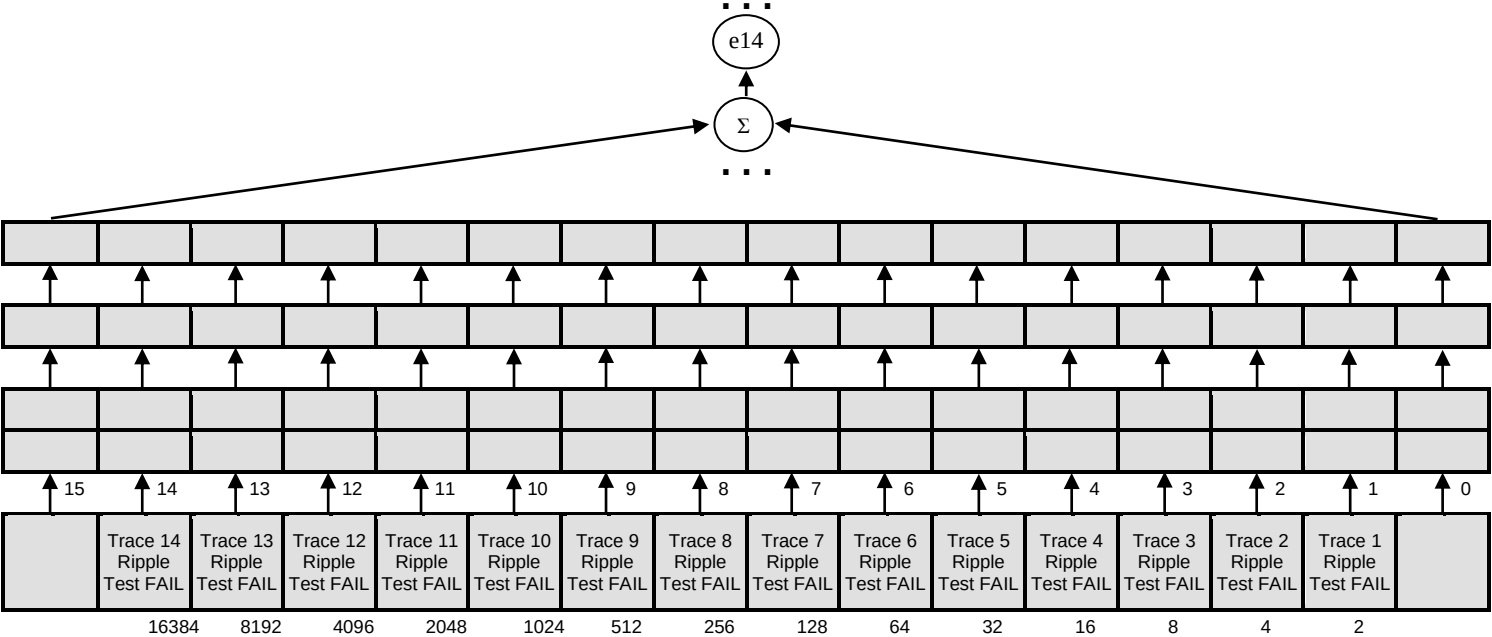
Questionable Ripple Limit Channel 1
Status Enable Register
STAT:QUES:RLIM:CHAN1:ENAB

Questionable Ripple Limit Channel 1
Status Event Register
STAT:QUES:CHAN1:RLIM?

Positive Transition Filter
STAT:QUES:RLIM:CHAN1:PTR

Negative Transition Filter
STAT:QUES:RLIM:CHAN1:NTR

Questionable Ripple Limit Channel 1
Status Condition Register
STAT:QUES:RLIM:CHAN1:COND?



Questionable Ripple Limit Channel 14
Status Enable Register
STAT:QUES:RLIM:CHAN14:ENAB

Questionable Ripple Limit Channel 14
Status Event Register
STAT:QUES:CHAN14:RLIM:?

Positive Transition Filter
STAT:QUES:RLIM:CHAN14:PTR

Negative Transition Filter
STAT:QUES:RLIM:CHAN14:NTR

Questionable Ripple Limit Channel 14
Status Condition Register
STAT:QUES:RLIM:CHAN14:COND?

Appendix 2. Error Codes

114	"Header suffix out of range"
200	"Execution error"
211	"Trigger ignored"
213	"Init ignored"
220	"Parameter Error"
222	"Data out of range"
224	"Illegal parameter value"
201	"Invalid channel index"
202	"Invalid trace index"
203	"Invalid marker index"
204	"Marker is not active"
205	"Invalid save type specifier"
206	"Invalid sweep type specifier"
207	"Invalid trigger source specifier"
208	"Invalid measurement parameter specifier"
209	"Invalid format specifier"
210	"Invalid data math specifier"
214	"Invalid limit data"
215	"Invalid segment data"
216	"Invalid standard type specifier"
217	"Invalid conversion specifier"
218	"Invalid gating shape specifier"
219	"Invalid gating type specifier"
300	"Device-specific error"
302	"Status reporting system error"

Appendix 3. Programming Examples

Example 1. Instrument Information String Readout

The following program written in the HT Basic. HT Basic supports only GPIB interface. The program reads out and displays on the screen the instrument information string. The *IDN? command reads out the instrument information string. The string contains the following fields:

Manufacturer, Model, Serial Number, Software Version/Firmware Version

For example:

GSI, A338, 09381020, 2.46/03

Program description:

- | | |
|---------|---|
| Line 10 | Assigns the size of the ID\$ array for information readout to 40 bytes. |
| Line 20 | Assigns an I/O path for the instrument with the GPIB address 17. |
| Line 30 | Sends the *IDN? query to the instrument. |
| Line 40 | Reads the instrument information into the ID\$ variable. |
| Line 50 | Displays the instrument information string. |

```
10 DIM ID$(40)
20 ASSIGN @Nwa TO 717; EOL CHR$(10) END ! Assign an I/O path
30 OUTPUT @Nwa;"*IDN?" ! Send *IDN? query
40 ENTER @Nwa;ID$ ! Read ID
50 PRINT ID$ ! Display ID
60 END
```

Example 2. Instrument Setting and Data Acquisition

The following program written in the HT Basic. HT Basic supports only GPIB interface. The program shows the instrument setting and data array acquisition. This program also shows a method of the sweep triggering and waiting for the sweep completion.

Program description:

Line 10	Defines the measurement data array for Data, and the frequency array for Freq. The data array is 2D: the first dimension size is the number of the measurement points, the second dimension is 2, as the measurements can be complex numbers depending on the format. If the measurement is a real number, the second number contains zero.
Line 20	Defines the sweep variable for I and the number of points for NOP.
Line 70	Assigns an I/O path for the instrument with the GPIB address 17.
Line 110	Resets the instrument to the factory settings.
Line 120	Sets the number of measurement points to 16.
Line 130	Sets S21 measurement to trace 1.
Line 140	Sets the active trace to trace 1.
Line 150	Sets the logarithmic magnitude format for the active trace.
Line 160	Sets the IF Bandwidth to 10 Hz.
Lines 200 – 230	Initiates a sweep and waits for its completion. The first command sets the trigger source to GPIB or Ethernet, aborts the current sweep, and turns the instrument to waiting for a trigger. The second command generates a trigger. The following two commands read, and wait for the completion of the preceding commands.
Note	Unlike the TRIG and *TRG commands, which are completed immediately after a trigger generation, the TRIG:SING command is <i>not</i> completed until the end of the sweep. Using TRIG:SING together with OPC? command is the simplest way to set the waiting for the sweep completion.
Lines 270 – 280	Reads the number of the measurement points.
Line 290	Resizes of the Data and Freq arrays based on the number of the measurement points.
Lines 300 – 310	Reads the measurement data for the active trace.
Lines 320 – 330	Read the frequency values at the measurement points.
Line 370	Displays the table heading.
Lines 380 – 400	Displays the stimulus and response values at each point.

```
10 REAL Data(1:201,1:2),Freq(1:201)
20 INTEGER I, NOP
30 CLEAR SCREEN
40 !
50 ! Assign an I/O path for the Analyzer
60 !
70 ASSIGN @Nwa TO 717; EOL CHR$(10) END
80 !
90 ! Setting up the Analyzer
100 !
110 OUTPUT @Nwa;"SYST:PRES"
120 OUTPUT @Nwa;"SENS:SWE:POIN 16"
130 OUTPUT @Nwa;"CALC:PAR1:DEF S21"
140 OUTPUT @Nwa;"CALC:PAR1:SEL"
150 OUTPUT @Nwa;"CALC:FORM MLOG"
160 OUTPUT @Nwa;"SENS:BAND 10"
170 !
180 ! Waiting for measurement complete
190 !
200 OUTPUT @Nwa;":TRIG:SOUR BUS"
210 OUTPUT @Nwa;":TRIG:SING"
220 OUTPUT @Nwa;"*OPC?"
230 ENTER @Nwa;X
240 !
250 ! Reading data
260 !
270 OUTPUT @Nwa;"SENS:SWE:POIN?"
280 ENTER @Nwa;NOP
290 REDIM Data(1:NOP,1:2),Freq(1:NOP)
300 OUTPUT @Nwa;"CALC:DATA:FDAT?"
310 ENTER @Nwa;Data(*)
320 OUTPUT @Nwa;"SENS:FREQ:DATA?"
330 ENTER @Nwa;Freq(*)
340 !
350 ! Displaying
360 !
370 PRINT " Frequency      Data1          Data2"
380 FOR I=1 TO NOP
390 PRINT USING "MD.4DE,2X,MD.6DE,2X,MD.6DE"; Freq(I), Data(I,1), Data(I,2)
400 NEXT I
410 END
```

Example 3. Calibration

The following program written in the HT Basic executes the full 2-port calibration of the instrument.

Program description:

Line 10	Assigns an I/O path for the instrument with the GPIB address 17.
Line 20	Clears the screen.
Line 60	Resets the instrument to the factory settings.
Line 70	Sets the IF Bandwidth to 10 Hz.
Line 80	Selects the calibration kit No.1. Resets the selected calibration kit.
Line 90	Assigns the SHORT No.1 standard to port 1, and the SHORT No.5 standard to port 2.
Line 100	Assigns the OPEN No.1 standard to port 1, and the OPEN No.6 standard to port 2.
Line 150	Prompts the user to connect an OPEN standard to port 1.
Line 160	Executes the OPEN calibration data measurement at port 1.
Line 170	Waits for the measurement completion (inputs 1).
Line 180	Generates a beep on completion.
Line 200	Prompts the user to connect a SHORT standard to port 1.
Line 210	Executes the SHORT calibration data measurement at port 1.
Line 220	Waits for the measurement completion (inputs 1).
Line 230	Generates a beep on completion.
Line 250	Prompts the user to connect a LOAD standard to port 1.
Line 260	Executes the LOAD calibration data measurement at port 1.
Line 270	Waits for the measurement completion (inputs 1).
Line 280	Generates a beep on completion.
Line 320	Prompts the user to connect an OPEN standard to port 2.
Line 330	Executes the OPEN calibration data measurement at port 2.
Line 340	Waits for the measurement completion (inputs 1).
Line 350	Generates a beep on completion.
Line 370	Prompts the user to connect a SHORT standard to port 2.
Line 380	Executes the SHORT calibration data measurement at port 2.
Line 390	Waits for the measurement completion (inputs 1).
Line 400	Generates a beep on completion.
Line 420	Prompts the user to connect a LOAD standard to port 2.
Line 430	Executes the LOAD calibration data measurement at port 2.

Line 440	Waits for the measurement completion (inputs 1).
Line 450	Generates a beep on completion.
Line 470	Prompts the user to connect a THRU standard to between the port 1 and port 2.
Line 510	Displays the message: measuring forward transmission and match.
Line 520	Executes the forward (source port 1) measurement of the THRU.
Line 530	Waits for the measurement completion (inputs 1).
Line 540	Generates a beep on completion.
Line 580	Displays the message: measuring reverse transmission and match.
Line 590	Executes the reverse (source port 2) measurement of the THRU.
Line 600	Waits for the measurement completion (inputs 1).
Line 610	Generates a beep on completion.
Line 660	Assigns the <i>full 2-port calibration</i> type between the port 1 and port 2.
Line 680	Displays the message: computing calibration coefficient.
Line 720	Computes the calibration coefficients for the calibration assigned in the line 660. The error correction is enabled upon the completion of the command.
Line 730	Displays the message: done.

```
10 ASSIGN @Nwa TO 717; EOL CHR$(10) END ! Assign an I/O path
20 CLEAR SCREEN
30 !
40 ! Setting up the analyzer
50 !
60 OUTPUT @Nwa;"SYST:PRES"
70 OUTPUT @Nwa;"SENS:BAND 100"
80 OUTPUT @Nwa;"SENS:CORR:COLL:CKIT:SEL 1;RES"
90 OUTPUT @Nwa;"SENS:CORR:COLL:CKIT:ORD:SHOR 1,1;SHOR 2,5"
100 OUTPUT @Nwa;"SENS:CORR:COLL:CKIT:ORD:OPEN 1,2;OPEN 2,6"
110 !
120 ! Gather the reflection standards at port 1
130 ! (open, short, load).
140 !
150 INPUT "CONNECT OPEN AT PORT 1",X
160 OUTPUT @Nwa;"SENS:CORR:COLL:OPEN 1;*OPC?"
170 ENTER @Nwa;X
180 BEEP
190 !
200 INPUT "CONNECT SHORT AT PORT 1",X
210 OUTPUT @Nwa;"SENS:CORR:COLL:SHOR 1;*OPC?"
220 ENTER @Nwa;X
230 BEEP
240 !
250 INPUT "CONNECT BROADBAND LOAD AT PORT 1",X
260 OUTPUT @Nwa;"SENS:CORR:COLL:LOAD 1;*OPC?"
270 ENTER @Nwa;X
280 BEEP
290 !
300 ! Now gather the reflection standards at port 2.
310 !
320 INPUT "CONNECT OPEN AT PORT 2",X
330 OUTPUT @Nwa;"SENS:CORR:COLL:OPEN 2;*OPC?"
340 ENTER @Nwa;X
350 BEEP
360 !
370 INPUT "CONNECT SHORT AT PORT 2",X
380 OUTPUT @Nwa;"SENS:CORR:COLL:SHOR 2;*OPC?"
390 ENTER @Nwa;X
400 BEEP
```

```
410 !
420 INPUT "CONNECT BROADBAND LOAD AT PORT 2",X
430 OUTPUT @Nwa;"SENS:CORR:COLL:LOAD 2;*OPC?"
440 ENTER @Nwa;X
450 BEEP
460 !
470 INPUT "CONNECT THRU [PORT1 TO PORT 2]",X
480 !
490 ! Now gather forward transmission and match raw arrays.
500 !
510 DISP "MEASURING FORWARD TRANSMISSION AND MATCH"
520 OUTPUT @Nwa;"SENS:CORR:COLL:THRU 2,1;*OPC?"
530 ENTER @Nwa;Reply
540 BEEP
550 !
560 ! Now gather reverse transmission and match raw arrays.
570 !
580 DISP "MEASURING REVERSE TRANSMISSION AND MATCH"
590 OUTPUT @Nwa;"SENS:CORR:COLL:THRU 1,2;*OPC?"
600 ENTER @Nwa;Reply
610 BEEP
620 !
630 ! Done with gathering measurements except for isolation.
640 !
650 !
660 OUTPUT @Nwa;"SENS:CORR:COLL:METH:SOLT2 1,2"
670 !
680 DISP "COMPUTING CALIBRATION COEFFICIENTS"
690 !
700 ! Tell analyzer to compute full 2-port error coefficients.
710 !
720 OUTPUT @Nwa;"SENS:CORR:COLL:SAVE"
730 DISP "DONE"
740 END
```

Example 4. Program Written in C

The following program shows the control over the instrument using the C language with the VISA library. The instrument can be connected via GPIB or Ethernet using VXI-11 protocol.

The instrument address is assigned in VISA Resource Name format in the command line at the start of the program. For more detail on VISA Resource Name see the VISA library documentation.

Program description:

1. Sets up the communication with the instrument.
2. Reads out and displays the instrument information string.
3. Sets some parameters of the instrument.
4. Triggers the measurement and waits for the sweep completion.
5. Reads out the measurement data and the frequency values at the measurement points.
6. Displays the measurement data

```
// Example4.cpp
//
// VISA Header: visa.h (must be included)
// VISA Library: visa32.lib (must be linked with)
#include "stdafx.h"
#include "visa.h"

int main(int argc, char* argv[])
{
    ViStatus status;           // Error checking
    ViSession defaultRM, instr; // Communication channels
    ViUInt32 retCount;         // Return count from string I/O
    ViByte buffer[255];        // Buffer for string I/O
    int temp;
    int NOP = 21;              // Number of measurement points
    const int maxCnt = 100;     // Maximum reading count
    double Data[maxCnt*2];      // Measurement data array
    double Freq[maxCnt];        // Frequency array

    if (argc < 2)
    {
        printf("\nUsage: Example4 <VISA address>\n\n");
        printf("VISA address examples:\n");
        printf("        GPIB::17::INSTR\n");
        printf("        TCPIP::nnn.nnn.nnn.nnn::INSTR\n");
        printf("        TCPIP::devicename::INSTR\n");
        return -1;
    }

    status = viOpenDefaultRM(&defaultRM);

    if (status < VI_SUCCESS)
    {
        printf("Can't initialize VISA\n");
        return -1;
    }
}
```

```

status = viOpen(defaultRM, argv[1], VI_NULL, VI_NULL, &instr);

if (status < VI_SUCCESS)
{
    printf("Can't open VISA address: %s\n", argv[1]);
    return -1;
}
//
// Set the timeout for message-based communication
//
viSetAttribute(instr, VI_ATTR_TMO_VALUE, 5000);
//
// Read ID string from Analyzer
//
viPrintf(instr, "*IDN?\n");
viRead(instr, buffer, sizeof(buffer), &retCount);
printf("*IDN? Returned %d bytes: %.*s\n\n", retCount, retCount,
buffer);
//
// Set up the Analyzer
//
viPrintf(instr, "SYST:PRES\n");
viPrintf(instr, "SENS:SWE:POIN %d\n", NOP);
viPrintf(instr, "CALC:PAR1:DEF S21\n");
viPrintf(instr, "CALC:PAR1:SEL\n");
viPrintf(instr, "CALC:FORM MLOG\n");
viPrintf(instr, "SENS:BAND 10\n");
//
// Trigger measurement and wait for completion
//
viPrintf(instr, ":TRIG:SOUR BUS\n");
viPrintf(instr, ":TRIG:SING\n");
viQueryf(instr, "*OPC?\n", "%d", &temp);
//
// Read out measurement data
//
retCount = maxCnt * 2;
viQueryf(instr, "CALC:DATA:FDAT?\n", "%, #lf", &retCount, Data);
retCount = maxCnt;
viQueryf(instr, "SENS:FREQ:DATA?\n", "%, #lf", &retCount, Freq);
//
// Display measurement data
//
printf("%20s %20s %20s\n", "Frequency", "Data1", "Data2");
for (int i = 0; i < NOP; i++)
{
    printf("%20f %20f %20f\n", Freq[i], Data[i*2], Data[i*2+1]);
}

status = viClose(instr);
status = viClose(defaultRM);
return 0;
}

```

Example 5. Program Written in LabView

The following program shows the control over the instrument using the LabView language with the VISA library. The instrument can be connected via GPIB or Ethernet using VXI-11 protocol.

Below see the block diagram of the program and front panel of the program with the program execution result.

The front panel contains the entry field for the instrument name “VISA Resource Name”. For more detail on VISA Resource Name see the VISA library documentation.

The user must enter the instrument address, select the trace format in the “Format” field, and click the “Run” button. As the result of the program, the instrument information string will be displayed and the measurement trace will be plotted.

Program description:

1. Sets up the communication with the instrument.
2. Reads out and displays the instrument information string.
3. Sets some parameters of the instrument.
4. Generates the trigger and waits for the sweep completion.
5. Sets the trace format to the format entered by the user in the “Format” field.
6. Reads out the measurement data.
7. Displays the measurement data.

