COPPER MOUNTAIN
TECHNOLOGIES

Planar 304/1, Planar 804/1
S5048 and S7530

Network Analyzer
COM/DCOM Programming Manual

Software version 3.40
April, 2014

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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 COM/DCOM technology.

COM technology is used when a user program runs together with an external measurement instrument program on one PC. DCOM technology is used when a user program runs on a PC connected with the measurement instrument by LAN.

Methods and techniques for writing of user programs are same for the both technologies. The only difference between the technologies is that the DCOM technology requires additional LAN setting performed by the LAN administrator.

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

2 Scope of Manual

This Manual directly applies to the PLANAR 304/1, PLANAR 804/1, S7530 and S5048 models Network Analyzer.

Throughout this manual, the terms Planar304, Planar804, S5048 and S7530 will be used interchangeably to refer to the executable module name and to the COM object name.

Examples represented in this Manual are written using term *"Planar304"* reffered to the other models as well.

```
    Set app = CreateObject("Planar304.Applcation")
```

Similarly for other models:

```
    Set app = CreateObject("Planar804.Applcation")
    Set app = CreateObject("S5048.Applcation")
    Set app = CreateObject("S7530.Applcation")
```

Except where specifically noted, all commands and descriptions apply across all models covered by this document.

3 Registering COM Server

To register COM server of the analyzer run the executable module from command prompt with the */regserver* keyword. To unregister COM server of the analyzer run the executable module from command prompt with the */unregserver* keyword. Administrative rights is required to register/unregister COM server. Also user has ability to register COM server during the software installation procedure.

Example of the COM server registration command:

```
    Planar304.exe /regserver
```

4 COM Technology Overview

COM stands for *Component Object Model*. This programming technology was developed by Microsoft for two purposes:

- the model provides the specification for interaction of binary modules created in different programming languages;
- the model defines the interfacing between a client application and a server application running either on the same PC or on two different PCs. In the latter case, the technology has DCOM abbreviation – Distributed COM.

5 Automation Server

The network analyzer executable module contains a built-in COM server that enables other programs to access its functionality. The COM server was developed in conformity with the *COM automation* specification. COM automation is a technology allowing control over the COM server by the programs written in both traditional compiling programming languages and interpreting programming languages, such as VBScript. This enables the server applications to make their functionality accessible to many more clients.

6 Automation Controllers

Automation controllers are client programs, which use internal functionality of COM servers. Automation controller programs are developed by users for writing their own add-ons for the system.

User programs can be written in different languages:

- programming languages with built-in COM support, such as Visual Basic®, Delphi, Java;
- universal programming languages, such as C, C++;
- Microsoft Excel and Word office applications as they include built-in programming language Visual Basic for Applications®;
- program generators, such as National Instruments LabVIEW®, MathWorks MATLAB®.

Examples represented in this Manual are written in Visual Basic (VB). Appendix 3 contains examples written in VB, C++, and LabView languages.

Examples\COM\VBA folder contains source codes for examples written in Visual Basic for Applications® (Microsoft Excel files).

Examples\COM\CPP folder contains source codes for the C++ language examples.

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

7 Local and Remote Server

The network analyzer executable module can function either as a *local* server or as a *remote* server of COM automation.

Local server runs on the same PC with the automation controller and each of the programs is executed as an individual application in a separate window. COM technology is used in this case (Figure 1).

Remote server and the automation controller run on different PCs connected by LAN. DCOM (Distributed COM) technology is used in this case (Figure 2). When using DCOM it is necessary to configure the local network by means of DCOM Windows tools.

The same automation controller is used for the both COM and DCOM technology. Some changes to the user program may be required in operators, which establish connection with the server. Moreover, DCOM technology requires additional settings of the LAN performed by the LAN administrator.

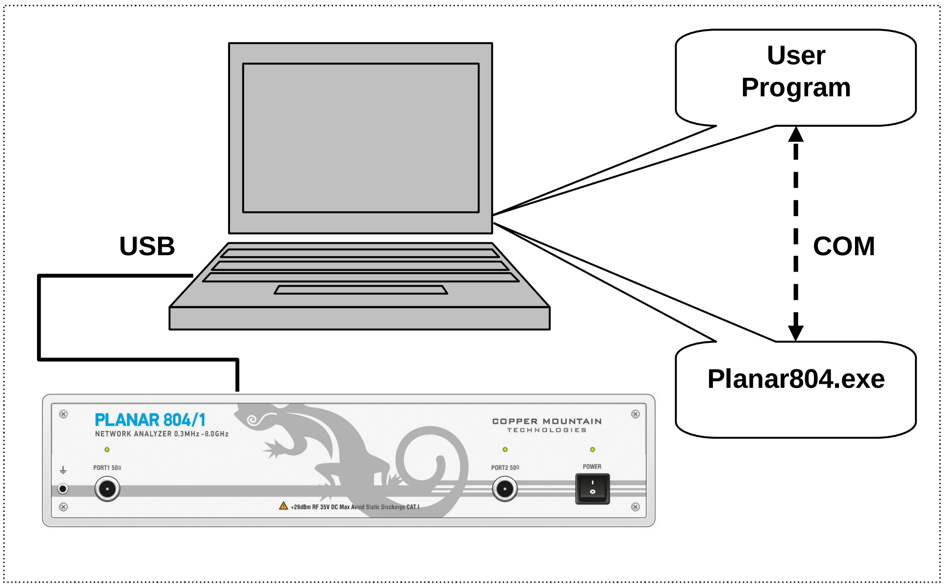


Figure 1. COM technology

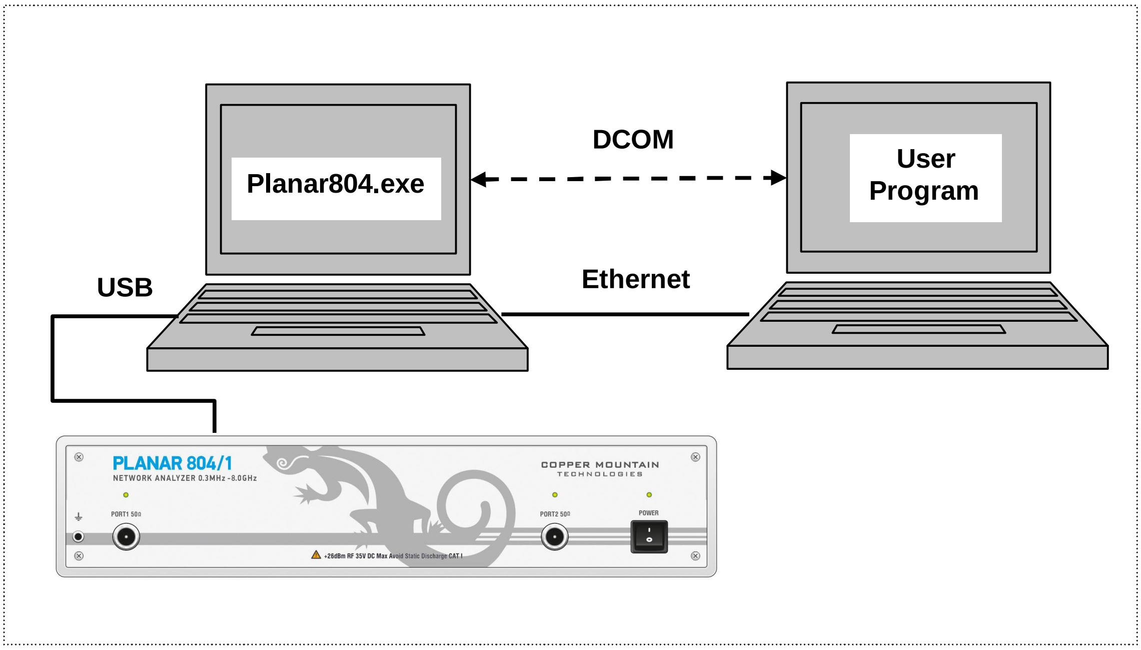


Figure 2. DCOM technology

8 Structure of COM Objects

COM server contains several *objects*, which provide different functionality of the server. The COM objects of the network analyzer executable module are organized in a hierarchical structure. Figure 3 shows the main COM objects, which comprise the first three levels of the hierarchical structure of the COM server. COM objects provide various *methods* and *properties*, which allow access to the server functions; besides, they allow access to the objects of the lower levels, which are not shown in Figure 3.

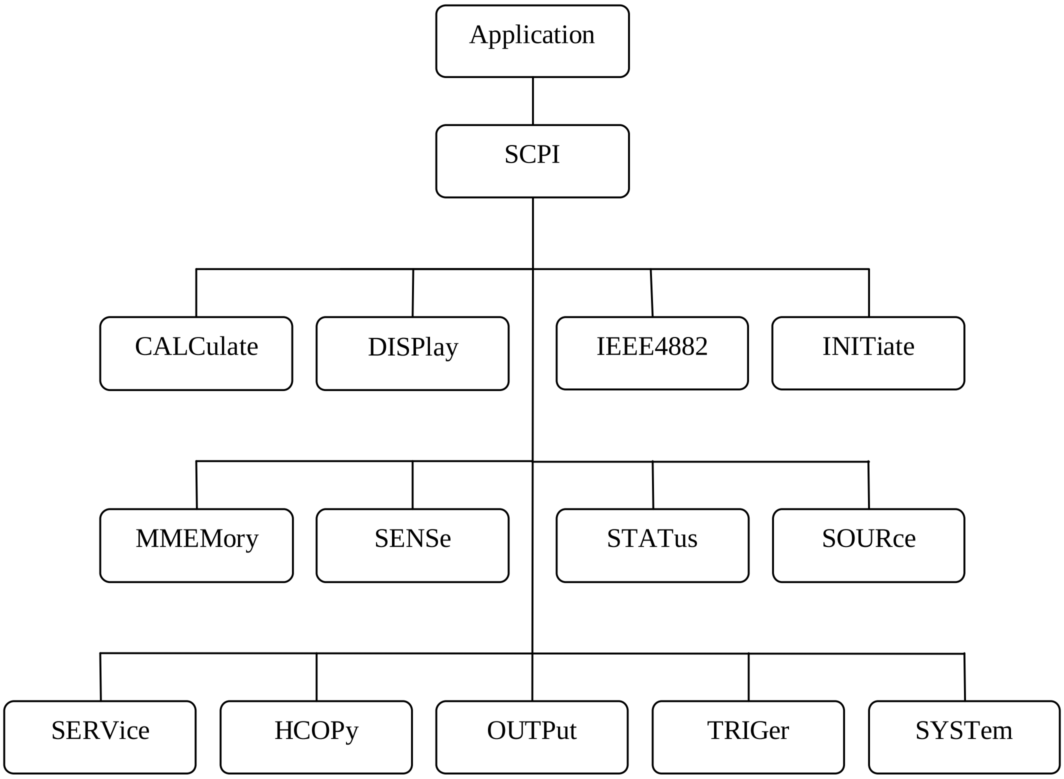


Figure 3. The structure of COM objects

The Object *Application* is in the top of the hierarchy of the COM server. Access to the lower level objects is implemented via higher level objects.

Note

The hierarchy of COM objects and their names are taken from the command system used for control over the Network Analyzers via GPIB interface. GPIB communication protocol complies with the IEE488.2 standard. In accordance with this standard the SCPI programming language is used. Operators in SCPI have hierarchical chain structure, for example:

```
CALCulate:PARameter:DEFine S11
```

The same command in COM written in VB programming language is as follows:

```
app.SCPI.CALCulate.PARameter.DEFine = "S11"
```

9 Accessing the Application Object

To establish connection with the COM server application, create an object reference in the client program. In COM programming the object reference needs to be acquired preliminarily, to be used later to access the object functionality. To define an object in Visual Basic perform the following:

1) Declare a variable as an object.

2) Assign the object to this variable.

To declare a variable, use *Dim* operator or other declaration statement (*Public, Private* or *Static*). The variables used for references should of the types *Variant, Object,* or a type of a specific object. For example, the following three operators declare app variable:

```
    Dim app
    Dim app as Object
    Dim app as Planar304.Application
```

Use *Set* operator and *CreateObject* (*ObjectName, HostName*) function to assign a specific object to a variable.

ObjectName	Object name is always equal to “*Planar304.Applcation*” (“*Planar804.Applcation*”, “S5048.*Applcation*” or “S7530.*Applcation*”)
HostName	Network name of the PC hosting the COM server. This parameter is not specified in case of a local server.

For example, the following operators create *Application* object and assign it to *app* variable:

```
Set app = CreateObject("Planar304.Applcation")
Set app = CreateObject("Planar304.Applcation", "Analyzer_Name")
Set app = CreateObject("Planar304.Applcation", "192.168.1.149")
```

Note	The first form of the operator is used to create the reference to the local COM server, the second and third forms are used to create the reference to the remote DCOM server.

To allow access to the objects of a lower level of the hierarchy, these objects are specified after the reference to the higher level object and separated from it by a dot. For example:

```
Dim SystObj
Set SystObj = app.SCPI.SYSTem
```

COM objects can have indices. For example, *CALCulate, INITiate, SENSe, SOURce* objects represent various aspects of the 16 measurement channels of the Analyzer. Therefore, it is necessary to write the channel index from 1 to 16 to acquire the data of these objects. For example:

```
Set SensObj1 = app.SCPI.SENSe(1)
Set SensObj2 = app.SCPI.SENSe(2)
```

Visual Basic allows omitting of such indices; in this case the indices are considered as equal to 1. For example, the following VB operators are equivalent:

```
Set SensObj = app.SCPI.SENSe(1)
Set SensObj = app.SCPI.SENSe
```

10 Object Methods

Objects have methods. Methods are actions that can be applied to objects. The object methods are specified after the object name and separated from it by a dot.

The following example shows the *PRESet* method of *SYSTem* object. This method performs setting of the Analyzer to the preset condition:

```
    app.SCPI.SYSTem.PRESet
```

11 Object Properties

Along with methods, objects have properties. Properties are object characteristics that can be set or read out. The object properties are specified after the object name and separated from it by a dot.

To modify an object characteristic, write the value of the corresponding property. To define an object characteristic, read out the value of its property. The following example show the setting of the *POINts* property of *SWEep* object, i.e. the number of sweep points:

```
    app.SCPI.SENSe.SWEp.POINts = 201
```

Note	Some object properties cannot be written, and some object properties cannot be read. In such cases, the properties are indicated as “read only” or “write only”.

12 Error Handling

You can use different approaches to error handling in VB program:

- check the value of Err.Number variable after execution of VB operator, which contains the call to the COM server object;
- use On Error goto VB operator.

These approaches are represented in the examples below. The following operator causes an error in VB program as *"S13"* value of the *DEFine* property is incorrect.

```
app.SCPI.PARameter.DEFine = "S13"
```

In the first example, the value of the *Err.Number* variable is checked after execution of the VB operator, which contains the call to the COM server object. *On Error Resume Next* directive instructs VB not to interrupt the program execution when the error is detected but to pass control to the next operator in natural order.

```
Dim app
Public Sub HandleError1()
Set app = CreateObject("Planar304.Application")
On Error Resume Next
app.SCPI.PARameter.DEFine = "S13"
If Err.Number <> 0 Then
  Msg = "Error # " & Str(Err.Number) & " was generated by " &_
  Err.Source & Chr(13) & Err.Description
  MsgBox Msg,,"Error"
End If
...
End Sub
```

In the second example, *On Error GoTo ErrHandler* directive instructs VB to interrupt the program execution when the error is detected and to pass control to *ErrHandler* label.

```
Dim app
Public Sub HandleError2()
Set app = CreateObject("Planar804.Applcation")
On Error GoTo ErrHandler
app.SCPI.PARameter.DEFine = "S13"
...
Exit Sub
ErrHandler:
  Msg = "Error # " & Str(Err.Number) & " was generated by " &_
  Err.Source & Chr(13) & Err.Description
  MsgBox Msg,,"Error"
End Sub
```

13 COM Automation Data Types

In COM automation, there are the following data types, which can be used for client-to-server communication:

Long 32-bit signed integer, value range from –2147483648 to 2147483647

Double 64-bit double-precision floating point, value range from –1.79769313486232E308 to –4.94065645841247E–324 for negative values, and from 4.94065645841247E–324 to 1.79769313486232E308 for positive values

Boolean 16-bit integer, two values 0 – *false*, 1 – *true*

String Variable-length string

Variant Can be either a value of arbitrary type or an array of values of arbitrary type. In this case, the term “arbitrary type” means any allowed type of COM automation. A variable contains information about its type and array size (if it is an array). It is used for communication of data arrays between a client and a server.

14 Measurement Data Arrays

Measurement data can be either complex values or real values. This depends on the format selected by the user. For example, the data is real in logarithmic magnitude format and the data is complex in polar format.

The measurement data is transferred in a *Variant* type variable, which represents an array of *Double* type. To transfer one complex measurement, two adjacent array cells are used. To transfer one real measurement two adjacent array cells are used as well but the second cell is always equal to 0. Thus, measurement data array size is a double number of the measurement points.

Measurement 1		Measurement 2			Measurement N	
Real	Imag	Real	Imag	...	Real	Imag

Figure 4. Array of complex measurements

Measurement 1		Measurement 2			Measurement N	
Value	0	Value	0	...	Value	0

Figure 5. Array of real measurements

15 COM Server Commands

NAME

Object Type	Property (read only)
Data Type	String
Description	Instrument information string. String format: manufacturer, model, serial number, number of firmware version and number of software version.
Range	up to 40 characters
Syntax	Dim *ID* As String *ID* = *app*.NAME
Equivalent Softkeys	**None**

Ready

Object Type	Property (read only)
Data Type	Boolean
Description	Ready state of the instrument. Reads out the *True* value after successful completion of the boot process (about 10 sec). The Analyzer must be connected to PC by a USB cable.
Syntax	Dim *State* as Boolean *State* = *app*.Ready
Equivalent Softkeys	**None**

SCPI.ABORt

Object Type	Method
Description	Aborts the sweep and switches the triggers of all the channels to *Hold*. The channels in *Continuous* trigger mode switch to waiting for a trigger. If the trigger source is set to *Internal*, the channel from waiting for a trigger turns to a new sweep.
Syntax	*app*.SCPI.ABORt
Equivalent Softkeys	**Stimulus > Trigger > Restart**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*). USER.FILename

Object Type	Property (read/write)
Data Type	String
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	De-embedding function file name (*.s2p). The file contains the circuit S–parameters in Touchstone format.
Range	up to 256 characters
Preset Value	""
Syntax	Dim *File* As String *File* = *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).USER.FILename *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).USER.FILename = "network.s2p"
Notes	If the full path to the file is not specified, the *\FixtureSim* subdirectory of the main directory will be searched for the file.
Equivalent Softkeys	**Analysis > Fixture Simulator > De–Embedding > S–parameters File**

Table 1. *Ch*: Channel Number

Data Type	Long
Description	Channel number.
Range	from 1 to 16
Out of Range	An error occurs. Error code: 201.
Notes	If the channel number is not specified, it is taken as equal to 1.

Table 2. *Pt*: Port Number

Data Type	Long
Description	Port number.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 114.
Notes	If the port number is not specified, it is taken as equal to 1.

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe

Object Type	Property (read/write)
Data Type	Boolean
	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The ON/OFF state of the e-embedding function.
Allowable Values	True: De-embedding function ON False: De-embedding function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app.*SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe *app.*SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > De–Embedding > Port n**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*). USER.FILename

Object Type	Property (read/write)
Data Type	String
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	Embedding function file name (*.s2p). The file contains the circuit S–parameters in Touchstone format.
Range	up to 256 characters
Preset Value	""
Syntax	Dim *File* As String *File* = *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).USER.FILename *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).USER.FILename = "network.s2p"
Notes	If the full path to the file is not specified, the \FixtureSim subdirectory of the main directory will be searched for the file.
Equivalent Softkeys	**Analysis > Fixture Simulator > Embedding > Port n**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.PMCircuit.PORT(*Pt*).STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The ON/OFF state of the embedding function.
Allowable Values	True: Embedding function ON False: Embedding function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app.*SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe *app.*SCPI.CALCulate(*Ch*).FSIMulator.SENDed.DEEMbed.PORT(*Pt*).STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Embedding > Port n**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed. ZCONversion.PORT(*Pt*).Z0.R

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The value of the impedance for port impedance conversion function.
Range	from 1e–6 to 1e6
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50
Unit	Ω (Ohm)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.PORT(*Pt*).Z0.R *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.PORT(*Pt*).Z0.R = 75
Equivalent Softkeys	**Analysis > Fixture Simulator > Port Z Conversion > Port n Z0**

SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the port impedance conversion function.
Allowable Values	True: Port Z conversion function ON False: Port Z conversion function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.STATe *app*.SCPI.CALCulate(*Ch*).FSIMulator.SENDed.ZCONversion.STATe = True
Equivalent Softkeys	**Analysis > Fixture Simulator > Port Z Conversion > Port Z Conversion**

SCPI.CALCulate(*Ch*).PARameter.COUNt

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of traces in the channel.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Syntax	Dim *TraceNum* As Long *TraceNum* = *app*.SCPI.CALCulate(*Ch*).PARameter.COUNt *app*.SCPI.CALCulate(*Ch*).PARameter.COUNt = 2
Equivalent Softkeys	**Display > Num of Traces**

SCPI.CALCulate(*Ch*).PARameter(*Tr*).DEFine

Object Type	Property (read/write)
Data Type	String
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The measurement parameter of the trace.
Allowable Values	"S11" : S11 parameter "S21" : S21 parameter "S12" : S12 parameter "S22" : S22 parameter "A" : Receiver A "B" : Receiver B "R1" : Receiver R1 "R2" : Receiver R2
Out of Range	An error occurs. Error code: 208.
Preset Value	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"
Syntax	Dim *Meas* As String *Meas* = *app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).DEFine *app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).DEFine = "S11"
Equivalent Softkeys	**Measurement > Measurement > S11 | S21 | S12 | S22** **Measurement > Measurement > Absolute > { A(1) | B(1) | R1(1) | A(2) | B(2) | R2(2) }**

Table 3. *Tr*: Trace Number

Data Type	Long
Description	Trace number
Range	from 1 to 16
Out of Range	An error occurs. Error code: 202.
Notes	If the trace number is not specified, it is taken as equal to 1.

SCPI.CALCulate(*Ch*).PARameter(*Tr*).SELect

Object Type	Method
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	Sets the active channel and trace.
Syntax	*app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).SELect
Notes	If the channel number is greater than the number of the channels displayed, an error occurs and the command is ignored. If the trace number is greater than the number of the traces displayed in the channel, an error occurs and the command is ignored.
Equivalent Softkeys	**Display > Active Trace/Channel > Active Channel** **Display > Active Trace/Channel > Active Trace**

SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt

Object Type	Property (read/write)
Data Type	Long
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The number of the source port for absolute measurements.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 208.
Preset Value	1
Syntax	Dim *StimPort* As Long *StimPort* = *app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt *app*.SCPI.CALCulate(*Ch*).PARameter(*Tr*).SPORt = 1
Equivalent Softkeys	**Measurement > Measurement > Absolute > A(1) | B(1) | R1(1) | A(2) | B(2) | R2(2)**

SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The S–parameter conversion function type.
Range	"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
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 217.
Preset Value	"ZREF"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion *app*.SCPI.CALCulate(*Ch*).SELected.CONVersion.FUNCtion = "ZTR"
Equivalent Softkeys	**Analysis > Conversion > Zr | Zt | Yr | Yt | 1/S | Z Trans–Shunt | Y Trans–Shunt | Conjugation**

SCPI.CALCulate(*Ch*).SELected.CONVersion.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the S-parameter conversion function.
Allowable Values	True: S–parameter conversion function ON False: S–parameter conversion function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.CONVersion.STATe *app*.SCPI.CALCulate(*Ch*).SELected.CONVersion.STATe = true
Equivalent Softkeys	**Analysis > Conversion > Conversion**

SCPI.CALCulate(*Ch*).SELected.CORRection.EDELay.TIME

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The value of the electrical delay.
Range	from –10 to 10
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.EDELay.TIME *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.EDELay.TIME = 1e–9
Equivalent Softkeys	**Scale > Electrical Delay**

SCPI.CALCulate(*Ch*).SELected.CORRection.OFFSet.PHASe

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The value of the phase offset.
Range	from –360 to 360
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	° (degree)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.OFFSet.PHASe *app*.SCPI.CALCulate(*Ch*).SELected.CORRection.OFFSet.PHASe = 360
Equivalent Softkeys	**Scale > Phase Offset**

SCPI.CALCulate(*Ch*).SELected.DATA.FDATa

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The formatted data array. The array elements contain measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section "Measurement Data Arrays" on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n–1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.DATA.FDATa
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.FMEMory

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The formatted memory array. The array elements contain saved measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n–1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.DATA.FMEMory
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.SDATa

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The corrected data array. The corrected measurements are complex numbers. Also, see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* the real part of corrected measurement; *Data(2n–1)* the imaginary part of corrected measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.DATA.SDATa
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.DATA.SMEMory

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The corrected memory array. The corrected measurements are complex numbers. Also, see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* the real part of corrected measurement memory; *Data(2n–1)* the imaginary part of corrected measurement memory.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.DATA.SMEMory
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.CENTer

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The gate center value of the gating function.
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.CENTer *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.CENTer = 1e–8
Equivalent Softkeys	**Analysis > Gating > Center**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SHAPe

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The gate shape of the gating function.
Range	"MAXimum" : Maximum shape "WIDE" : Wide shape "NORMal" : Normal shape "MINimum" : Minimum shape
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 218.
Preset Value	"NORM"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SHAPe *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SHAPe = "MAX"
Equivalent Softkeys	**Analysis > Gating > Shape > Maximum | Wide | Normal | Minimum**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SPAN

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The gate span value of the gating function.
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2e–8
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SPAN *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.SPAN = 1e–8
Equivalent Softkeys	**Analysis > Gating > Span**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STARt

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The gate start value of the gating function.
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	–1e–8
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STARt *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STARt = 1e–7
Equivalent Softkeys	**Analysis > Gating > Start**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the gating function.
Allowable Values	True: Gating function ON False: Gating function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STATe *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STATe = *Status*
Equivalent Softkeys	**Analysis > Gating > Gating**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STOP

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The gate stop value of the gating function.
Range	Varies depending on the frequency span and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1e–8
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STOP *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.STOP = 1e–7
Equivalent Softkeys	**Analysis > Gating > Stop**

SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.TYPE

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The gate type of the gating function.
Range	"BPASs" : Bandpass type "NOTCh" : Notch type
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 219.
Preset Value	"BPAS"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.FILTer.GATE.TIME.TYPE = "bpas"
Equivalent Softkeys	**Analysis > Gating > Type**

SCPI.CALCulate(*Ch*).SELected.FORMat

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Data format.
Range	"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
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 209.
Preset Value	"MLOG"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.FORMat *app*.SCPI.CALCulate(*Ch*).SELected.FORMat = "PHAS"
Equivalent Softkeys	**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**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array of analysis executed by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method. The array size is 2N, where N is the number of points defined by the SCPI.CALCulate(Ch).SELected.FUNCtion.POINts property. For the n–th point, where n from 1 to N: *Data(2n–2)* the response value in the n–th measurement point; *Data(2n–1)* the stimulus value in the n–th measurement point. Always set to 0 for the analysis of mean value, standard deviation, and peak–to–peak value.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle

Object Type	Property (read/write)
Data Type	Boolean
Target	All traces of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF coupling state of the analysis range for the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Allowable Values	True: Coupling state ON False: Coupling state OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle = *Status*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STARt

Object Type	Property (read/write)
Data Type	Double
Target	All traces of channel *Ch* (if the coupling is set to OFF by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle property), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The start value of the analysis range set by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	From the stimulus current start value to the stimulus current stop value.
Out of Range	No limitation
Preset Value	0
Unit	Hz (Hertz) | s (second) | dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STARt *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STARt = 1e9
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	All traces of channel *Ch* (if the coupling is set to OFF by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle property), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the arbitrary range when executing the analysis by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Allowable Values	True: Arbitrary range ON False: Arbitrary range OFF (entire sweep range)
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STATe *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STATe = *true*
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STOP

Object Type	Property (read/write)
Data Type	Double
Target	All traces of channel *Ch* (if the coupling is set to OFF by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle property), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The stop value of the analysis range set by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	From the stimulus current start value to the stimulus current stop value.
Out of Range	No limitation
Preset Value	0
Unit	Hz (Hertz) | s (second) | dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STOP *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.STOP = 2e9
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute

Object Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Executes the analysis specified with the SCPI.CALCulate(Ch).SELected.FUNCtion.TYPE property. The analysis result can then be read out with the SCPI.CALCulate(Ch).SELected.FUNCtion.DATA property.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.EXECute
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.PEXCursion

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The lower limit for the peak excursion value when executing the peak search by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	Varies depending on the trace format.
Out of Range	No limitation
Preset Value	3
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PEXCursion *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PEXCursion = 1.5
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.POINts

Object Type	Property (read only)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of points (data pairs) of the analysis result by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method. Always equal to 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 peaks or all targets.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.POINts
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.PPOLarity

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The polarity selection when performing the peak search by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	"POSitive" : Positive peaks "NEGative" : Negative peaks "BOTH" : Both positive peaks and negative peaks
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"POS"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PPOLarity *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.PPOLarity = "NEG"
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.TARGet

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The target level when performing the search for the trace and the target level crosspoints by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	Varies depending on the trace format.
Out of Range	No limitation
Preset Value	0
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TARGet *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TARGet = –10
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.TTRansition

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The transition type selection when performing the search for the trace and the target level crosspoints by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	"POSitive" : Positive peaks "NEGative" : Negative peaks "BOTH" : Both positive peaks and negative peaks
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"POS"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TTRansition *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TTRansition = "both"
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selection of the type of analysis executed by the SCPI.CALCulate(Ch).SELected.FUNCtion.EXECute method.
Range	"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 the peak "APEak" : Search for all the peaks "ATARget" : Search for all targets
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"PTP"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.FUNCtion.TYPE = "STDEV"
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.DATA

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array, which is the limit line in the limit test function. The array size is 1 + 5N, where N is the number of measuring points. For the n–th point, where n from 1 to N: *Data(0)* The number of limit line segments N is from 0 to 100. Setting 0 clears the limit line; *Data(5n–4)* type of the n–th limit line segment; 0: OFF 1: Upper limit 2: Lower limit 3: Single Point limit *Data(5n–3)* the stimulus value in the start point of the n–th segment; *Data(5n–2)* the stimulus value in the end point of the n–th segment; *Data(5n–1)* the response value in the start point of the n–th segment; *Data(5n–0)* the response value in the end point of the n–th segment.
Notes	If the array size is not 1 + 5N, where N is *Data(0)*, an error occurs (error code 214). If *Data(5n – 4)* is less than 0 or more than 2, an error occurs (error code 214). When *Data(5n–3)*, *Data(5n–2)*, *Data(5n–1)* and *Data(5n–0)* elements are out of allowable range, the value is set to the limit, which is closer to the specified value.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.DATA *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.DATA = Array(1,2,800,900,–10,–10)
Equivalent Softkeys	**Analysis > Limit Test > Edit Limit Line**

SCPI.CALCulate(*Ch*).SELected.LIMit.DISPlay.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the limit line display of the limit test function.
Allowable Values	True: Limit line display ON False: Limit line display OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.DISPlay.STATe *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.DISPlay.STATe = true
Equivalent Softkeys	**Analysis > Limit Test > Limit Line**

SCPI.CALCulate(*Ch*).SELected.LIMit.FAIL

Object Type	Property (read only)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The limit test result.
Allowable Values	True: Fail False: Pass
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.FAIL
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.AMPLitude

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The value of the limit line offset along Y–axis.
Range	Varies depending on the trace format.
Out of Range	No limitation
Preset Value	0
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.AMPLitude *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.AMPLitude = –10
Equivalent Softkeys	**Analysis > Limit Test > Limit Line Offsets > Response Offset**

SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.MARKer

Object Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Sets the value of the limit line offset along Y–axis to the active marker value.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.MARKer
Equivalent Softkeys	**Analysis > Limit Test > Limit Line Offsets > Marker > Response Ofs**

SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.STIMulus

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The value of the limit line offset along X–axis.
Range	From the stimulus current start value to the stimulus current stop value.
Out of Range	No limitation
Preset Value	0
Unit	Hz (Hertz) | s (second) | dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.STIMulus *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.OFFSet.STIMulus = 1e6
Equivalent Softkeys	**Analysis > Limit Test > Limit Lines Offsets > Stimulus Offset**

SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.ALL

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array, which is the limit test results. The array size is 4N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(4n–3)* the stimulus value in the n–th point *Data(4n–2)* the limit test result in the n–th point –1: No limit 0: Fail 1: Pass *Data(4n–1)* the upper limit value in the n–th point (0 – if there is no limit) *Data(4n–0)* the lower limit value in the n–th point (0 – if there is no limit)
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.ALL
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array, which is the stimulus values at all the measurement points that failed the limit test. The array size is defined by the SCPI.CALCulate(Ch).SELected.LIMit.REPort.POINts property.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.POINts

Object Type	Property (read only)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the measurement points that failed the limit test. The array of stimulus values of the points can be read out by the SCPI.CALCulate(Ch).SELected.LIMit.REPort.DATA property.
Syntax	Dim *Cnt* As Long *Cnt* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.REPort.POINts
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.LIMit.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the limit test function.
Allowable Values	True: Limit test function ON False: Limit test function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.STATe *app*.SCPI.CALCulate(*Ch*).SELected.LIMit.STATe = true
Equivalent Softkeys	**Analysis > Limit Test > Limit Test**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).ACTivate

Object Type	Method
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	Sets the active marker. If a marker is OFF this function will turn it 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.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).ACTivate
Equivalent Softkeys	**Markers > Select > Marker n** **Markers > Reference Marker**

Table 4. *Mk*: Marker Number

Data Type	Long
Description	Marker number. Numbers from 1 to 15 are for regular markers, number 16 is for the reference marker.
Range	from 1 to 16
Out of Range	An error occurs. Error code: 203.
Notes	If the marker number is not specified, it is taken as equal to 1.

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)

Description	The bandwidth search result. The bandwidth search can be performed relatively to the marker *Mk*, or relatively to the absolute maximum value of the trace (in this case the marker number is ignored), what is set by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.REFerence property.
	The array contains 4 elements:
	Data(0) Bandwidth;
	Data(1) Center frequency;
	Data(2) Q value;
	Data(3) Loss.

Notes	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).
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.REFerence

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selection of the reference point for the bandwidth search function: reference marker or absolute maximum value of the trace.
Range	"MARKer" : Bandwidth search relative to the reference marker "MAXimum" : Bandwidth search relative to the absolute maximum of the trace
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"MAX"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.REFerence *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.REFerence = "marker"
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Search Ref To**

SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the bandwidth search function.
Allowable Values	True: Bandwidth search function ON False: Bandwidth search function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.STATe = true
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Bandwidth Search**

SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.THReshold

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The bandwidth definition value.
Range	Varies depending on the trace format.
Out of Range	No limitation
Preset Value	–3
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.THReshold *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).BWIDth.THReshold = –6.0
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Bandwidth Value**

SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.TYPE

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The type of the bandwidth search function.
Range	"BPASs" : Bandpass "NOTCh" : Notch
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"BPAS"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.BWIDth.TYPE = "notc"
Equivalent Softkeys	**Markers > Marker Math > Bandwidth Search > Type**

SCPI.CALCulate(*Ch*).SELected.MARKer.COUNt

Object Type	Property (read/write)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the turned ON markers. Writing value from 1 to 15 will turn ON regular markers. Writing value 16 will turn ON 15 regular markers and the reference marker. Turning ON the reference marker switches all markers to the relative measurement mode.
Range	from 0 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Syntax	Dim *MarkerCnt* As Long *MarkerCnt* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.COUNt *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.COUNt = 5
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer.COUPle

Object Type	Property (read/write)
Data Type	Boolean
Target	All traces of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the marker coupling function.
Allowable Values	True: Marker coupling ON False: Marker coupling OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.COUPle *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.COUPle = false
Equivalent Softkeys	**Marker > Properties > Marker Couple**

SCPI.CALCulate(*Ch*).SELected.MARKer.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array of all turned ON markers. The array size is 3N + 1, where N is the number of turned ON markers including the reference marker. If reference marker is turned ON the last three elements of array contain the reference marker data and the rest elements of array contain the relative values. For the n–th marker, where n from 1 to N: *Data(0)* the number of turned ON markers including the reference marker; *Data(3n–2)* the stimulus value of the n–th marker; *Data(3n–1)* the real data in rectangular format, real part in polar and Smith chart formats of the n–th marker; *Data(3n–0)* 0 in rectangular format, imaginary part in polar and Smith chart formats of the n–th marker;
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle

Object Type	Property (read/write)
Data Type	Boolean
Target	All traces of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the marker search range coupling for different traces.
Allowable Values	True: Marker search range coupling ON False: Marker search range coupling OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle = false
Equivalent Softkeys	**Markers > Marker Search > Couple**

SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STARt

Object Type	Property (read/write)
Data Type	Double
Target	All traces of channel *Ch* (if the marker search range coupling is set to OFF by the SCPI.CALCulate(*Ch*).SELected.FUNCtion.DOMain.COUPle property), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The start value of the marker search range.
Range	From the stimulus current start value to the stimulus current stop value.
Out of Range	No limitation
Preset Value	Minimum frequency.
Unit	Hz (Hertz) | s (second) | dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STARt *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STARt = 1e6
Equivalent Softkeys	**Markers > Marker Search > Search Start**

SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	All traces of channel *Ch* (if the marker search range coupling is set to OFF by the SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle property), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the arbitrary range when executing the marker search.
Allowable Values	True: Marker search range ON False: Marker search range OFF (entire sweep range)
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STATe = true
Equivalent Softkeys	**Markers > Marker Search > Search Range**

SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STOP

Object Type	Property (read/write)
Data Type	Double
Target	All traces of channel *Ch* (if the marker search range coupling is set to OFF by the SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.COUPle property), the active trace of channel *Ch* (if otherwise), *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The stop value of the marker search range.
Range	From the stimulus current start value to the stimulus current stop value.
Out of Range	No limitation
Preset Value	Maximum frequency
Unit	Hz (Hertz) | s (second) | dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STOP *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.FUNCtion.DOMain.STOP = 1e6
Equivalent Softkeys	**Markers > Marker Search > Search Stop**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute

Object Type	Method
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	Executes the marker search according to the specified criterion. The type of the marker search is set by the SCPI.CALCulate(Ch).SELected.MARKer(Mk).FUNCtion.TYPE property.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute
Equivalent Softkeys	**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**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PEXCursion

Object Type	Property (read/write)
Data Type	Double
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The peak excursion value, when the marker search for peak is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Range	Varies depending on the trace format.
Out of Range	No limitation
Preset Value	1
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PEXCursion *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PEXCursion = 3.0
Equivalent Softkeys	**Markers > Marker Search > Peak > Peak Excursion**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PPOLarity

Object Type	Property (read/write)
Data Type	String
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The peak polarity selection, when the marker search for peak is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Range	"POSitive" : Positive polarity "NEGative" : Negative polarity "BOTH" : Both positive polarity and negative polarity
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"POS"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PPOLarity *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.PPOLarity = "neg"
Equivalent Softkeys	**Markers > Marker Search > Peak > Peak Polarity > Positive | Negative | Both**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TARGet

Object Type	Property (read/write)
Data Type	Double
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The target value, when the marker search for target is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Range	Varies depending on the trace format.
Out of Range	No limitation
Preset Value	0
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TARGet *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TARGet = –10
Equivalent Softkeys	**Markers > Marker Search > Target > Target Value**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TRACking

Object Type	Property (read/write)
Data Type	Boolean
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The ON/OFF state of the marker search tracking function.
Allowable Values	True: Marker search tracking ON False: Marker search tracking OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TRACking *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TRACking = true
Equivalent Softkeys	**Markers > Marker Search > Tracking**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TTRansition

Object Type	Property (read/write)
Data Type	String
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The selection of the type of the target transition, when the marker search for transition is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Range	"POSitive" : Positive target transition "NEGative" : Negative target transition "BOTH" : Both positive target transition and negative target transition
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"POS"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TTRansition *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TTRansition = "neg"
Equivalent Softkeys	**Marker > Marker Search > Target > Target Transition**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE

Object Type	Property (read/write)
Data Type	String
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The selection of the type of the marker search, which is performed by the SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.EXECute method.
Range	"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
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"MAX"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).FUNCtion.TYPE = "MIN"
Equivalent Softkeys	**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**

SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 25)

Description	The FLATNESS function data array. The FLATNESS function is applied within the range determined by two markers (see SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt and SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP properties).
	The array includes 4 elements:
	Data(0) Span;
	Data(1) Gain;
	Data(2) Slope;
	Data(3) Flatness.

Syntax	Dim *Data* As Variant *Data* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt

Object Type	Property (read/write)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 25)
Description	The number of the marker, which specifies the start frequency of the FLATNESS function range.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Syntax	Dim *MkrNum* As Long *MkrNum* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STARt = 1
Equivalent Softkeys	**Markers > Marker Math > Flatness > Flatness Start**

SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP

Object Type	Property (read/write)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 25)
Description	The number of the marker, which specifies the stop frequency of the FLATNESS function range.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2
Syntax	Dim *MkrNum* As Long *MkrNum* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.DOMain.STOP = 1
Equivalent Softkeys	**Markers > Marker Math > Flatness > Flatness Stop**

SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 25)
Description	The ON/OFF state of the FLATNESS function.
Allowable Values	True: FLATNESS function ON False: FLATNESS function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.STATe app.SCPI.CALCulate(*Ch*).SELected.MARKer.MATH.FLATness.STATe = true
Equivalent Softkeys	**Markers > Marker Math > Flatness > Flatness**

SCPI.CALCulate(Ch).SELected.MARKer.REFerence.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the reference marker. When the reference marker is turned ON, all the values of the other markers turn to relative values.
Allowable Values	True: Reference marker ON False: Reference marker OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.REFerence.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer.REFerence.STATe = true
Equivalent Softkeys	**Markers > Reference Marker**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*)._SET

Object Type	Property (write only)
Data Type	String
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The setting of the value of the specified item to the value of the position of the marker.
Range	"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.
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*)._SET = "STOP"
Equivalent Softkeys	**Markers > Marker Functions > Marker–>Start | Marker–>Stop | Marker –>Center | Marker–>Ref Value | Marker–>Delay**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The ON/OFF state of a marker. 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 for 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.
Allowable Values	True: Marker ON False: Marker OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).STATe *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).STATe = true
Equivalent Softkeys	**Markers > Add Marker | Remove Marker** **Markers > Reference Marker**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).X

Object Type	Property (read/write)
Data Type	Double
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The stimulus value of the marker.
Range	From the stimulus current start value to the stimulus current stop value.
Out of Value	Sets the value of the limit, which is closer to the specified value.
Preset Value	Stimulus center value
Unit	Hz (Hertz) | s (second) | dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).X *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).X = 1e9
Equivalent Softkeys	**Markers > Edit Stimulus**

SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).Y

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	Marker *Mk* of the active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Mk:* marker number 1–15, or reference marker number 16 (see Table 4 on page 73)
Description	The response value of the marker. 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 array includes 2 elements: *Data(0)* real number in rectangular format, real part in polar and Smith chart formats; *Data(1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.MARKer(*Mk*).Y
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MATH.FUNCtion

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selection of 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.
Range	"DIVide" : Division *Data / Mem.* "MULTiply" : Multiplication *Data x Mem.* "ADD" : Addition *Data + Mem.* "SUBTract" : Subtraction *Data – Mem.* *"NORMal"* : No math
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code 210.
Preset Value	"NORM"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.MATH.FUNCtion *app*.SCPI.CALCulate(*Ch*).SELected.MATH.FUNCtion= "DIV"
Equivalent Softkeys	**Display > Data Math > Data/Mem | Data*Mem | Data+Mem | Data–Mem | OFF**

SCPI.CALCulate(*Ch*).SELected.MATH.MEMorize

Object Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Saves the measurement data to the memory trace. Automatically turns on the display of the memory trace.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.MATH.MEMorize
Equivalent Softkeys	**Display > Data–>Memory**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The math statistics data array. The statistics function is applied either over the whole range (for all the trace), or within the range specified by the SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.STATe property (the range limits are determined by two markers). The array includes 3 elements: *Data(0)* Mean value; *Data(1)* Standard deviation; *Data(2)* Peak–to–peak (difference between the maximum value and the minimum value).
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STARt

Object Type	Property (read/write)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the marker, which specifies the start frequency of the math statistics range.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Syntax	Dim *MkrNum* As Long *MkrNum* = *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.MARKer.STARt *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.MARKer.STARt = 3
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics Start**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.MARKer.STOP

Object Type	Property (read/write)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the marker, which specifies the stop frequency of the math statistics range.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2
Syntax	Dim *MarkerNum* As Long *MarkerNum* = *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.MARKer.STOP *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.MARKer.STOP = 4
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics Stop**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.DOMain.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the math statistics range.
Allowable Values	True: Statistics range ON False: Statistics range OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.STATe *app*.SCPI.CALCulate(*Ch*).SELected. MSTatistics.DOMain.STATe = true
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics Range**

SCPI.CALCulate(*Ch*).SELected.MSTatistics.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the math statistics display.
Allowable Values	True: Statistics display ON False: Statistics display OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.STATe *app*.SCPI.CALCulate(*Ch*).SELected.MSTatistics.STATe = true
Equivalent Softkeys	**Markers > Marker Math > Statistics > Statistics**

SCPI.CALCulate(*Ch*).SELected. RLIMit.DATA

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array, which is the limit line for the ripple limit function. 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: *Data(0)* the number of limit line segments N is the integer from 0 to 12. Setting 0 clears the limit line; *Data(4n–3)* type of the n–th limit line segment; 0: Off 1: On *Data(4n–2)* the stimulus value in the beginning point of the n–th segment; *Data(4n–2)* the stimulus value in the end point of the n–th segment; *Data(4n–0)* the ripple limit value of the n–th segment.
Notes	If the array size is not 1 + 4N, where N is *Data(0)*, an error occurs (error code 214). If *Data(4n – 3)* is less than 0 or more than 1, an error occurs (error code 214). When *Data(4n–2), Data(4n–1),* and *Data(4n–0)* elements are out of allowable range, the value is set to the limit, which is closer to the specified value.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DATA *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DATA = Array(1,1,800,900,10)
Equivalent Softkeys	**Analysis > Ripple Limit > Edit Ripple Limit**

SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.LINE

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the ripple limit line display.
Allowable Values	True: Ripple limit line ON False: Ripple limit line OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.LINE *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.LINE = true
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Limit**

SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.SELect

Object Type	Property (read/write)
Data Type	Long
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the ripple limit test band selected for the ripple value display.
Range	from 1 to 12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.SELect *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.SELect = 2
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Value Band**

SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.VALue

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selection of the display type of the ripple value in the specified band.
Range	"OFF" : Ripple value display OFF "ABSolute" : Absolute value "MARgin" : Margin (difference between the ripple limit and the absolute value)
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"OFF"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.VALue *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.DISPlay.VALue = "ABS"
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Value**

SCPI.CALCulate(*Ch*).SELected.RLIMit.FAIL

Object Type	Property (read only)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Ripple limit test result.
Allowable Values	True: Fail False: Pass
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.FAIL
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.RLIMit.REPort.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The data array, which is the ripple limit test results. 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: *Data(0)* N total number of the bands; *Data(3n–2)* n number of the band; *Data(3n–1)* Ripple value in the n–th band; *Data(3n–0)* Ripple limit test result in the n–th band: 0: Pass 1: Fail
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.REPort.DATA
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).SELected.RLIMit.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the ripple limit test.
Allowable Values	True: Ripple limit test ON False: Ripple limit test OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.STATe *app*.SCPI.CALCulate(*Ch*).SELected.RLIMit.STATe = true
Equivalent Softkeys	**Analysis > Ripple Limit > Ripple Test**

SCPI.CALCulate(*Ch*).SELected.SMOothing.APERture

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The smoothing aperture for the smoothing function.
Range	from 0.01 to 20
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	%
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.SMOothing.APERture *app*.SCPI.CALCulate(*Ch*).SELected.SMOothing.APERture = 1.5
Equivalent Softkeys	**Average > Smo Aperture**

SCPI.CALCulate(*Ch*).SELected.SMOothing.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the trace smoothing function.
Allowable Values	True: Trace smoothing ON False: Trace smoothing OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.SMOothing.STATe *app*.SCPI.CALCulate(*Ch*).SELected.SMOothing.STATe = true
Equivalent Softkeys	**Average > Smoothing**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.CENTer

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Ehe time domain center value, when the time domain transformation function is turned ON.
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.CENTer *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.CENTer = 1e–8
Equivalent Softkeys	**Analysis > Time Domain > Center**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	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.
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	None
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh = 1e–8
Equivalent Softkeys	**Analysis > Time Domain > Window > Impulse Width** (when the transformation type is set to Bandpass or Lowpass Impulse)

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.KBESsel

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The β parameter, which controls the Kaiser–Bessel window shape, when performing time domain transformation.
Range	from 0 to 13
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	6
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.KBESsel *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.KBESsel = 13
Equivalent Softkeys	**Analysis > Time Domain > Window > Kaiser Beta**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.LPFRequency

Object Type	Method
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Changes the frequency range to match with the lowpass type of the time domain transformation function.
Syntax	*app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.LPFRequency
Equivalent Softkeys	**Analysis > Time Domain > Set Frequency Low Pass**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.SPAN

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The time domain span value, when the time domain transformation function is turned ON.
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2e–8
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.SPAN *app*. SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.SPAN = 1e–8
Equivalent Softkeys	**Analysis > Time Domain > Span**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STARt

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The start value used for the transformation function of the time domain function.
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	–1e–8
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STARt *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STARt = 1e–8
Equivalent Softkeys	**Analysis > Time Domain > Start**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the time domain transformation function.
Allowable Values	True: Time domain transformation ON False: Time domain transformation OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STATe *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STATe = true
Equivalent Softkeys	**Analysis > Time Domain > Time Domain**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STEP.RTIMe

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	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.
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	None
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.IMPulse.WIDTh = 1e–8
Equivalent Softkeys	**Analysis > Time Domain > Window > Impulse Width** (when the transformation type is set to Lowpass Step)

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STIMulus

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selection of the stimulus type for the time domain transformation function: impulse or step.
Range	"IMPulse" Impulse "STEP" Step
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"IMP"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STIMulus *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STIMulus = "STEP"
Equivalent Softkeys	**Analysis > Time Domain > Type > Bandpass | Lowpass Step | Lowpass Impulse**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STOP

Object Type	Property (read/write)
Data Type	Double
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The time domain stop value, when the time domain transformation function is turned ON.
Range	Varies depending on the specified frequency range and the number of points.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1e–8
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STOP *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.STOP = 2e–8
Equivalent Softkeys	**Analysis > Time Domain > Stop**

SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.TYPE

Object Type	Property (read/write)
Data Type	String
Target	The active trace of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selection of the transformation type for the time domain transformation function: bandpass response or direct current circuit.
Range	"BPASs" Bandpass "LPASs" Lowpass
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"BPASs"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.TYPE *app*.SCPI.CALCulate(*Ch*).SELected.TRANsform.TIME.TYPE = "STEP"
Equivalent Softkeys	**Analysis > Time Domain > Type > Bandpass | Lowpass Step | Lowpass Impulse**

SCPI.CALCulate(*Ch*).TRACe(*Tr*).DATA.FDATa

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The specified trace *Tr* of channel *Ch*, *Tr:* trace number 1–16 (see Table 3 on page 32) *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The formatted data array. The array elements contain measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n–1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*).Trace(*Tr*).DATA.FDATa
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*).TRACe(*Tr*).DATA.FMEMory

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The specified trace *Tr* of channel *Ch*, *Tr:* trace number 1–16 (see Table 3 on page 32) *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The formatted memory array. The array elements contain saved measurements in the current format, for example, in logarithmic magnitude format (Log Mag). Also, see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real number in rectangular format, real part in polar and Smith chart formats; *Data(2n–1)* 0 in rectangular format, imaginary part in polar and Smith chart formats.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*). Trace(*Tr*).DATA.FMEMory
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*). TRACe(*Tr*).DATA.SDATa

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The specified trace *Tr* of channel *Ch*, *Tr:* trace number 1–16 (see Table 3 on page 32) *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The corrected data array. The corrected measurements are complex numbers. Also, see section "Measurement Data Arrays" on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* the real part of corrected measurement; *Data(2n–1)* the imaginary part of corrected measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*). Trace(*Tr*).DATA.SDATa
Equivalent Softkeys	**None**

SCPI.CALCulate(*Ch*). TRACe(*Tr*).DATA.SMEMory

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	The specified trace *Tr* of channel *Ch*, *Tr:* trace number 1–16 (see Table 1 on page 32) *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The corrected memory array. The corrected measurements are complex numbers. Also, see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* the real part of corrected measurement memory; *Data(2n–1)* the imaginary part of corrected measurement memory.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.CALCulate(*Ch*). Trace(*Tr*).DATA.SMEMory
Equivalent Softkeys	**None**

SCPI.DISPlay.COLor.BACK

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Instrument
Description	The background color for trace display. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Range	For all the array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0, 0, 0
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.DISPlay.COLor.BACK *app*.SCPI.DISPlay.COLor.BACK = Array(0, 0, 0)
Equivalent Softkeys	**Display > Properties > Color > Background > Red | Green | Blue**

SCPI.DISPlay.COLor.GRATicule

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Instrument
Description	The grid and the graticule label color for trace display. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Range	For all array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.

Preset Value	*Data(0)* 160;
	Data(1) 160;
	Data(2) 164.

Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.DISPlay.COLor.GRATicule *app*.SCPI.DISPlay.COLor. GRATicule = Array(128, 128, 128)
Equivalent Softkeys	**Display > Properties > Color > Grid > Red | Green | Blue**

SCPI.DISPlay.COLor.RESet

Object Type	Method
Target	Instrument
Description	Restores the display settings to the default values.
Syntax	*app*.SCPI.DISPlay.COLor.RESet
Equivalent Softkeys	**Display > Properties > Set Defaults**

SCPI.DISPlay.COLor.TRACe(*Tr*).DATA

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Trace number *Tr* in all channels, *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The data trace color. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Range	For all array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the trace number.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.DISPlay.COLor.TRACe(*Tr*).DATA *app*.SCPI.DISPlay.COLor.TRACe(*Tr*).DATA = Array(255, 255, 0)
Equivalent Softkeys	**Display > Properties > Color > Data Trace > Red | Green | Blue**

SCPI.DISPlay.COLor.TRACe(*Tr*).MEMory

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Trace number *Tr* in all channels *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The memory trace color. The array contains 3 elements: *Data(0)* Red value R; *Data(1)* Green value G; *Data(2)* Blue value B.
Range	For all array elements from 0 to 255.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the trace number.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.DISPlay.COLor.TRACe(*Tr*).MEMory *app*.SCPI.DISPlay.COLor.TRACe(*Tr*). MEMory = Array(255, 255, 0)
Equivalent Softkeys	**Display > Properties > Color > Data Trace > Red | Green | Blue**

SCPI.DISPlay.ENABle

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the display update function.
Allowable Values	True: Display update ON False: Display update OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.ENABle *app*.SCPI.DISPlay.ENABle = true
Equivalent Softkeys	**Display > Update**

SCPI.DISPlay.FSIGn

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the *Fail* sign display, when performing limit test or ripple limit test.
Allowable Values	True: *Fail* sign display ON False: *Fail* sign display OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.FSIGn *app*.SCPI.DISPlay.FSIGn = true
Equivalent Softkeys	**Analysis > Limit Test > Fail Sign** **Analysis > Ripple Limit > Fail Sign**

SCPI.DISPlay.IMAGe

Object Type	Property (read/write)
Data Type	String
Target	Instrument
Description	The inverted color display of the data traces.
Range	"NORMal" : Normal display "INVert" : Inverted color display
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"NORM"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.DISPlay.IMAGe *app*.SCPI.DISPlay.IMAGe = "INV"
Equivalent Softkeys	**Display > Properties > Invert Color**

SCPI.DISPlay.HIDE

Object Type	Method
Target	Instrument GUI
Description	Hides the instrument GUI. Blanks the main window and outputs "Remote Control".
Syntax	*app*.SCPI.DISPlay.HIDE
Related Commands	SCPI.DISPlay.SHOW
Equivalent Softkeys	**None**

SCPI.DISPlay.MAXimize

Object Type	Property (read/write)
Data Type	Boolean
Target	Active channel window
Description	The ON/OFF state of the window maximization of the active channel.
Allowable Values	True: Maximization ON False Maximization OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.MAXimize *app*.SCPI.DISPlay. MAXimize = true
Equivalent Softkeys	**Display > Active Trace/Channel > Maximize channel**

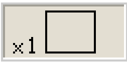
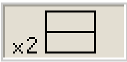
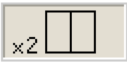
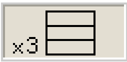
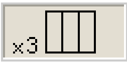
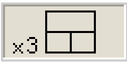
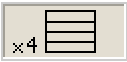
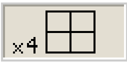
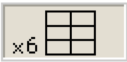
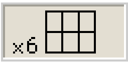
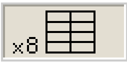
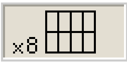
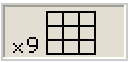
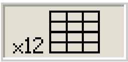
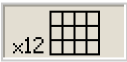
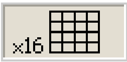
SCPI.DISPlay.SHOW

Object Type	Method
Target	Instrument GUI
Description	Shows the instrument GUI hidden by the SCPI.DISPlay.HIDE command.
Syntax	*app*.SCPI.DISPlay.SHOW
Related Commands	SCPI.DISPlay.HIDE
Equivalent Softkeys	**None**

SCPI.DISPlay.SPLit

Object Type	Property (read/write)
Data Type	Long
Target	Instrument
Description	The number and layout of the channel windows on the screen. The channel window layout is in Table 5 below.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.DISPlay.SPLit *app*.SCPI.DISPlay.SPLit = 2
Equivalent Softkeys	**Display > Allocate channels**

Table 5. Channel Window Layout on the Screen

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

SCPI.DISPlay._UPDate.IMMediate

Object Type	Method
Target	Instrument
Description	Updates the display once, when the display update is set to OFF (SCPI.DISPlay.ENABle property is set to False).
Syntax	*app*.SCPI.DISPlay._UPDate.IMMediate
Equivalent Softkeys	**None**

SCPI.DISPlay.WINDow(*Ch*).ACTivate

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Sets the active channel.
Notes	The channel window must be displayed. At attempt to set to the active channel the channel, which is not displayed, an error occurs.
Syntax	*app*.SCPI.DISPlay.WINDow(*Ch*).ACTivate
Equivalent Softkeys	**Display > Active Trace / Channel > Active Channel**

SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.ALIGn.TYPE

Object Type	Property (read/write)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The alignment mode of the marker display position of each trace, when the only active trace display feature is turned OFF (SCPI.DISPlay.WINDow(Ch).ANNotation.MARKer.SINGle.STATe property is set to False).
Range	"VERTical" : Vertical alignment "HORizontal" : Horizontal alignment "NONE" : No alignment
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"NONE"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.ALIGn.TYPE *app*.SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.ALIGn.TYPE = "VERT"
Equivalent Softkeys	**Markers > Properties > Align > Vertical | Horizontal | OFF**

SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the marker display for the active trace only.
Allowable Values	True: Only active trace markers display ON False: Only active trace markers display OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe *app*.SCPI SCPI.DISPlay.WINDow(*Ch*).ANNotation.MARKer.SINGle.STATe = true
Equivalent Softkeys	**Markers > Properties > Active Only**

SCPI.DISPlay.WINDow(*Ch*).MAXimize

Object Type	Property (read/write)
Data Type	Boolean
Target	The active trace of channel *Ch,* *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the active trace maximization of the specified channel.
Allowable Values	True: Maximization ON False Maximization OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.WINDow(*Ch*).MAXimize *app*.SCPI.DISPlay.WINDow(*Ch*).MAXimize = true
Equivalent Softkeys	**Display > Active Trace/Channel > Maximize Trace**

SCPI.DISPlay.WINDow(*Ch*).SPLit

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The code of the graph layout of channels. The channel window layout is in Table 5 on page 143.
Range	from 1 to 16
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Notes	This property does not define the number of traces in the channel window, the number of traces is defined by the SCPI.CALCulate(*Ch*).PARameter.COUNt property.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).SPLit *app*.SCPI.DISPlay.WINDow(*Ch*).SPLit = 2
Equivalent Softkeys	**Display > Allocate Traces**

SCPI.DISPlay.WINDow(*Ch*).TITLe.DATA

Object Type	Property (read/write)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The channel title label.
Range	up to 254 characters
Preset Value	""
Syntax	Dim *Text* As String *Text* = *app*.SCPI.DISPlay.WINDow(*Ch*).TITLe.DATA *app*.SCPI.DISPlay.WINDow(*Ch*).TITLe.DATA = "Example1"
Equivalent Softkeys	**Display > Edit Title Label**

SCPI.DISPlay.WINDow(*Ch*).TITLe.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the title label display.
Allowable Values	True: Title label display ON False: Title label display OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.WINDow(*Ch*).TITLe.STATe *app*.SCPI.DISPlay.WINDow(*Ch*).TITLe.STATe = true
Equivalent Softkeys	**Display > Title Label**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.X

Object Type	Property (read/write)
Data Type	Double
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The display position of the marker value on the X–axis by a percentage of the display width.
Range	from 0 to 100
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	%
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.X *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.X = 50
Equivalent Softkeys	**Markers > Properties > Data X Position**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.Y

Object Type	Property (read/write)
Data Type	Double
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The display position of the marker value on the Y–axis by a percentage of the display height.
Range	from 0 to 100
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	%
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.Y *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).ANNotation.MARKer.POSition.Y = 50
Equivalent Softkeys	**Markers > Properties > Data Y Position**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).MEMory. STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The ON/OFF state of the memory trace display.
Allowable Values	True: Memory trace display ON False: Memory trace display OFF
Preset Value	False
Notes	If the memory is empty, an error occurs and the object is ignored.
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).MEMory.STATe *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).MEMory.STATe = true
Equivalent Softkeys	**Display > Display > Memory | Data & Memory** (ON) **Display > Display > Data | OFF (OFF)**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The ON/OFF state of the data trace display.
Allowable Values	True: Data trace display ON False: Data trace display OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).STATe *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).STATe = false
Equivalent Softkeys	**Display > Display > Data | Data & Memory** (ON) **Display > Display > Memory | OFF** (OFF)

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.AUTO

Object Type	Method
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	Executes the auto scale function for the trace.
Syntax	*app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.AUTO
Equivalent Softkeys	**Scale > Auto Scale**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.PDIVision

Object Type	Property (read/write)
Data Type	Double
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	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.
Range	from 10E–18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	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
Unit	dB/Div (decibel per division), °/Div (degree per division), s/Div (second per division)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.PDIVision *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.PDIVision = 20
Equivalent Softkeys	**Scale > Scale**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RLEVel

Object Type	Property (read/write)
Data Type	Double
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The value of the reference line (response value on the reference line). For the rectangular format only.
Range	from –1E–18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0 (except for SWR: 1)
Unit	dB (decibel) | ° (degree) | s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RLEVel *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RLEVel = 10
Equivalent Softkeys	**Scale > Ref Value**

SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RPOSition

Object Type	Property (read/write)
Data Type	Long
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The position of the reference line. For the rectangular format only.
Range	From 0 to the number of the scale divisions (set by the SCPI.DISPlay.WINDow(Ch).Y.SCALe.DIVisions property, 10 by default).
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	5 (except for SWR: 0)
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RPOSition *app*.SCPI.DISPlay.WINDow(*Ch*).TRACe(*Tr*).Y.SCALe.RPOSition = 10
Equivalent Softkeys	**Scale > Ref Position**

SCPI.DISPlay.WINDow(*Ch*).X.SPACing

Object Type	Property (read/write)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24).
Description	The selection of the display method of the graph horizontal axis for the segment sweep.
Range	"LINear" : Frequency base (linear frequency axis) *"OBASe"* : Order base (linear axis of the point numbers)
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"LIN"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.DISPlay.WINDow(*Ch*).X.SPACing *app*.SCPI.DISPlay.WINDow(*Ch*).X.SPACing = "OBAS"
Equivalent Softkeys	**Stimulus > Segment Table > Segment Display**

SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24).
Description	The number of the vertical scale divisions. For the rectangular format only.
Range	from 4 to 30
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	10
Resolution	2
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions *app*.SCPI.DISPlay.WINDow(*Ch*).Y.SCALe.DIVisions = 12
Equivalent Softkeys	**Scale > Divisions**

SCPI.HCOPy.ABORt

Object Type	Method
Target	Instrument
Description	Aborts the printout.
Syntax	*app*.SCPI.HCOPy.ABORt
Equivalent Softkeys	**None**

SCPI.HCOPy.DATE.STAMp

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the current date and time printout in the upper right corner.
Allowable Values	True: Date & time printout ON False: Date & time printout OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.HCOPy.DATE.STAMp *app*.SCPI.HCOPy.DATE.STAMp = False
Equivalent Softkeys	**System > Print > Print Date & Time**

SCPI.HCOPy.IMAGe

Object Type	Property (read/write)
Data Type	String
Target	Instrument
Description	The inverted color image printout.
Range	"NORMal" : Normal printout "INVert" : Inverted color printout
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"NORM"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.HCOPy.IMAGe *app*.SCPI.HCOPy.IMAGe = "INV"
Equivalent Softkeys	**System > Print > Invert Image**

SCPI.HCOPy.IMMediate

Object Type	Method
Target	Instrument
Description	Prints out the image displayed on the screen without previewing.
Syntax	*app*.SCPI.HCOPy.IMMediate
Equivalent Softkeys	**System > Print > Print Embedded**

SCPI.HCOPy.PAINt

Object Type	Property (read/write)
Data Type	String
Target	Instrument
Description	The color chart for the image printout.
Range	"COLor" : Color printout "GRAY" : Grayscale printout "BW" : Black&white printout
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	The value is ignored.
Preset Value	"BW"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.HCOPy.PAINt *app*.SCPI.HCOPy.PAINt = "COL"
Equivalent Softkeys	**System > Print > Print Color**

SCPI.IEEE4882.CLS

Object Type	Method
Target	Status Reporting System
Description	Clears the following: • 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
Syntax	*app*.SCPI.IEEE4882.CLS
Equivalent Softkeys	**None**

SCPI.IEEE4882.IDN

Object Type	Property (read only)
Data Type	String
Target	Instrument
Description	The instrument information string. The string format: "{manufacturer}, {model}, {serial number}, {software version/firmware version}".
Range	up to 40 characters
Syntax	Dim *ID* As String *ID* = *app*.NAME
Equivalent Softkeys	**None**

SCPI.IEEE4882.OPC

Object Type	Property (read/write)
Data Type	Long
Target	Status Reporting System
Description	Read 1 when all pending operations are complete. Note: since COM server executes commands sequentially and any operation is complete before COM server returns control the OPC read command doesn't wait anything. Write form of the command sets 1 the OPC bit (bit 0) of the Standard Event Status Register when all of pending operations complete. In the COM programming this is dummy operation.
Syntax	*Value* = *app*.SCPI.IEEE4882.OPC *app*.SCPI.IEEE4882.OPC = Dummy
Equivalent Softkeys	**None**

SCPI.IEEE4882.RST

Object Type	Method
Target	Instrument
Description	Restores the default settings of the instrument. There is difference from presetting the instrument with the SCPI.SYSTem.PRESet method – in this case the trigger mode is set to *Hold*.
Syntax	*app*.SCPI.IEEE4882.RST
Equivalent Softkeys	**None**

SCPI.IEEE4882.TRG

Object Type	Method
Target	Instrument
Description	If the trigger source is set to GPIB/LAN (SCPI.TRIGger.SEQuence.SOURce property is set to *"BUS"*), triggers a sweep. If the trigger source is not set to the bus (SCPI.TRIGger.SEQuence.SOURce property is not set to *"BUS"*) or the instrument is not waiting for a trigger, the method is ignored.
Syntax	*app*.SCPI.IEEE4882.TRG
Related Commands	SCPI.TRIGger.SEQuence.SOURce SCPI.INITiate(*Ch*).CONTinuous SCPI.INITiate(*Ch*).IMMediate
Equivalent Softkeys	**None**

SCPI.IEEE4882.WAI

Object Type	Method
Target	Instrument
Description	Waits for the execution of all commands sent before this command. Note: since COM server executes commands sequentially and any operation is complete before COM server returns control the WAI command doesn't wait anything.
Syntax	*app*.SCPI.IEEE4882.WAI
Equivalent Softkeys	**None**

SCPI.INITiate(*Ch*).CONTinuous

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the continuous trigger initiation mode. If the continuous trigger initiation mode is set to OFF, the channel turns to the hold state.
Allowable Values	True: Continuous trigger initiation mode ON False: Continuous trigger initiation mode OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.INITiate(*Ch*).CONTinuous *app*.SCPI.INITiate(*Ch*).CONTinuous = False
Notes	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.
Equivalent Softkeys	**Stimulus > Trigger > Continuous** **Stimulus > Trigger > Hold**

SCPI.INITiate(*Ch*).IMMediate

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Sets the channel to the single trigger mode. Before this method is called, the channel must be in hold state, otherwise an error occurs (error code 213) and the method is ignored. On completion of the sweep, the channel goes back into the hold state. The method returns control before the end of the sweep.
Syntax	*app*.SCPI.INITiate(*Ch*).IMMediate
Notes	The sweep start in the single trigger mode depends on the trigger source. If the trigger is set to internal, the sweep will start immediately after the method is called. If the trigger is set otherwise, the sweep will start when the trigger signal is received.
Equivalent Softkeys	**Stimulus > Trigger > Single**

SCPI.MMEMory.CATalog*(Dir)*

Object Type	Property (read only)
Data Type	String
Description	This command reads out the following information on the hard drive: • Space in use • Available space • Name and size of all files (including directories) in the specified directory Format: ("{A},{B},{Name 1},,{Size 1},{Name 2},,{Size 2}, ... ,{Name N},,{Size N}") Where N is the number of all files in the specified directory and n is an integer between 1 and N. {A}: Space in use of the hard drive (byte). {B}: Available space of the hard drive (byte). {Name n}: Name of the n-th file (directory). {Size n}: Size (byte) of the n-th file (directory). Always 0 for directories.
Parameter	*Dir* – Directory name whose information you want to read out
Syntax	*Dim Cat as String* *Cat* = *app*.SCPI.MMEMory.CATalog("\.")
Equivalent Softkeys	**None**

SCPI.MMEMory.COPY(*Src*, *Dst*)

Object Type	Method
Target	Instrument
Description	Copies a file.
Syntax	*app*.SCPI.MMEMory.COPY(*Src*, *Dst*)
Parameter	*Src* – Source file name. String data type. *Dst* – Destination file name. String data type.
Equivalent Softkeys	**None**

SCPI.MMEMory.DELete(*File*)

Object Type	Method
Target	Instrument
Description	Deletes a file.
Syntax	*app*.SCPI.MMEMory.DELete(*File*)
Parameter	*File* – File name. String data type.
Equivalent Softkeys	**None**

SCPI.MMEMory.LOAD.CHANnel.STATe

Object Type	Property (write only)
Data Type	String
Target	Active channel
Description	Recalls the instrument state for the active channel, saved in one of the four memory registers by the SCPI.MMEMory.STORe.CHANnel.STATe property.
Range	"A" : Recall from register A "B" : Recall from register B "C" : Recall from register C "D" : Recall from register D
Out of Range	The value is ignored.
Syntax	*app*.SCPI.MMEMory.LOAD.CHANnel.STATe = "A"
Equivalent Softkeys	**Save/Recall > Recall Channel > State A | B | C | D**

SCPI.MMEMory.LOAD.CKIT(*Ck*)

Object Type	Property (write only)
Data Type	String
Target	Calibration kit Ck, *Ck:* calibration kit number 1–11 (see Table 6 on page 173)
Description	Recalls the definition file for the calibration kit. The file must be saved by the SCPI.MMEMory.STORe.CKIT(*Ck*) property.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.CKIT(*Ck*) = *File*
Notes	If the full path to 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.
Equivalent Softkeys	**None**

Table 6. *Ck*: Calibration Kit Number

Data Type	Long
Description	Calibration kit number.
Range	from 1 to 11
Out of Range	An error occurs. Error code: 114.
Notes	If the calibration kit number is not specified, it is taken as equal to 1.

SCPI.MMEMory.LOAD.LIMit

Object Type	Property (write only)
Data Type	String
Target	Active trace of the active channel.
Description	Recalls the specified limit table file. The file must be saved by the SCPI.MMEMory.STORe.LIMit property.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.LIMit = *File*
Notes	If the full path to the file is not specified, the *\Limit* subdirectory of the main directory will be searched for the file. The limit table files have **.lim* extension by default.
Equivalent Softkeys	**Analysis > Limit Test > Edit Limit Line > Restore Limit Table**

SCPI.MMEMory.LOAD.PLOSs(*Pt*)

Object Type	Property (write only)
Data Type	String
Target	Port *Pt* of the active channel, *Pt:* port number 1–2 (see Table 2 on page 24).
Description	Recalls the specified loss compensation table file. The file must be saved by the SCPI.MMEMory.STORe.PLOSs(*Pt*) property.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.PLOSs(*Pt*) = *File*
Notes	If the full path to 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.
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen > Import Loss Table**

SCPI.MMEMory.LOAD.RLIMit

Object Type	Property (write only)
Data Type	String
Target	Active trace of the active channel.
Description	Recalls the ripple limit table file. The file must be saved by the SCPI.MMEMory.STORe.RLIMit property.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.RLIMit = *File*
Notes	If the full path to the file is not specified, the *\Limit* subdirectory of the main directory will be searched for the file. The ripple limit files have **.rlm* extension by default.
Equivalent Softkeys	**Analysis > Ripple Limit > Edit Ripple Limit > Restore Ripple Limit Table**

SCPI.MMEMory.LOAD.SEGMent

Object Type	Property (write only)
Data Type	String
Target	Active channel
Description	Recalls the segment table file. The file must be saved by the SCPI.MMEMory.STORe.SEGMent property.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.SEGMent = *File*
Notes	If the full path to the file is not specified, the *\Segment* subdirectory of the main directory will be searched for the file. The segment files have *.*seg* extension by default.
Equivalent Softkeys	**Stimulus > Segment Table > Recall…**

SCPI.MMEMory.LOAD.SNP.DATA

Object Type	Property (write only)
Data Type	String
Target	Active channel
Description	Loads the Touchstone file with the specified name to the measured S–parameters of the active channel. The Touchstone file types *.s1p (1–port) and *.s2p (2–port) are supported. *.s1p file loads the S11 parameter only. *.s2p file loads all S11, S21, S12 and S22 parameters. On completion of the command, the channel goes to the hold state.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.SNP.DATA = *File*
Equivalent Softkeys	**Save/Recall > Load Data From Touchstone File > To S-parameters…**

SCPI.MMEMory.LOAD.SNP.TRACe(*Tr*).MEMory

Object Type	Property (write only)
Data Type	String
Target	The specified memory trace *Tr* of active channel, *Tr:* trace number 1–16 (see Table 3 on page 32) Active channel set by command SCPI.DISPlay.WINDow(Ch).ACTivate
Description	Loads the Touchstone file with the specified name to the memory trace. The Touchstone file types *.s1p (1–port) and *.s2p (2–port) are supported. The current measured S-parameter of data trace selects the appropriate S-parameter from Touchstone file. After successful load the display of memory trace is automatically switched on.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.SNP.TRACe(Tr).MEMory = *File*
Equivalent Softkeys	**Save/Recall > Load Data From Touchstone File > To Active Trace…**

SCPI.MMEMory.LOAD.STATe

Object Type	Property (write only)
Data Type	String
Target	Instrument
Description	Recalls the specified instrument state file. The file must be saved by the SCPI.MMEMory.STORe.STATe property.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.LOAD.STATe = *File*
Notes	If the full path to the file is not specified, the *\State* subdirectory of the main directory will be searched for the file. The instrument state files have **.sta* extension by default.
Equivalent Softkeys	**Save/Recall > Recall State > State…**

SCPI.MMEMory.MDIRectory

Object Type	Property (write only)
Data Type	String
Target	Instrument
Description	Creates a new directory (folder). Contains the full path to the folder being created.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.MDIRectory = *Path*
Equivalent Softkeys	**None**

SCPI.MMEMory.STORe.CHANnel.CLEar

Object Type	Method
Target	Instrument
Description	Clears the memory of the channel state saved by the SCPI.MMEMory.STORe.CHANnel.STATe property.
Syntax	*app*.SCPI.MMEMory.STORe.CHANnel.CLEar
Equivalent Softkeys	**Save/Recall > Save Channel > Clear States**

SCPI.MMEMory.STORe.CHANnel.STATe

Object Type	Property (write only)
Data Type	String
Target	Active channel
Description	Saves the instrument state of the items set for the active channel into one of the four memory registers.
Range	"A" : Save to register A "B" : Save to register B "C" : Save to register C *"D"* *:* Save to register D
Out of Range	The value is ignored.
Syntax	*app*.SCPI.MMEMory.STORe.CHANnel.STATe = "A"
Equivalent Softkeys	**Save/Recall > Save Channel > State A | B | C | D**

SCPI.MMEMory.STORe.CKIT(*Ck*)

Object Type	Property (write only)
Data Type	String
Target	Calibration kit Ck, *Ck:* calibration kit number 1–11 (see Table 6 on page 173)
Description	Saves the definition file for the calibration kit parameters.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.CKIT(*Ck*) = *File*
Notes	If the full path to the file is not specified, the file will be saved to the *\CalKit* subdirectory of the main directory. The calibration kit definition file has **.ckd* extension by default.
Equivalent Softkeys	**None**

SCPI.MMEMory.STORe.FDATa

Object Type	Property (write only)
Data Type	String
Target	Active trace of the active channel
Description	Saves the CSV formatted data into a file.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.FDATa = *File*
Notes	If the full path to the file is not specified, the file will be saved to the *\CSV* subdirectory of the main directory. The files have **.csv* extension by default.
Equivalent Softkeys	**Save/Recall > Save Trace Data**

SCPI.MMEMory.STORe.IMAGe

Object Type	Property (write only)
Data Type	String
Target	Instrument
Description	Saves the display image in BMP or PNG format into a file.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.IMAGe = *File*
Notes	If the full path to the file is not specified, the file will be saved to the *\Image* subdirectory of the main directory. If the file has **.png* extension, the file has PNG format, in all the other cases the file has BMP format.
Equivalent Softkeys	**System > Print > Print Windows > Save as…**

SCPI.MMEMory.STORe.LIMit

Object Type	Property (write only)
Data Type	String
Target	Active trace of the active channel
Description	Saves the limit table into a file with the specified name.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.LIMit = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \Limit subdirectory of the main directory. The files have *.*lim* extension by default.
Equivalent Softkeys	**Analysis > Limit Test > Edit Limit Line > Save Limit Table**

SCPI.MMEMory.STORe.PLOSs(*Pt*)

Object Type	Property (write only)
Data Type	String
Target	Port *Pt* of the active channel, *Pt:* port number 1–2 (see Table 2 on page 24)
Description	Saves the loss compensation table into a file with the specified name.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.PLOSs(*Pt*) = *File*
Notes	If the full path to the file is not specified, the file will be saved to the *\CalKit* subdirectory of the main directory. The loss compensation files have **.lct* extension by default.
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen > Export Loss Table**

SCPI.MMEMory.STORe.RLIMit

Object Type	Property (write only)
Data Type	String
Target	Active trace of the active channel
Description	Saves the ripple limit table into a file with the specified name.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.RLIMit = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \Limit subdirectory of the main directory. The ripple limit files have *.*rlm* extension by default.
Equivalent Softkeys	**Analysis > Ripple Limit > Edit Ripple Limit > Save Ripple Limit Table**

SCPI.MMEMory.STORe.SEGMent

Object Type	Property (write only)
Data Type	String
Target	Active channel
Description	Saves the segment table in a file with the specified name.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.SEGMent = *File*
Notes	If the full path to the file is not specified, the file will be saved to the *\Segment* subdirectory of the main directory. The segment files have **.seg* extension by default.
Equivalent Softkeys	**Stimulus > Segment Table > Save…**

SCPI.MMEMory.STORe.SNP.DATA

Object Type	Property (write only)
Data Type	String
Target	Active channel
Description	Saves the measured S–parameters of the active channel into a Touchstone file with the specified name. The file type (1–port or 2–port) is set by the SCPI.MMEMory.STORe.SNP.TYPE.S1P and SCPI.MMEMory.STORe.SNP.TYPE.S2P properties. 1–port type file saves one reflection parameter: S11 or S22. 2–port type file saves all the four parameters: S11, S21, S12, S22.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.SNP.DATA = *File*
Notes	If the full path to the file is not specified, the file will be saved to the *\FixtureSim* subdirectory of the main directory. The 1–port measurement files have **.slp* extension; the 2–port measurement files have **.s2p* extension.
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Save File…**

SCPI.MMEMory.STORe.SNP.FORMat

Object Type	Property (read/write)
Data Type	String
Target	Active channel
Description	The data format for the S–parameters saving by the SCPI.MMEMory.STORe.SNP.DATA property.
Range	" MA" : Logarithmic Magnitude / Angle format " DB" : Linear Magnitude / Angle format " RI" *:* Real part /Imaginary part format
Out of Range	The value is ignored.
Preset Value	"RI"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.MMEMory.STORe.SNP.FORMat *app*.SCPI.MMEMory.STORe.SNP.FORMat = "DB"
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Format**

SCPI.MMEMory.STORe.SNP.TYPE.S1P

Object Type	Property (read/write)
Data Type	Long
Target	Active channel
Description	Selects 1-port measurements and sets port numbers (selects S11 or S22 parameter) when saving the measured S-parameters by the SCPI.MMEMory.STORe.SNP.DATA property.
Range	from 1 to 2
Out of Range	An error occurs. Error code 222.
Preset Value	1
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.MMEMory.STORe.SNP.TYPE.S1P *app*.SCPI.MMEMory.STORe.SNP.TYPE.S1P = 2
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Type > 1–Port (s1p)** **Save/Recall > Save Data to Touchstone File > Select Port**

SCPI.MMEMory.STORe.SNP.TYPE.S2P

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Active channel
Description	Selects 2-port measurements and sets port numbers when saving the measured S-parameters by the SCPI.MMEMory.STORe.SNP.DATA property. The array contains 2 elements: *Data(0)* First port number (reads out 1, ignored when written); *Data(1)* Second port number (reads out 2, ignored when written).
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.MMEMory.STORe.SNP.TYPE.S2P *app*.SCPI.MMEMory.STORe.SNP.TYPE.S2P = Array(1, 2)
Equivalent Softkeys	**Save/Recall > Save Data to Touchstone File > Type > 2–Port (s2p)**

SCPI.MMEMory.STORe.STATe

Object Type	Property (write only)
Data Type	String
Target	Instrument
Description	Saves the instrument state into a file with the specified name.
Range	up to 254 characters
Syntax	*app*.SCPI.MMEMory.STORe.STATe = *File*
Notes	If the full path to the file is not specified, the file will be saved to the \State subdirectory of the main directory. The state files have **.sta* extension by default.
Equivalent Softkeys	**Save/Recall > Save State > State…**

SCPI.MMEMory.STORe.STYPe

Object Type	Property (read/write)
Data Type	String
Target	Instrument
Description	Selects the type of the instrument or channel state saving by the SCPI.MMEMory.STORe.STATe or SCPI.MMEMory.STORe.CHANnel.STATe property.
Range	"STATe" : Measurement conditions "CSTate" : Measurement conditions and calibration tables "DSTate" : Measurement conditions and data traces "CDSTate" : Measurement conditions, calibration tables and data traces
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code 205.
Preset Value	"CST"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.MMEMory.STORe.STYPe *app*.SCPI.MMEMory.STORe.STYPe = "STATe"
Equivalent Softkeys	**Save/Recall > Save Type**

SCPI.OUTPut.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	Sets the ON/OFF state of the stimulus signal output. Measurements cannot be performed when the stimulus signal output is set to OFF.
Allowable Values	True: Stimulus signal output ON False: Stimulus signal output OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.OUTPut.STATe *app*.SCPI.OUTPut.STATe = False
Equivalent Softkeys	**Stimulus > Power > RF Out**

SCPI.SENSe(*Ch*).AVERage.CLEar

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Resets the averaging data count to 0. Restarts the averaging process.
Syntax	*app*.SCPI.SENSe(*Ch*).AVERage.CLEar
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).AVERage.COUNt

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The averaging factor, when the averaging function is set to ON by the SCPI.SENSe(*Ch*).AVERage.STATe property.
Range	from 1 to 999
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	10
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SENSe(*Ch*).AVERage.COUNt *app*.SCPI.SENSe(*Ch*).AVERage.COUNt = 2
Equivalent Softkeys	**Average > Avg Factor**

SCPI.SENSe(*Ch*).AVERage.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the averaging function.
Allowable Values	True: Averaging ON False: Averaging OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).AVERage.STATe *app*.SCPI.SENSe(*Ch*).AVERage.STATe = False
Equivalent Softkeys	**Average > Averaging**

SCPI.SENSe(*Ch*).BANDwidth.RESolution

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The IF bandwidth value.
Range	from 1 to 30000
Resolution	In steps of 1, 1.5, 2, 3, 5, 7.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	10000
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).BANDwidth.RESolution *app*.SCPI.SENSe(*Ch*).BANDwidth.RESolution = 100
Equivalent Softkeys	**Average > IF Bandwidth**

SCPI.SENSe(*Ch*).CORRection.CLEar

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Clears the calibration coefficient table.
Syntax	*app*.SCPI.SENSe(Ch).CORRection.CLEar
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA(*Str, Pt_r, Pt_s*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The calibration coefficient data array set by the type of the corrected error *Str*, the number of the receiver port *Pt_r* and the number of the source port *Pt_s*, *Str* : error type (see below) *Pt_r* : the number of the receiver port 1–2 (see Table 2 on page 24) *Pt_s* : the number of the source port 1–2 (see Table 2 on page 24) The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the calibration coefficients *Data(2n–1)* imaginary part of the calibration coefficients
Parameter	String *Str* – corrected error type: "ES": Source match "ER": Reflection tracking "ED": Directivity "EL": Load match "ET": Transmission tracking "EX": Isolation When ES, ER, or ED is used, the numbers of the ports *Pt_r* and *Pt_s* must be the same. When EL, ET, or EX is used, the numbers of the ports *Pt_r* and *Pt_s* must be different.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA (*Str, Pt_r, Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA (*Str, Pt_r, Pt_s*) = *Data*
Notes	The written calibration coefficients become effective only after the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method is invoked.
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.ERESponse

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the port numbers and sets the *1–path 2–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. Array elements can not contain the same port numbers.
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).
Syntax	Dim *Ports* As Variant *Ports* = Array(2, 1) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.ERESponse = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.OPEN

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *response calibration (Open)* type, when the written calibration coefficients are made effective by the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 222.
Syntax	Dim *Port* As Long *Port* = 1 *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.OPEN = *Port*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.SHORt

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *response calibration (Short)* type, when the written calibration coefficients are made effective by the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 222.
Syntax	Dim *Port* As Long *Port* = 1 *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.SHORt = *Port*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.THRU

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the ports and sets the *response calibration (Thru)* type, when the written calibration coefficients are made effective by the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	Dim *Ports* As Variant *Ports* = Array(2, 1) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.THRU = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT1

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *full 1–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 222.
Syntax	Dim *Port* As Long *Port* = 1 *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT1= *Port*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the ports and sets the *full 2–port calibration* type, when the written calibration coefficients are made effective by the SCPI.SENSe(Ch).CORRection.COEFficient.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	Dim *Ports* As Variant *Ports* = Array(2, 1) *app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2 = *Ports*
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Enables the written calibration coefficients depending on the selected calibration type. On completion of the method the written calibration coefficients are cleared, the error correction automatically turns ON. At the attempt to execute this method before all the needed calibration coefficients are written, an error occurs and the method is ignored.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COEFficient.SAVE
Related Commands	Calibration type selection: SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.ERESponse SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.OPEN SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.SHORt SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.RESPonse.THRU SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT1 SCPI.SENSe(*Ch*).CORRection.COEFficient.METHod.SOLT2 Calibration coefficient writing: SCPI.SENSe(*Ch*).CORRection.COEFficient.DATA (*Str, Pt_r, Pt_s*)
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the isolation calibration data between the source port and the receiver port. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation = Array(1, 2)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Thru) > Isolation (Optional)** **Calibration > Calibrate > One Path 2–Port Cal > Isolation (Optional)** **Calibration > Calibrate > Full 2–Port Cal > Isolation (Optional)**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the *load* standard for the specified port.
Range	Port number is 1 or 2.
Out of Range	An error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD = 1
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing 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**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the *open* standard for the specified port.
Range	Port number is 1 or 2.
Out of Range	An error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN= 1
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**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**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire. SHORt

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the *short* standard for the specified port.
Range	Port number is 1 or 2.
Out of Range	An error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt = 1
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**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**

SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the *thru* standard between the source port and the receiver port. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU= Array(1, 2)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Calibrate > Response (Thru) > Thru** **Calibration > Calibrate > One Path 2–Port Cal > Thru** **Calibration > Calibrate > Full 2–Port Cal > Port 1–2 Thru**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.LABel

Object Type	Property (read/write)
Data Type	String
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The calibration kit label.
Range	up to 254 characters
Preset Value	Varies depending on the number of the calibration kit. 1: 85032B/E 2: 05CK10A-150 3: 85033D/E 4: 03CK10A-150 5: 85036B/E 6: 88050Q 7–11: None
Syntax	Dim *Lab* As String *Lab* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.LABel *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.LABel = "User1"
Equivalent Softkeys	**Calibration > Edit Cal Kit > Label**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.LOAD(*Pt*)

Object Type	Property (read/write)
Data Type	Long
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the calibration standard of the load type, used for the measurement of the specified port *Pt*, *Pt:* port number 1–2 (see Table 1 on page 24)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	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).
Syntax	Dim *Num* As Long *Num* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.LOAD(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.LOAD(*Pt*) = 1
Equivalent Softkeys	**Calibration > Edit Cal Kit > Load n > Connection**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.OPEN(*Pt*)

Object Type	Property (read/write)
Data Type	Long
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the calibration standard of the open type, used for the measurement of the specified port *Pt*, *Pt:* port number 1–2 (see Table 1 on page 24)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	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).
Syntax	Dim *Num* As Long *Num* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.OPEN(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.OPEN(*Pt*) = 1
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open n > Connection**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SHORt(*Pt*)

Object Type	Property (read/write)
Data Type	Long
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the calibration standard of the short type, used for the measurement of the specified port *Pt*, *Pt:* port number 1–2 (see Table 1 on page 24)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	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).
Syntax	Dim *Num* As Long *Num* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SHORt(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.SHORt(*Pt*) = 1
Equivalent Softkeys	**Calibration > Edit Cal Kit > Short n > Connection**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.THRU(*Pt_m, Pt_n*)

Object Type	Property (read/write)
Data Type	Long
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of the calibration standard of the thru type, used for the measurement between the *Pt_m* and *Pt_n* ports, *Pt_m:* port number 1–2 (see Table 2 on page 24) *Pt_n:* port number 1–2 (see Table 2 on page 24)
Range	From 1 to the number of standards in the calibration kit.
Out of Range	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).
Syntax	Dim *Num* As Long *Num* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.THRU(1, 2) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.ORDer.THRU(1, 2) = 1
Equivalent Softkeys	**Calibration > Edit Cal Kit > Thru n > Connection**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.RESet

Object Type	Method
Target	Calibration kit, selected for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Resets the calibration kit to the factory settings.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.RESet
Equivalent Softkeys	**Calibration > Restore Cal Kit**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.SELect

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The selected calibration kit for the channel.
Range	from 1 to 11
Out of Range	An error occurs. Error code: 222.
Preset Value	1
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.SELect *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.SELect = 3
Equivalent Softkeys	**Calibration > Cal Kit > Cal Kit n**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).ARBitrary

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The value of the arbitrary impedance for the load standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50 or 75, depending on the selected calibration kit.
Unit	Ω (Ohm)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).ARBitrary *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).ARBitrary = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Load n > Arb. Impedance**

Table 7. *Std*: Calibration Standard Number

Data Type	Long
Description	The number of the standard.
Range	Varies depending on the number of the standards in the calibration kit.
Out of Range	If the specified standard number is greater than the number of standards in the kit, an error occurs (error code: 222).
Notes	If the standard number is not specified, it is taken as equal to 1.

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C0

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The C0 value of the open calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–15 F (Farad)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C0 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C0 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open n > C0 10^{-15} F**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C1

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The C1 value of the open calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–27 F/Hz (Farad/Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C1 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C1 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open n > C1 10^{-27} F/Hz**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C2

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24) *Std*: standard number (see Table 7 on page 221)
Description	The C2 value of the open calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–36 F/Hz^2 (Farad/Hertz^2)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C2 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C2 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open n > C2 10$^{–36}$ F/Hz^2**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C3

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The C3 value of the open calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–45 F/Hz^3 (Farad/Hertz^3)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C3 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).C3 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open n > C3 10$^{–45}$ F/Hz^3**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).DELay

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The offset delay value of the calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).DELay *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).DELay = 93E–12
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open | Short | Load | Thru > Offset Delay**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L0

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The L0 value of the short calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–12 H (Henry)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L0 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L0 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Short n > L0 10^{-12} H**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L1

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The L1 value of the short calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–24 H/Hz (Henry/Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L1 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L1 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Short n > L1 10^{-24} H/Hz**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L2

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The L2 value of the short calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–33 H/Hz^2 (Henry/Hertz^2)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L2 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L2 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Short n > L2 10^{-33} H/Hz^2**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L3

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The L3 value of the short calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	1E–42 H/Hz^3 (Henry/Hertz^3)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L3 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).L3 = 100
Equivalent Softkeys	**Calibration > Edit Cal Kit > Short n > L3 10^{-42} H/Hz^3**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LABel

Object Type	Property (read/write)
Data Type	String
Target	Standard *Std* of the calibration kit specified for channel *Ch,* *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The label of the calibration standard.
Range	up to 254 characters
Preset Value	Varies depending on the selected calibration kit and the standard.
Syntax	Dim *Lab* As String *Lab* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LABel *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LABel = "Open"
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open | Short | Load | Thru > Label**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LOSS

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The offset loss value of the calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Varies depending on the selected calibration kit and the standard.
Unit	Ω/s (Ohm/second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LOSS *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).LOSS = 700E6
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open | Short | Load | Thru > Offset Loss**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).TYPE

Object Type	Property (read/write)
Data Type	String
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The type of the calibration standard.
Range	"OPEN" : Open "SHORt" : Short "LOAD" : Load "THRU" : Thru "NONE" : Not defined
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 216.
Preset Value	Varies depending on the selected calibration kit and the standard.
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).TYPE *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).TYPE = "OPEN"
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open | Short | Load | Thru > STD Type**

SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).Z0

Object Type	Property (read/write)
Data Type	Double
Target	Standard *Std* of the calibration kit specified for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Std:* standard number (see Table 7 on page 221)
Description	The offset Z0 value of the calibration standard.
Range	from –1E18 to 1E18
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50 or 75, depending on the selected calibration kit.
Unit	Ω (Ohm)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).Z0 *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CKIT.STAN(*Std*).Z0 = 50
Equivalent Softkeys	**Calibration > Edit Cal Kit > Open | Short | Load | Thru > Offset Z0**

SCPI.SENSe(*Ch*).CORRection.COLLect.CLEar

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Clears the measurement values of the calibration standards.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.CLEar
Equivalent Softkeys	**Calibration > Calibrate > Response (Open) | Response (Short) | Response (Thru) | One Path 2–Port Cal | Full 1–Port Cal | Full 2–Port Cal > Cancel > OK**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.ISOLation(*Pt_r*, *Pt_s*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the isolation calibration measurements performed between the receiver port *Pt_r* and the source port *Pt_s*, *Pt_r:* the number of the receiver port 1–2 (see Table 2 on page 24) *Pt_s:* the number of the source port 1–2 (see Table 2 on page 24) The array elements are complex numbers. Also see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.ISOLation(*Pt_r*, *Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.ISOLation(*Pt_r*, *Pt_s*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.LOAD(*Pt*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the *load* calibration standard measurements for the port *Pt*, *Pt:* port number 1–2 (see Table 2 on page 24) The array elements are complex numbers. Also see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.LOAD(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.LOAD(*Pt*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.OPEN(*Pt*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the *open* calibration standard measurements for the port *Pt*, *Pt:* port number 1–2 (see Table 2 on page 24) The array elements are complex numbers. Also see section "Measurement Data Arrays" on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.OPEN(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.OPEN(*Pt*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.SHORt(*Pt*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the *short* calibration standard measurements for the port *Pt*, *Pt:* port number 1–2 (see Table 2 on page 24) The array elements are complex numbers. Also see section "Measurement Data Arrays" on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.SHORt(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.SHORt(*Pt*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.MATCh(*Pt_r*,*Pt_s*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the reflection measurements of the *thru* standard connected between the receiver port *Pt_r* and the source port *Pt_s*, *Pt_r:* the number of the receiver port 1–2 (see Table 2 on page 24) *Pt_s:* the number of the source port 1–2 (see Table 2 on page 24) The array elements are complex numbers. Also see section “Measurement Data Arrays” on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.MATCh(*Pt_r*, *Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.MATCh(*Pt_r*, *Pt_s*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.TRANsmission(*Pt_r*, *Pt_s*)

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the transmission measurements performed between the receiver port *Pt_r* and the source port *Pt_s*, using the *thru* standard, *Pt_r*: the number of the receiver port 1–2 (see Table 2 on page 24) *Pt_s*: the number of the source port 1–2 (see Table 2 on page 24) The array elements are complex numbers. Also see section "Measurement Data Arrays" on page 19. The array size is 2N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(2n–2)* real part of the measurement; *Data(2n–1)* imaginary part of the measurement.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.TRANsmission(*Pt_r*, *Pt_s*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.DATA.THRU.TRANsmission(*Pt_r*, *Pt_s*) = *Data*
Related Commands	SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.INFormation

Object Type	Property (read only)
Data Type	String
Target	AutoCal module (*Ch* – arbitrary number 1 to 16)
Description	Gets information about the AutoCal Module connected to the Network Analyzer 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.
Syntax	Dim *ID* As String *ID* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.INFormation
Equivalent Softkeys	**Calibration > AutoCal > Characterization Info…**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.ORIenation.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	AutoCal (*Ch* – arbitrary number 1 to 16)
Description	The ON/OFF state of the Auto-Orientation function used when executing AutoCal.
Allowable Values	True: Auto-Orientation function ON False: Auto-Orientation function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.ORIentation.STATe *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.ORIentation.STATe = False
Equivalent Softkeys	**Calibration > AutoCal > Orientation > Auto-Orientation**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.PATH(*Pt*)

Object Type	Property (read/write)
Data Type	Long
Target	AutoCal (*Ch* – arbitrary number 1 to 16)
Description	Sets or reads out the AutoCal module port number which is connected to a selected Network Analyzer port (*Pt*).
Allowable Values	1: Port A of AutoCal Module 2: Port B of AutoCal Module 3: Port C of AutoCal Module (4 port AutoCal module only) 4: Port D of AutoCal Module (4 port AutoCal module only)
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.PATH(*Pt*) *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.PATH(*Pt*) = 2
Equivalent Softkeys	**Calibration > AutoCal > Orientation > Port 1 | Port 2**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT1

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Executes 1-port calibration of the specified port of selected channel (*Ch*) using the AutoCal module.
Syntax	Dim *Port* As Long *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT1 = *Port*
Equivalent Softkeys	**Calibration > AutoCal > 1-Port AutoCal > Port 1 | Port 2**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT2

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Executes full 2-port calibration between the specified 2 ports of selected channel (*Ch*) using the AutoCal module.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.SOLT2 = Array(2, 1)
Equivalent Softkeys	**Calibration > AutoCal > 2-Port AutoCal**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.UCHar

Object Type	Property (read/write)
Data Type	String
Target	AutoCal (*Ch* – arbitrary number 1 to 16)
Description	Sets or reads out the Characteristic used when executing AutoCal (factory or user characterization)..
Range	"CHAR0" : Factory characterization "CHAR1" : User characterization 1 "CHAR2" : User characterization 2 "CHAR3" : User characterization 3 "CHAR4" : User characterization 4 "CHAR5" : User characterization 5
Preset Value	CHAR0
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.UCHar *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.UCHar = "CHAR0"
Equivalent Softkeys	**Calibration > AutoCal > Characterization**

SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.UTHRu.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	AutoCal (*Ch* – arbitrary number 1 to 16)
Description	The ON/OFF state of the Unknown Thru feature used when executing AutoCal.
Allowable Values	True: Unknown Thru feature ON False: Unknown Thru feature OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.UTHRu.STATe *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.ECAL.UTHRu.STATe = False
Note	PLANAR 804/1 only
Equivalent Softkeys	**Calibration > AutoCal > Unkn Thru**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.ERESponse

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Selects the ports and sets the *one path 2–port calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.ERESponse = Array(2, 1)
Equivalent Softkeys	**Calibration > Calibrate > One Path 2–Port Cal > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.OPEN

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *response calibration (Open)* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 222.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.OPEN = 1
Equivalent Softkeys	**Calibration > Calibrate > Response (Open) > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.SHORt

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *response calibration (Short)* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 222.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.SHORt = 1
Equivalent Softkeys	**Calibration > Calibrate > Response (Short) > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.THRU

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Selects the ports and sets the *response calibration (Thru)* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. Array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.RESPonse.THRU = Array(2, 1)
Equivalent Softkeys	**Calibration > Calibrate > Response (Thru) > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT1

Object Type	Property (write only)
Data Type	Long
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *full 1–port calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Range	from 1 to 2
Out of Range	An error occurs. Error code: 222.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT1 = 1
Equivalent Softkeys	**Calibration > Calibrate > Full 1–Port Cal > Select Port**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT2

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Selects the port and sets the *full 2–port calibration* type for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method. The array contains 2 elements: *Data(0)* the number of the receiver port; *Data(1)* the number of the source port.
Range	Port number is 1 or 2. Array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.SOLT2 = Array(2, 1)
Equivalent Softkeys	**Calibration > Calibrate > Full 2–Port Cal**

SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TYPE

Object Type	Property (read only)
Data Type	String
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	The calibration type selected for calculating of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE method.
Range	"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
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SENSe(*Ch*).CORRection.COLLect.METHod.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE

Object Type	Method
Target	Channel *Ch*, *Ch*: channel number 1–16 (see Table 1 on page 24)
Description	Calculates the calibration coefficients from the calibration standards measurements depending on the selected calibration type. On completion of the method, all the calibration standards measurements are cleared and the error correction automatically turns ON. At the attempt to execute this method before all the needed standards are measured, an error occurs and the method is ignored. Before executing this command it is neccessery to select calibration type by one of commands SCPI.SENSe(Ch).CORRection.COLLect.METHod.XXXX.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.COLLect.SAVE
Related Commands	Calibration type selection: SCPI.SENSe(Ch).CORRection.COLLect.METHod.RESPonse.OPEN SCPI.SENSe(Ch).CORRection.COLLect.METHod.RESPonse.SHORt SCPI.SENSe(Ch).CORRection.COLLect.METHod.RESPonse.THRU SCPI.SENSe(Ch).CORRection.COLLect.METHod.ERESponse SCPI.SENSe(Ch).CORRection.COLLect.METHod.SOLT1 SCPI.SENSe(Ch).CORRection.COLLect.METHod.SOLT2 Calibration standards measurement: SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.ISOLation SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.LOAD SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.OPEN SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.SHORt SCPI.SENSe(*Ch*).CORRection.COLLect.ACQuire.THRU
Equivalent Softkeys	**Calibration > Calibrate > Response (Open) | Response (Short) | Response (Thru) | One Path 2–Port Cal | Full 1–Port Cal | Full 2–Port Cal > Apply**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).FREQuency(*Ls*)

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The value of the frequency at the point number *Ls* for calculation of the loss for the port extension function, *Ls:* point number 1–2 (see Table 8 on page 256)
Range	from minimum to maximum analyzer frequency
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1E9
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).FREQuency(*Ls*) *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).FREQuency(*Ls*) = 100E6
Equivalent Softkeys	**Calibration > Port Extensions > Loss > Freq1 | Freq2**

Table 8. *Ls*: Point Number

Data Type	Long
Description	The point number for the loss setting in the port extension function.
Range	1 or 2
Out of Range	An error occurs. Error code: 222.
Notes	If the point number is not specified, it is taken as equal to 1.

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).INCLude(*Ls*).STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The ON/OFF state of the loss compensation at the point number *Ls* to calculate the loss for the port extension function, *Ls:* point number 1–2 (see Table 8 on page 256)
Allowable Values	True: Loss compensation ON False: Loss compensation OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).INCLude(*Ls*).STATe *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).INCLude(*Ls*).STATe = True
Equivalent Softkeys	**Calibration > Port Extensions > Loss > Loss1 | Loss2**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LDC

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The loss value at DC for the loss calculation of the port extension function.
Range	from –200 to 200
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dB (decibel)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LDC *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LDC = 10
Equivalent Softkeys	**Calibration > Port Extensions > Loss > Loss at DC**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LOSS(*Ls*)

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The loss value at the point number *Ls* to calculate the loss for the port extension function, *Ls*: point number 1–2 (see Table 8 on page 256)
Range	from –200 to 200
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dB (decibel)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LOSS(*Ls*) *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).LOSS(*Ls*) = 10
Equivalent Softkeys	**Calibration > Port Extensions > Loss > Loss1 | Loss2**

SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).TIME

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The electrical delay value for the port extension function.
Range	from –10 to 10
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).TIME *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.PORT(*Pt*).TIME = 10
Equivalent Softkeys	**Calibration > Port Extensions > Extension Port1 | Extension Port2**

SCPI.SENSe(*Ch*).CORRection.EXTension.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the port extension function.
Allowable Values	True: Port extension function ON False: Port extension function OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.STATe *app*.SCPI.SENSe(*Ch*).CORRection.EXTension.STATe = True
Equivalent Softkeys	**Calibration > Port Extensions > Extension**

SCPI.SENSe.CORRection.IMPedance.INPut.MAGNitude

Object Type	Property (read/write)
Data Type	Double
Target	Instrument
Description	The system impedance Z0.
Range	from 0.001 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	50
Unit	Ω (Ohm)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe.CORRection.IMPedance.INPut.MAGNitude *app*.SCPI.SENSe.CORRection.IMPedance.INPut.MAGNitude = 75
Equivalent Softkeys	**Calibration > System Z0**

SCPI.SENSe(*Ch*).CORRection.INFormation

Object Type	Property (read only)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 25)
Description	The calibration information string.
Syntax	Dim *CalInfo* As String *CalInfo* = app.SCPI.SENSe(*Ch*).CORRection.INFormation
Equivalent Softkeys	**none**

SCPI.SENSe(*Ch*).CORRection.OFFSet.CLEar

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Clears the scalar mixer calibration coefficient table.
Syntax	*app*.SCPI.SENSe(Ch).CORRection.OFFSet.CLEar
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.LOAD

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the load standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number.
Range	Port number is 1 or 2. The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.LOAD = Array(1, 2)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Load**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.OPEN

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the open standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number.
Range	Port number is 1 or 2. The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.OPEN = Array(1, 2)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Open**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.SHORt

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the short standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number.
Range	Port number is 1 or 2. The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.SHORt = Array(1, 2)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Short**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.THRU

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the calibration data of the thru standard of the specified port when the frequency offset feature is on (scalar mixer cal). The array contains 2 elements: *Port(0)* Response port number; *Port(1)* Stimulus port number.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.THRU = Array(1, 2)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Reflection Port n > Port n @Freq m Thru**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.PMETer

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Measures the scalar-mixer calibration data using the power meter when the frequency offset feature is ON. The array contains 3 elements: *Port(0)* Measurement port number; *Port(1)* Frequency port number. *Port(2)* Reserved.
Range	Port number is 1 or 2. The array elements can contain the same port numbers.
Out of Range	If an incorrect port number is specified, an error occurs (error code: 222).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.PMETer = Array(1, 2, 0)
Notes	The property writing starts the measurement for the channel independently of the trigger initiation and trigger source settings. The function of the property writing waits for the completion of the measurement.
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Power > Port n @Freq m**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.CLEar

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Clears the calibration measurement data when the frequency offset feature is ON (scalar mixer calibration).
Syntax	*app*.SCPI.SENSe(Ch).CORRection.OFFSet.COLLect.CLEar
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Cancel**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.METHod.SMIX2

Object Type	Property (write only)
Data Type	Variant (array of long)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the ports and sets the *scalar mixer calibration* type when the frequency offset feature is on for the calculation of the calibration coefficients on completion of the calibration executed by the SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.SAVE method. The array contains 2 elements: *Port(0)* Port number 1; *Port(1)* Port number 2.
Range	Port number is 1 or 2. The array elements can not contain the same port numbers.
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).
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.METHod.SMIX2 = Array(2, 1)
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration**

SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.SAVE

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	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.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.SAVE
Related Commands	SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.METHod.SMIX2 SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.LOAD SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.OPEN SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.SHORt SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.THRU SCPI.SENSe(*Ch*).CORRection.OFFSet.COLLect.ACQuire.PMETer
Equivalent Softkeys	**Calibration > Mixer/Converter Calibration > Scalar Mixer Calibration > Apply**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.ACQuire

Object Type	Property (write only)
Data Type	Long
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The property writing executes the receiver calibration for the specified port *Pt*, using the specified source port *Src* to the right of the equal sign.
Range	The number of the source port from 1 to 2.
Out of Range	Error occurs. Error code: 222.
Syntax	*app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).COLLect.ACQuire = *Src*
Notes	The property writing triggers the channel sweep independently of its current mode (continuous, single, hold) and trigger source setting. The function of the property writing waits for the completion of the calibration.
Equivalent Softkeys	**Calibration > Receiver Calibration > Take Cal Sweep**

SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The ON/OFF state of the receiver correction for the port *Pt*.
Allowable Values	True: Receiver correction ON False: Receiver correction OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).STATe *app*.SCPI.SENSe(*Ch*).CORRection.RECeiver(*Pt*).STATe = True
Equivalent Softkeys	**Calibration > Receiver Calibration > Correction**

SCPI.SENSe(*Ch*).CORRection.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the error correction.
Allowable Values	True: Error correction ON False: Error correction OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).CORRection.STATe *app*.SCPI.SENSe(*Ch*).CORRection.STATe = True
Equivalent Softkeys	**Calibration > Correction**

SCPI.SENSe(*Ch*).CORRection.TYPE(*Tr*)

Object Type	Property (read only)
Data Type	Variant (Variant array)
Target	Trace *Tr* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Tr:* trace number 1–16 (see Table 3 on page 32)
Description	The information about the applied calibration type and the port numbers for the specified trace. The array contains 3 elements: *Data(0)* calibration type (see below); *Data(1)* the number of the receiver port to be calibrated; *Data(2)* the number of the source port to be calibrated.
Range	Calibration type in the element *Data(0)*: "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
Syntax	Dim *CalInfo* As Variant *CalInfo* = *app*.SCPI.SENSe(*Ch*).CORRection.TYPE(*Tr*)
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).FREQuency.CENTer

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The stimulus center value of the sweep range for linear or logarithmic sweep types.
Range	From the minimum value to the maximum value of the analyzer frequency range.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The center value of the analyzer frequency range.
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).FREQuency.CENTer *app*.SCPI.SENSe(*Ch*).FREQuency.CENTer = 1E9
Equivalent Softkeys	**Stimulus > Center**

SCPI.SENSe(*Ch*).FREQuency.CW

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The value of the fixed frequency for the power sweep.
Range	From the minimum value to the maximum value of the analyzer frequency range.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The minimum value of the analyzer frequency range.
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).FREQuency.CW *app*.SCPI.SENSe(*Ch*).FREQuency.CW = 1E9
Equivalent Softkeys	**Stimulus > Power > CW Freq**

SCPI.SENSe(*Ch*).FREQuency.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the measurement points frequency for linear, logarithmic or segment sweep type. The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(n–1)* the frequency value at the n–th measurement point.
Syntax	Dim *Data* As Variant *Data* = *app*. SCPI.SENSe(*Ch*).FREQuency.DATA
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).FREQuency.SPAN

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The stimulus span value of the sweep range for linear or logarithmic sweep types.
Range	From 0 to the maximum span of the analyzer frequency range.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The maximum span of the analyzer frequency range.
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).FREQuency.SPAN *app*.SCPI.SENSe(*Ch*).FREQuency.SPAN = 2E9
Equivalent Softkeys	**Stimulus > Span**

SCPI.SENSe(*Ch*).FREQuency.STARt

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The stimulus start value of the sweep range for linear or logarithmic sweep types.
Range	From the minimum value to the maximum value of the analyzer frequency range.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The minimum value of the analyzer frequency range.
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).FREQuency.STARt *app*.SCPI.SENSe(*Ch*).FREQuency.STARt = 1E6
Equivalent Softkeys	**Stimulus > Start**

SCPI.SENSe(*Ch*).FREQuency.STOP

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The stimulus stop value of the sweep range for linear or logarithmic sweep types.
Range	From the minimum value to the maximum value of the analyzer frequency range.
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The maximum value of the analyzer frequency range
Unit	Hz (Hertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).FREQuency.STOP *app*.SCPI.SENSe(*Ch*).FREQuency.STOP = 1E6
Equivalent Softkeys	**Stimulus > Stop**

SCPI.SENSe(*Ch*).OFFSet.ADJust.CONTinuous.PERiod

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)

Description	Selects the period for continuous offset adjust feature:
	1 – 3 sec;
	2 – 10 sec;
	3 – 30 sec.

Range	from 1 to 3
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	2
Unit	n/a
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.PERiod *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.PERiod = 1
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Adjust > Adjust Period**

SCPI.SENSe(*Ch*).OFFSet.ADJust.CONTinuous.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the continuous frequency offset adjust feature.
Allowable Values	True: continuous offset adjust feature is ON False: continuous offset adjust feature is OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.CONTinuous.STATe *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.CONTinuous.STATe = True
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Adjust > Continuous Adjust**

SCPI.SENSe(*Ch*).OFFSet.ADJust.EXECute

Object Type	Method
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Executes the offset adjust when the frequency offset feature is ON.
Syntax	*app*.SCPI.SENSe(Ch).OFFset.ADJust.EXECute
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Adjust > Adjust Immediate**

SCPI.SENSe(*Ch*).OFFSet.ADJust.PORT

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the port number for frequency offset adjust feature.
Range	from 1 to 2
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.ADJust.PORT *app*.SCPI.SENSe(*Ch*).OFFset.ADJust.PORT = 2
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Adjust > Select Port**

SCPI.SENSe(*Ch*).OFFSet.ADJust.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the frequency offset adjust feature.
Allowable Values	True: offset adjust feature is ON False: offset adjust feature is OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.STATe *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.STATe = True
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Adjust > Offset Adjust**

SCPI.SENSe(*Ch*).OFFSet.ADJust.Value

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The frequency offset adjust value of the offset adjust feature.
Range	from –5E5 to 5E5
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.VALue *app*.SCPI.SENSe(*Ch*).OFFSet.ADJust.VALue = 1000
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Adjust > Adjust Value**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	Reads the frequency data for the selected port *Pt* when the frequency offset feature is ON and offset type is "PORT", for the selected channel *Ch*. The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(n–1)* the frequency value at the n–th measurement point.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.DATA
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.DIVisor

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The basic frequency range divisor when the frequency offset feature is ON and offset type is "PORT".
Range	from 1 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.DIVisor *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.DIVisor = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Divider**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.MULTiplier

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The basic range frequency multiplier when the frequency offset feature is ON and offset type is "PORT".
Range	from –1000 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.MULTiplier *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.MULTiplier = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Multiplier**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.OFFSet

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The basic frequency range offset when the frequency offset feature is ON and offset type is "PORT".
Range	from –1e–12 to 1e12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.OFFSet *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.OFFSet = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Offset**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.STARt

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The frequency sweep start when the frequency offset feature is ON and offset type is "PORT".
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.STARt
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Start**

SCPI.SENSe(*Ch*).OFFSet.PORT(*Pt*).FREQuency.STOP

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The frequency sweep stop when the frequency offset feature is ON and offset type is "PORT".
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.PORT(*Pt*).FREQuency.STOP
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Port n > Stop**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Reads the receiver frequency data when the frequency offset feature is ON and offset type is "SRCRcv", for the selected channel *Ch*. The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(n–1)* the frequency value at the n–th measurement point.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.DATA
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.DIVisor

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The basic frequency range divisor when the frequency offset feature is ON and offset type is "SRCRcv".
Range	from 1 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.DIVisor *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.DIVisor = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Divider**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.MULTiplier

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The basic range frequency multiplier when the frequency offset feature is ON and offset type is "SRCRcv".
Range	from –1000 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.MULTiplier *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.MULTiplier = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Multiplier**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.OFFSet

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The basic frequency range offset when the frequency offset feature is ON and offset type is "SRCRcv".
Range	from –1e–12 to 1e12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.OFFSet *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.OFFSet = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Offset**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.STARt

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The frequency sweep start when the frequency offset feature is ON and offset type is "SRCRcv".
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STARt *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STARt = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Start**

SCPI.SENSe(*Ch*).OFFSet.RECeiver.FREQuency.STOP

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The frequency sweep stop when the frequency offset feature is ON and offset type is "SRCRcv".
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STOP *app*.SCPI.SENSe(*Ch*).OFFset.RECeiver.FREQuency.STOP = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Receivers > Stop**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.DATA

Object Type	Property (read only)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Reads the source frequency data when the frequency offset feature is ON and offset type is "SRCRcv", for the selected channel *Ch*. The array size is N, where N is the number of measurement points. For the n–th point, where n from 1 to N: *Data(n–1)* the frequency value at the n–th measurement point.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.DATA
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**None**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.DIVisor

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The basic frequency range divisor when the frequency offset feature is ON and offset type is "SRCRcv".
Range	from 1 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.DIVisor *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.DIVisor = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Divider**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.MULTiplier

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The basic range frequency multiplier when the frequency offset feature is ON and offset type is "SRCRcv".
Range	from –1000 to 1000
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	1
Unit	n/a
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.MULTiplier *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.MULTiplier = 2
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Multiplier**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.OFFSet

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The basic frequency range offset when the frequency offset feature is ON and offset type is "SRCRcv".
Range	from –1e–12 to 1e12
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.OFFSet *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.OFFSet = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Offset**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.STARt

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The frequency sweep start when the frequency offset feature is ON and offset type is "SRCRcv".
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STARt *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STARt = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Start**

SCPI.SENSe(*Ch*).OFFSet.SOURce.FREQuency.STOP

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The frequency sweep stop when the frequency offset feature is ON and offset type is " SRCRcv".
Unit	Hz
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STOP *app*.SCPI.SENSe(*Ch*).OFFset.SOURce.FREQuency.STOP = 1e9
Related Commands	SCPI.SENSe(*Ch*).OFFset.STATe SCPI.SENSe(*Ch*).OFFset.TYPE
Equivalent Softkeys	**Stimulus > Frequency Offset > Source > Stop**

SCPI.SENSe(*Ch*).OFFSet.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the frequency offset feature.
Allowable Values	True: frequency offset feature is ON False: frequency offset feature is OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SENSe(*Ch*).OFFSet.STATe *app*.SCPI.SENSe(*Ch*).OFFSet.STATe = True
Equivalent Softkeys	**Stimulus > Frequency Offset > Frequency Offset**

SCPI.SENSe(*Ch*).OFFSet.TYPE

Object Type	Property (read/write)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The frequency offset type when the frequency offset feature is ON. There are two frequency offset types: "Port1/Port2" and "Source/Receivers". First offset type offsets ports against each other. Second offset type offsets source against receivers.
Range	"PORT" : Port1/Port2 "SRCRcv" : Source/Receivers
Preset Value	"PORT"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SENSe(*Ch*).OFFSet.TYPE *app*.SCPI.SENSe(*Ch*).OFFSet.TYPE = "PORT"
Equivalent Softkeys	**Stimulus > Frequency Offset > Offset Type**

SCPI.SENSe(*Ch*).ROSCillator.SOURce

Object Type	Property (read/write)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Selects the internal or external source of the reference frequency of 10 MHz.
Range	"INTernal" : Internal source of the reference frequency "EXTernal" : External source of the reference frequency
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 224.
Preset Value	"INT"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SENSe(*Ch*).ROSCillator.SOURce *app*.SCPI.SENSe(*Ch*).ROSCillator.SOURce = "EXT"
Equivalent Softkeys	**System > Misc Setup > Ref Source**

SCPI.SENSe(*Ch*).SEGMent.DATA

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The array of the segment sweep table. The array has the following format: *{ <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)>] }* <*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 <*Del*> 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).
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SENSe(*Ch*).SEGMent.DATA *app*.SCPI.SENSe(*Ch*).SEGMent.DATA = *Data*
Equivalent Softkeys	**Stimulus / Segment Table**

SCPI.SENSe(*Ch*).SWEep.POINt.TIME

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The value of the delay before measurement in each measurement point.
Range	from 0 to 0.3
Resolution	5E-6
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	s (second)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SENSe(*Ch*).SWEep.POINt.TIME *app*.SCPI.SENSe(*Ch*).SWEep.POINt.TIME = 5E-6
Equivalent Softkeys	**Stimulus > Meas Delay**

SCPI.SENSe(*Ch*).SWEep.POINts

Object Type	Property (read/write)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The number of measurement points.
Range	2 to 500001 (PLANAR-804) 2 to 200001 (PLANAR-304, S5048, S7530)
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	201
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SENSe(*Ch*).SWEep.POINts *app*.SCPI.SENSe(*Ch*).SWEep.POINts = 1001
Equivalent Softkeys	**Stimulus > Points**

SCPI.SENSe(*Ch*).SWEep.TYPE

Object Type	Property (read/write)
Data Type	String
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	Sets the sweep type.
Range	"LINear" : Linear frequency sweep "LOGarithmic" : Logarithmic frequency sweep "SEGMent" : Segment frequency sweep "POWer " : Power sweep
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 206.
Preset Value	"LIN"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SENSe(*Ch*).SWEep.TYPE *app*.SCPI.SENSe(*Ch*).SWEep.TYPE = "LOG"
Equivalent Softkeys	**Stimulus > Sweep Type**

SCPI.SERVice.ALIGn

Object Type	Method
Target	Instrument
Description	Starts the hardware alignment procedure. The command is used for service only.
Syntax	*app*.SCPI.SERVice.ALIGn
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel.ACTive

Object Type	Property (read only)
Data Type	Long
Target	Instrument
Description	The number of the active channel.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SERVice.CHANnel.ACTive
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel.COUNt

Object Type	Property (read only)
Data Type	Long
Target	Instrument
Description	The maximum number of the channels.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SERVice.CHANnel.COUNt
Equivalent Softkeys	**None**

SCPI.SERVice.CHANnel(*Ch*).TRACe.ACTive

Object Type	Property (read only)
Data Type	Long
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The active trace number of the channel.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SERVice.CHANnel(*Ch*).TRACe.ACTive
Equivalent Softkeys	**None**

SCPI.SERVice.CHANNel.TRACe.COUNt

Object Type	Property (read only)
Data Type	Long
Target	Instrument
Description	The maximum number of the traces in the channel.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SERVice.CHANNel.TRACe.COUNt
Equivalent Softkeys	**None**

SCPI.SERVice.PORT.COUNt

Object Type	Property (read only)
Data Type	Long
Target	Instrument
Description	The number of the ports.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SERVice.PORT.COUNt
Equivalent Softkeys	**None**

SCPI.SERVice.SWEep.FREQency.MAXimum

Object Type	Property (read only)
Data Type	Double
Target	Instrument
Description	The maximum value of the analyzer frequency range.
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SERVice.SWEep.FREQency.MAXimum
Equivalent Softkeys	**None**

SCPI.SERVice.SWEep.FREQency.MINimum

Object Type	Property (read only)
Data Type	Double
Target	Instrument
Description	The minimum value of the analyzer frequency range.
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SERVice.SWEep.FREQency.MINimum
Equivalent Softkeys	**None**

SCPI.SERVice.SWEep.POINts

Object Type	Property (read only)
Data Type	Double
Target	Instrument
Description	The maximum number of the measurement points.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.SERVice.SWEep.POINts
Equivalent Softkeys	**None**

SCPI.SOURce(*Ch*).POWer.CENTer

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The center value of the power sweep range when sweep type is Power.
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.025
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	Center value of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.CENTer *app*.SCPI.SOURce(*Ch*).POWer.CENTer = 5
Equivalent Softkeys	**Stimulus > Center**

SCPI.SOURce(*Ch*).POWer.LEVel.IMMediate.AMPLitude

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The power level for the frequency sweep when port couple feature is set to ON by the command SCPI.SOURce(Ch).POWer.PORT(Pt).COUPle.
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.LEVel.IMMediate.AMPLitude *app*.SCPI.SOURce(*Ch*).POWer.LEVel.IMMediate.AMPLitude = 10
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).COUPle
Equivalent Softkeys	**Stimulus > Power > Power**

SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.DATA

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The power slope value for the frequency sweep.
Range	from –2 to 2
Resolution	0.1
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dB/GHz (decibel/gigahertz)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.DATA *app*.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.DATA = 0.2
Equivalent Softkeys	**Stimulus > Power > Slope [dB/GHz]**

SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the power slope for the frequency sweep.
Allowable Values	True: Power slope ON False: Power slope OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.STATe *app*.SCPI.SOURce(*Ch*).POWer.LEVel.SLOPe.STATe = True
Equivalent Softkeys	**Stimulus > Power > Slope [ON/OFF]**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire

Object Type	Method
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	Measures the power calibration data for the specified port 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.
Syntax	*app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**Calibration > Power Calibration > Calibrate**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The loss compensation table used during the power calibration. The array size is 1+2N, where N is the number of the table rows. For the n–th point, where n from 1 to N: *Data(0)* the number of the table rows N integer from 0 to 100; *Data(2n–1)* the frequency of the n–th row of the table from 300 kHz to 8.0 GHz; *Data(2n)* the loss value of the n-th table row in dB.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA = *Data*
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The ON/OFF state of the loss compensation function used during the power calibration.
Allowable Values	True: Loss compensation ON False: Loss compensation OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.STATe *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.STATe = True
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.TABLe.LOSS.DATA
Equivalent Softkeys	**Calibration > Power Calibration > Loss Compen > Compensation**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.DATA

Object Type	Property (read/write)
Data Type	Variant (array of double)
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The power correction table. The array size is 1+2N, where N is the number of the table rows. For the n–th point, where n from 1 to N: *Data(0)* the number of the table rows N integer from 0 to 10001; *Data(2n–1)* the frequency of the n–th row of the table from 300 kHz to 8.0 GHz; *Data(2n)* power correction value of the n–th row of the table from –10 to +10 dB.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.DATA *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.DATA = *Data*
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**None**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The ON/OFF state of the power correction function.
Allowable Values	True: Power correction ON False: Power correction OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.STATe *app*.SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.STATe = True
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).CORRection.COLLect.ACQuire
Equivalent Softkeys	**Calibration > Power Calibration > Correction**

SCPI.SOURce(*Ch*).POWer.PORT.COUPle

Object Type	Property (read/write)
Data Type	Boolean
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The ON/OFF state of the port power couple function. Setting the port power couple feature to OFF allows independent power level setting for each port.
Allowable Values	True: Port power couple ON False: Port power couple OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SOURce(*Ch*).POWer.PORT.COUPle *app*.SCPI.SOURce(*Ch*).POWer.PORT.COUPle = True
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(Pt).LEVel.IMMediate.AMPLitude
Equivalent Softkeys	**Stimulus > Power > Port Couple**

SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).LEVel.IMMediate.AMPLitude

Object Type	Property (read/write)
Data Type	Double
Target	Port *Pt* of channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24) *Pt:* port number 1–2 (see Table 2 on page 24)
Description	The power level of each port for the frequency sweep when port couple feature is set to OFF by the command SCPI.SOURce(Ch).POWer.PORT(Pt).COUPle.
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	0
Unit	dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.PORT(Pt).LEVel.IMMediate.AMPLitude *app*.SCPI.SOURce(*Ch*).POWer.PORT(Pt).LEVel.IMMediate.AMPLitude = 10
Related Commands	SCPI.SOURce(*Ch*).POWer.PORT(*Pt*).COUPle
Equivalent Softkeys	**Stimulus > Power > Port Power > [Port1 | Port2]**

SCPI.SOURce(*Ch*).POWer.SPAN

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The power span for the power sweep.
Range	From 0 to the maximum span of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The maximum span of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.SPAN *app*.SCPI.SOURce(*Ch*).POWer.SPAN = 50
Equivalent Softkeys	**Stimulus > Span**

SCPI.SOURce(*Ch*).POWer.STARt

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The power sweep start for the power sweep.
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The minimum value of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.STARt *app*.SCPI.SOURce(*Ch*).POWer.STARt = 5
Equivalent Softkeys	**Stimulus > Start**

SCPI.SOURce(*Ch*).POWer.STOP

Object Type	Property (read/write)
Data Type	Double
Target	Channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Description	The power sweep stop for the power sweep.
Range	From the minimum value to the maximum value of the analyzer power range.
Resolution	0.05
Out of Range	Sets the value of the limit, which is closer to the specified value.
Preset Value	The maximum value of the analyzer power range.
Unit	dBm (decibels above 1 milliwatt)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SOURce(*Ch*).POWer.STOP *app*.SCPI.SOURce(*Ch*).POWer.STOP = 5
Equivalent Softkeys	**Stimulus > Stop**

SCPI.STATus.OPERation.CONDition

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Operation Status Condition Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.OPERation.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.ENABle

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Operation Status Enable Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.OPERation.ENABle *app*.SCPI.STATus.OPERation.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.EVENt

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Operation Status Event Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.OPERation.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.NTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Negative Transition Filter of the Operation Status Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.OPERation.NTRansition *app*.SCPI.STATus.OPERation.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.OPERation.PTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Positive Transition Filter of the Operation Status Register.
Range	from 0 to 65535
Preset Value	65535
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.OPERation.PTRansition *app*.SCPI.STATus.OPERation.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.PRESet

Object Type	Method
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Initialization of all registers.
Syntax	*app*.SCPI.STATus.PRESet
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.CONDition

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Status Condition Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.ENABle

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Status Enable Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.ENABle *app*.SCPI.STATus.QUEStionable.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.EVENt

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Status Event Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).CONDition

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Limit Channel Status Condition Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).ENABle

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Limit Channel Status Enable Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).ENABle *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).EVENt

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Limit Channel Status Event Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Syntax	Dim *Value* As Long *Value* = *app*. SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).NTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Negative Transition Filter of the Questionable Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).NTRansition *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).PTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Positive Transition Filter of the Questionable Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Range	from 0 to 65535
Preset Value	65535
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).PTRansition *app*.SCPI.STATus.QUEStionable.LIMit.CHANnel(*Ch*).PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.CONDition

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1).
Description	Questionable Limit Status Condition Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.ENABle

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Limit Status Enable Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.ENABle *app*.SCPI.STATus.QUEStionable.LIMit.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.EVENt

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Limit Status Event Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.NTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Negative Transition Filter of the Questionable Limit Status Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.NTRansition *app*.SCPI.STATus.QUEStionable.LIMit.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.LIMit.PTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Positive Transition Filter of the Questionable Limit Status Register.
Range	from 0 to 65535
Preset Value	65535
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.LIMit.PTRansition *app*.SCPI.STATus.QUEStionable.LIMit.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.NTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Negative Transition Filter of the Questionable Status Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.NTRansition *app*.SCPI.STATus.QUEStionable.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.PTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Positive Transition Filter of the Questionable Status Register.
Range	from 0 to 65535
Preset Value	65535
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.PTRansition *app*.SCPI.STATus.QUEStionable.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).CONDition

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Ripple Limit Channel Status Condition Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).ENABle

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Ripple Limit Channel Status Enable Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).ENABle *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).EVENt

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Ripple Limit Channel Status Event Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).NTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Negative Transition Filter of the Questionable Ripple Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).NTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).PTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Positive Transition Filter of the Questionable Ripple Limit Channel Status Register for channel *Ch*, *Ch:* channel number 1–16 (see Table 1 on page 24)
Range	from 0 to 65535
Preset Value	65535
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).PTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.CHANnel(*Ch*).PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.CONDition

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Ripple Limit Status Condition Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.CONDition
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.ENABle

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Ripple Limit Status Enable Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.ENABle *app*.SCPI.STATus.QUEStionable.RLIMit.ENABle = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.EVENt

Object Type	Property (read only)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Questionable Ripple Limit Status Event Register.
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.EVENt
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.NTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Negative Transition Filter of the Questionable Ripple Limit Status Register.
Range	from 0 to 65535
Preset Value	0
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.NTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.NTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.STATus.QUEStionable.RLIMit.PTRansition

Object Type	Property (read/write)
Data Type	Long
Target	IEE488.2 Status Reporting System (Appendix 1)
Description	Positive Transition Filter of the Questionable Ripple Limit Status Register.
Range	from 0 to 65535
Preset Value	65535
Syntax	Dim *Value* As Long *Value* = *app*.SCPI.STATus.QUEStionable.RLIMit.PTRansition *app*.SCPI.STATus.QUEStionable.RLIMit.PTRansition = *Value*
Equivalent Softkeys	**None**

SCPI.SYSTem.BEEPer.COMPlete.IMMediate

Object Type	Method
Target	Instrument
Description	Generates a beep to notify of the completion of the operation.
Syntax	*app*.SCPI.SYSTem.BEEPer.COMPlete.IMMediate
Equivalent Softkeys	**System > Misc Setup > Beeper > Test Beep Complete**

SCPI.SYSTem.BEEPer.COMPlete.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the beeper notifying of the completion of the operation.
Allowable Values	True: Completion beeper ON False: Completion beeper OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SYSTem.BEEPer.COMPlete.STATe *app*.SCPI.SYSTem.BEEPer.COMPlete.STATe = False
Equivalent Softkeys	**System > Misc Setup > Beeper > Beep complete**

SCPI.SYSTem.BEEPer.WARNing.IMMediate

Object Type	Method
Target	Instrument
Description	Generates a beep to notify of warning.
Syntax	*app*.SCPI.SYSTem.BEEPer.WARNing.IMMediate
Equivalent Softkeys	**System > Misc Setup > Beeper > Test Beep Warning**

SCPI.SYSTem.BEEPer.WARNing.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the beeper notifying of warning.
Allowable Values	True: Warning beeper ON False: Warning beeper OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SYSTem.BEEPer.WARNing.STATe *app*.SCPI.SYSTem.BEEPer.WARNing.STATe = False
Equivalent Softkeys	**System > Misc Setup > Beeper > Beep Warning**

SCPI.SYSTem.COMMunicate.ECAL.TEMPerature.SENSor

Object Type	Property (read only)
Data Type	Double
Target	AutoCal module
Description	Reads out the temperature of the AutoCal module connected to the instrument.
Unit	°C (Celsius)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SYSTem.COMMunicate.ECAL.TEMPerature.SENSor
Equivalent Softkeys	**None**

SCPI.SYSTem.COMMunicate.ECAL.IMPedance(*Pt*)

Object Type	Property (read/write)
Data Type	String
Target	AutoCal module
Description	Sets or reads out the impedance state of the specified port (*Pt*) of AutoCal module connected to the instrument.
Range	"OPEN" : OPEN impedance state "SHORt" : SHORT impedance state "LOAD" : LOAD impedance state
Preset Value	"LOAD"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.SYSTem.COMMunicate.ECAL.IMPedance(*Pt*) *app*.SCPI.SYSTem.COMMunicate.ECAL.IMPedance(*Pt*) = "OPEN"
Equivalent Softkeys	**None**

SCPI.SYSTem.COMMunicate.ECAL.THRU(*Pt1*, *Pt2*)

Object Type	Method
Target	AutoCal module
Description	Sets the thru state between the specified 2 ports (*Pt1*, *Ptr2*) of AutoCal module connected to the instrument.
Syntax	*app*.SCPI.SYSTem.COMMunicate.ECAL.THRU(*1*, *2*)
Equivalent Softkeys	**None**

SCPI.SYSTem.CORRection.STATe

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the system error correction.
Allowable Values	True: System error correction ON False: System error correction OFF
Preset Value	True
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.SYSTem.CORRection.STATe *app*.SCPI.SYSTem.CORRection.STATe = False
Equivalent Softkeys	**System > Misc Setup > System Correction**

SCPI.SYSTem.DATE

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Instrument
Description	The current date. The array consists of three elements: *Data(0)* year from 1900 to 2100; *Data(1)* month from 1 to 12; *Data(2)* day from 1 to 31.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SYSTem.DATE *app*. *app*.SCPI.SYSTem.DATE = Array(2009, 9, 9)
Equivalent Softkeys	**None**

SCPI.SYSTem.HIDE

Object Type	Method
Target	Instrument GUI
Description	Minimizes the instrument main window removing it from desktop.
Syntax	*app*.SCPI.SYSTem.HIDE
Related Commands	SCPI.SYSTem.SHOW
Equivalent Softkeys	**None**

SCPI.SYSTem.LOCal

Object Type	Method
Target	Instrument
Description	Sets the instrument to the local operation mode, when all the keys on the front panel, mouse and the touch screen are active.
Syntax	*app*.SCPI.SYSTem.LOCal
Related Commands	SCPI.SYSTem.REMote SCPI.SYSTem.RWLock
Equivalent Softkeys	**None**

SCPI.SYSTem.PRESet

Object Type	Method
Target	Instrument
Description	Resets the instrument to the factory settings. The difference from the SCPI.IEEE4882.RST: method is that the trigger is set to the *Continuous* trigger mode.
Syntax	*app*.SCPI.SYSTem.PRESet
Equivalent Softkeys	**System > Preset > OK**

SCPI.SYSTem.REMote

Object Type	Method
Target	Instrument
Description	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.
Syntax	*app*.SCPI.SYSTem.REMote
Related Commands	SCPI.SYSTem.LOCal SCPI.SYSTem.RWLock
Equivalent Softkeys	**None**

SCPI.SYSTem.RWLock

Object Type	Method
Target	Instrument
Description	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 SCPI.SYSTem.LOCal or SCPI.SYSTem.REMote command can release this remote operation mode.
Syntax	*app*.SCPI.SYSTem.RWLock
Related Commands	SCPI.SYSTem.LOCal SCPI.SYSTem.REMote
Equivalent Softkeys	**None**

SCPI.SYSTem.TEMPerature.SENSor(*Idx*)

Object Type	Property (read only)
Data Type	Double
Target	Instrument
Description	Reads out the specified sensor (*Idx*) temperature inside the instrument.
Unit	°C (Celsius)
Syntax	Dim *Value* As Double *Value* = *app*.SCPI.SYSTem.TEMPerature.SENSor(1)
Equivalent Softkeys	**None**

SCPI.SYSTem.SHOW

Object Type	Method
Target	Instrument GUI
Description	Restores the instrument main window hidden by the SCPI.SYSTem.HIDE command.
Syntax	*app*.SCPI.SYSTem.SHOW
Related Commands	SCPI.SYSTem.HIDE
Equivalent Softkeys	**None**

SCPI.SYSTem.TERMinate

Object Type	Method
Target	Instrument GUI
Description	Terminates the application.
Syntax	*app*.SCPI.SYSTem.TERMinate
Equivalent Softkeys	**None**

SCPI.SYSTem.TIME

Object Type	Property (read/write)
Data Type	Variant (array of long)
Target	Instrument
Description	The current time. The array consists of three elements: *Data(0)* hours from 0 to 23; *Data(1)* minutes from 0 to 59; *Data(2)* seconds from 0 to 59.
Syntax	Dim *Data* As Variant *Data* = *app*.SCPI.SYSTem.TIME *app*. *app*.SCPI.SYSTem.TIME = Array(15, 20, 30)
Equivalent Softkeys	**None**

SCPI.TRIGger.INPut.POLarity

Object Type	Property (read/write)
Data Type	String
Target	Instrument
Description	Selects the polarity of the external trigger.
Range	"POSitive" : Positive edge "NEGative" : Negative edge
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 205.
Preset Value	"NEG"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.TRIGger.INPut.POLarity *app*.SCPI.TRIGger.INPut.POLarity = "POS"
Related Commands	SCPI.TRIGger.SEQuence.SOURce
Equivalent Softkeys	**Stimulus > Trigger > Ext Trig Polarity > { Negative edge | Positive edge }**

SCPI.TRIGger.SEQuence.IMMediate

Object Type	Method
Target	Instrument
Description	Generates a trigger, independently of the trigger source setting (except for the *External*). If the trigger source is set to *External*, 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 *Hold*), an error occurs (error code 211) and the command is ignored. The method returns control before the end of the sweep.
Syntax	*app*.SCPI.TRIGger.SEQuence.IMMediate
Related Commands	SCPI.TRIGger.SEQuence.SOURce SCPI.INITiate(*Ch*).CONTinuous SCPI.INITiate(*Ch*).IMMediate
Equivalent Softkeys	**None**

SCPI.TRIGger.SEQuence.POINt

Object Type	Property (read/write)
Data Type	Boolean
Target	Instrument
Description	The ON/OFF state of the point trigger feature. When the point trigger feature is turned ON, the external trigger response is single point. When the point trigger feature is turned OFF, the external trigger response is single sweep.
Allowable Values	True: point trigger feature ON False: point trigger feature OFF
Preset Value	False
Syntax	Dim *Status* As Boolean *Status* = *app*.SCPI.TRIGger.SEQuence.POINt *app*.SCPI.TRIGger.SEQuence.POINt = True
Related Commands	SCPI.TRIGger.SEQuence.SOURce
Equivalent Softkeys	**Stimulus > Trigger > Ext Trig Event > { On Sweep | On Point }**

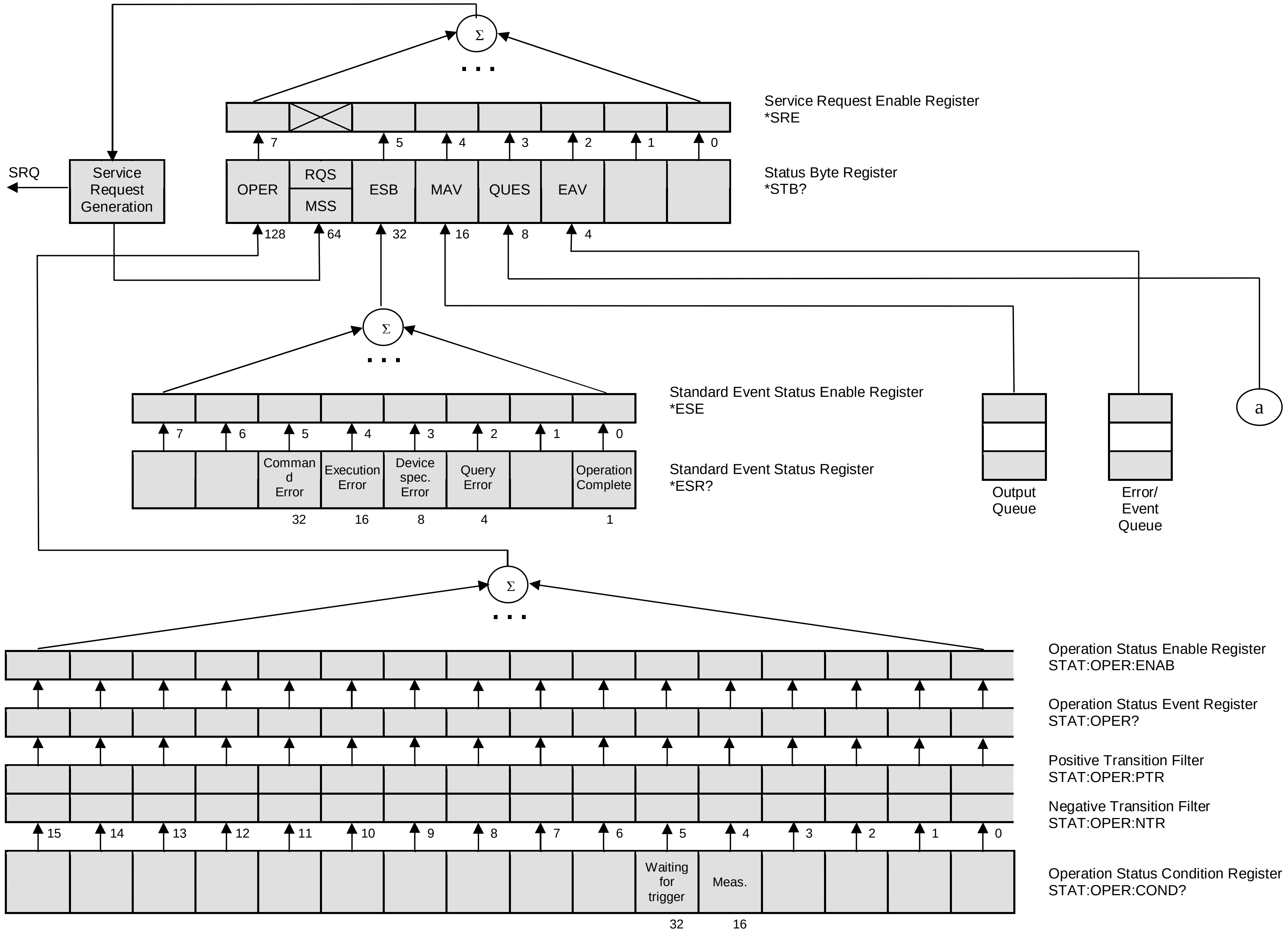
SCPI.TRIGger.SEQuence.SINGle

Object Type	Method
Target	Instrument
Description	Generates a trigger, independently of the trigger source setting (except for the *External*). If the trigger source is set to *External*, 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 *Hold*), an error occurs (error code 211) and the command is ignored. The method does not return control before the end of the sweep (waiting for the completion of the sweep of all the channels).
Syntax	*app*.SCPI.TRIGger.SEQuence.SINGle
Related Commands	SCPI.TRIGger.SEQuence.SOURce SCPI.INITiate(*Ch*).CONTinuous SCPI.INITiate(*Ch*).IMMediate
Equivalent Softkeys	**None**

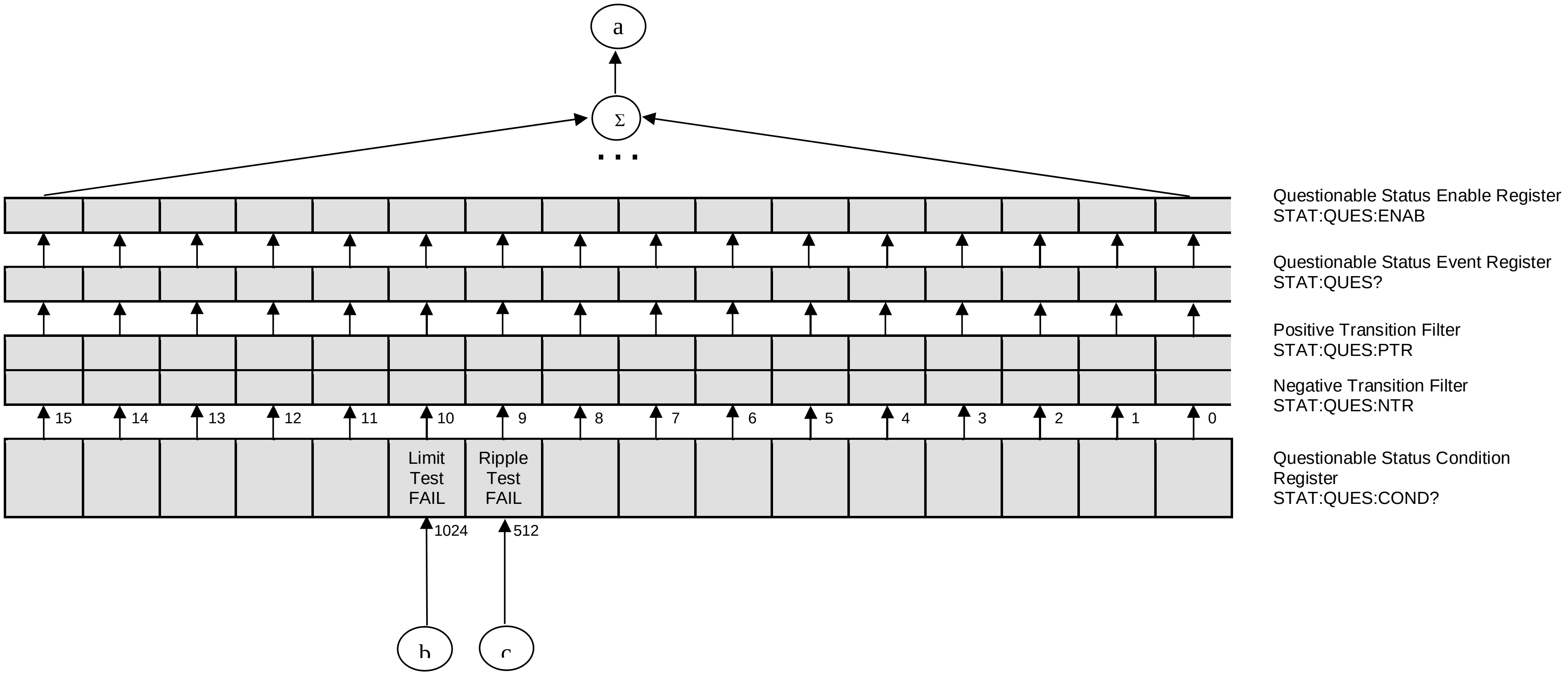
SCPI.TRIGger.SEQuence.SOURce

Object Type	Property (read/write)
Data Type	String
Target	Instrument
Description	Selects the sweep trigger source.
Range	"INTernal" : Internal "EXTernal" : External "MANual" : Manual "BUS" : Bus
Notes	The short format of the parameter is indicated by upper case letters. There is no distinction between upper and lower case letters when the property is written. When the property is read out, the short format is indicated by upper case letters.
Out of Range	An error occurs. Error code: 205.
Preset Value	"INT"
Syntax	Dim *Param* As String *Param* = *app*.SCPI.TRIGger.SEQuence.SOURce *app*.SCPI.TRIGger.SEQuence.SOURce = "BUS"
Related Commands	SCPI.TRIGger.SEQuence.IMMediate SCPI.TRIGger.SEQuence.SINGle SCPI.IEEE4882.TRG
Equivalent Softkeys	**Stimulus > Trigger > Trigger Source > { Internal | External | Manual | Bus }**

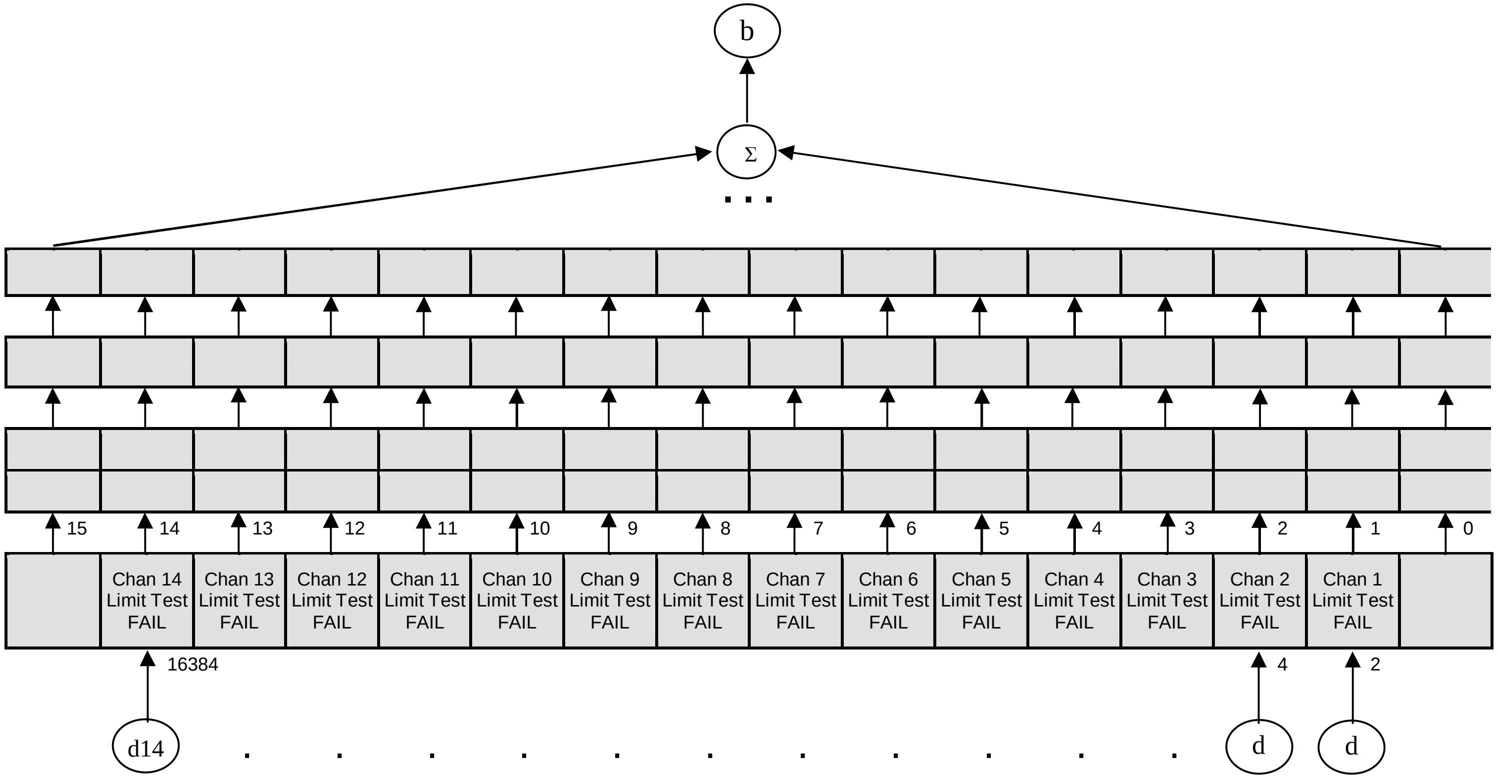
Appendix 1. IEE488.2 Status Reporting System



Appendix 1. IEE488.2 Status Reporting System


a
Σ
...
Questionable Status Enable Register
STAT:QUES:ENAB
Questionable Status Event Register
STAT:QUES?
Positive Transition Filter
STAT:QUES:PTR
Negative Transition Filter
STAT:QUES:NTR
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Limit Test FAIL
Ripple Test FAIL
Questionable Status Condition Register
STAT:QUES:COND?
1024
512
b
c

Appendix 1. IEE488.2 Status Reporting System



Questionable Limit Status Enable Register
STAT:QUES:LIM:ENAB

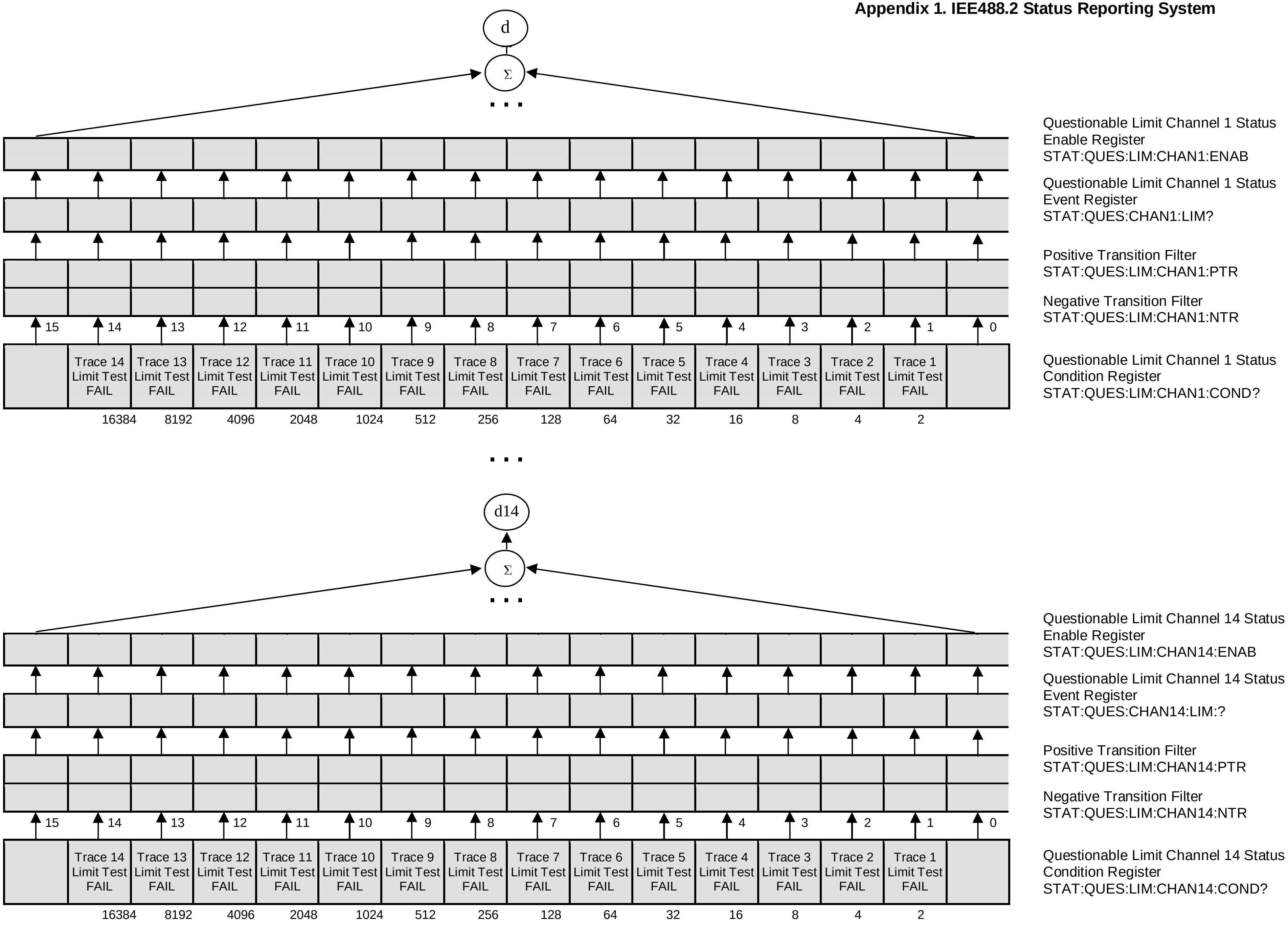
Questionable Limit Status Event Register
STAT:QUES:LIM?

Positive Transition Filter
STAT:QUES:LIM:PTR

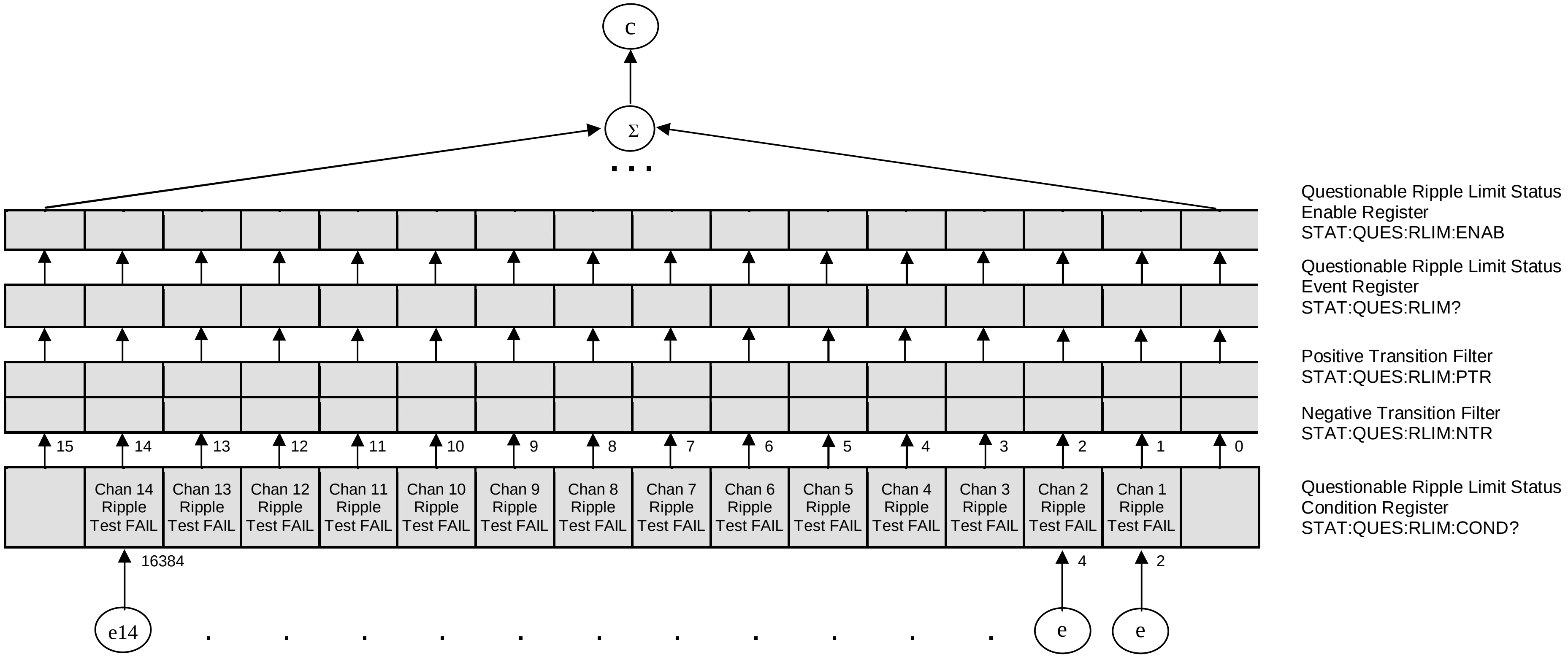
Negative Transition Filter
STAT:QUES:LIM:NTR

Questionable Limit Status Condition Register
STAT:QUES:LIM:COND?

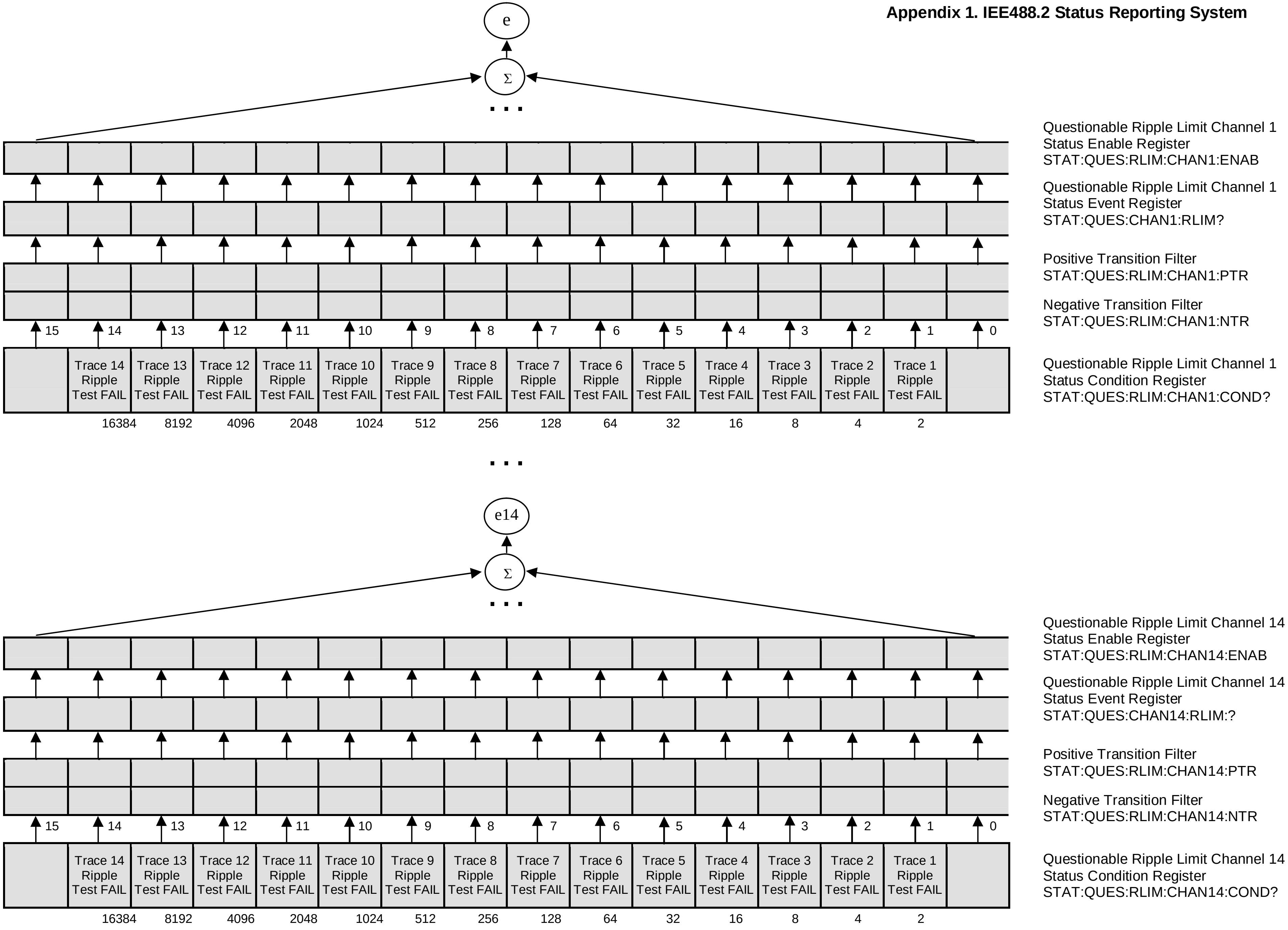
Appendix 1. IEE488.2 Status Reporting System



Appendix 1. IEE488.2 Status Reporting System



Appendix 1. IEE488.2 Status Reporting System


e
Σ
...
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
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Trace 14 Ripple Test FAIL
Trace 13 Ripple Test FAIL
Trace 12 Ripple Test FAIL
Trace 11 Ripple Test FAIL
Trace 10 Ripple Test FAIL
Trace 9 Ripple Test FAIL
Trace 8 Ripple Test FAIL
Trace 7 Ripple Test FAIL
Trace 6 Ripple Test FAIL
Trace 5 Ripple Test FAIL
Trace 4 Ripple Test FAIL
Trace 3 Ripple Test FAIL
Trace 2 Ripple Test FAIL
Trace 1 Ripple Test FAIL
Questionable Ripple Limit Channel 1
Status Condition Register
STAT:QUES:RLIM:CHAN1:COND?
16384
8192
4096
2048
1024
512
256
128
64
32
16
8
4
2
...
e14
Σ
...
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
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Trace 14 Ripple Test FAIL
Trace 13 Ripple Test FAIL
Trace 12 Ripple Test FAIL
Trace 11 Ripple Test FAIL
Trace 10 Ripple Test FAIL
Trace 9 Ripple Test FAIL
Trace 8 Ripple Test FAIL
Trace 7 Ripple Test FAIL
Trace 6 Ripple Test FAIL
Trace 5 Ripple Test FAIL
Trace 4 Ripple Test FAIL
Trace 3 Ripple Test FAIL
Trace 2 Ripple Test FAIL
Trace 1 Ripple Test FAIL
Questionable Ripple Limit Channel 14
Status Condition Register
STAT:QUES:RLIM:CHAN14:COND?
16384
8192
4096
2048
1024
512
256
128
64
32
16
8
4
2

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"

Example 1. Instrument Information String Readout

The following program reads out and displays on the screen the instrument information string – the Name property of the COM object. The string contains the following fields:

Manufacturer, Model, Serial Number, Software Version/Firmware Version

For example:

CMT, Planar 304/1, 09381020, 2.46/03

```
Dim app As Object
Sub Example1()
Set app = CreateObject("Planar304.Application")
ID = app.Name
MsgBox ("Information string read out: " + ID)
End Sub
```

Example 2. Checking the Instrument Ready State

Normally, the user control program starts when the analyzer executable module is running, the instrument booting is completed, and the instrument is ready for use. In some cases, it is recommended to check if the instrument is ready for use. The instrument may be not ready for use if it is not connected to PC via USB cable. Moreover, if the analyzer executable module has not been started in advance, the *CreateObject* function will automatically start the application and then within about 10 seconds the instrument booting will be in progress. The instrument will not be ready for use until the booting is completed. The *Ready* property is used to check if the instrument is ready for use.

The following program checks the *Ready* property right after a COM object has been created. If the analyzer executable module has been started in advance and the booting is completed, *"Analyzer is ready"* will be displayed. If the *Ready* property value is *False*, 10 second delay is activated for the case the analyzer executable module has been started by the COM object creation. In 10 seconds the program rechecks the *Ready* property. If the value is *True*, *"Analyzer is ready"* will be displayed, if otherwise, *"Analyzer is not ready"* will be displayed, what means the instrument is not turned on or it is not connected to PC via USB cable.

```
Dim app As Object
Sub Example2()
Set app = CreateObject("Planar804.Application")
If app.Ready = False Then
   Application.Wait (Now + TimeValue("0:00:10"))
   If app.Ready = False Then
      MsgBox ("Analyzer is not ready")
      Exit Sub
   End If
End If
MsgBox ("Analyzer is ready")
End Sub
```

Example 3. Setting the Measurement Parameters

The following program shows the setting of some measurement parameters. First, the instrument is reset to the factory settings. Then the following parameters are set:

- Two channel windows are opened and allocated one above the other.

- The number of traces is set to 2 in the first channel window, the traces are allocated in different graphs in the channel window.

- For the first channel the stimulus parameters are set as follows: the frequency range from 1 MHz to 2 GHz, the number of measurement points 401.

- For the second channel the stimulus parameters are set as follows: the frequency range from 800 MHz to 900 MHz, the number of points 51, IF bandwidth 100 Hz, stimulus power –10 dBm.

- In the first channel window: S11 measurement is set for the trace 1, S22 measurement is set for the trace 2. The Smith chart format is set for the both traces.

- In the second channel window: S21 measurement and logarithmic magnitude format are set for the single trace. Then the auto scale function is called for this trace.

```
Dim app As Object

Public Sub Example3()
Set app = CreateObject("Planar804.Application")

app.SCPI.SYSTem.PRESet

app.SCPI.DISPlay.Split = 2
app.SCPI.Calculate(1).Parameter.Count = 2
app.SCPI.DISPlay.Window(1).Split = 3

app.SCPI.SENSe(1).Frequency.Start = 100000
app.SCPI.SENSe(1).Frequency.STOP = 2000000000
app.SCPI.SENSe(1).SWEep.Points = 401

app.SCPI.SENSe(2).Frequency.Start = 800000000
app.SCPI.SENSe(2).Frequency.STOP = 900000000
app.SCPI.SENSe(2).SWEep.Points = 51
app.SCPI.SENSe(2).BANDwidth.RESolution = 100
app.SCPI.Source(2).Power.LEVel.IMMediate.AMPlitude = -10

app.SCPI.Calculate(1).Parameter(1).DEFine = "S11"
app.SCPI.Calculate(1).Parameter(2).DEFine = "S22"
app.SCPI.Calculate(1).Parameter(1).Select
app.SCPI.Calculate(1).Selected.Format = "SMIT"
app.SCPI.Calculate(1).Parameter(2).Select
app.SCPI.Calculate(1).Selected.Format = "SMIT"

app.SCPI.Calculate(2).Parameter(1).DEFine = "S21"
app.SCPI.Calculate(2).Parameter(1).Select
app.SCPI.Calculate(2).Selected.Format = "MLOG"
app.SCPI.DISPlay.Window(2).TRACe(1).Y.SCALe.AUTO

End Sub
```

Example 4. Measurement Data Acquisition

The following program shows data array acquisition with further writing into a file. The program also shows the method of a sweep triggering and waiting for the sweep completion.

Three variables *F*, *M*, *P* are declared in the second string of the code. They are used for arrays of frequency values (Hz), magnitude values (dB), and phase values (degree) respectively.

After the instrument has been reset to the factory settings, two operators are used for the sweep triggering and waiting for the sweep completion:

```
app.SCPI.TRIGger.SEQuence.Source = "bus"
app.SCPI.TRIGger.SEQuence.Single
```

The first operator sets the GPIB/LAN bus command or the COM/DCOM interface command as a trigger source. It aborts the sweep and switches the instrument to waiting for a trigger. The second operator is used for a new sweep triggering and waiting for the sweep completion.

Note	Unlike the *SCPI.TRIGger.SEQuence.IMMediate* and *SCPI.IEEE4882.TRG* commands, which are completed immediately after a trigger generation, the *SCPI.TRIGger.SEQuence.Single* command is not completed until the end of the sweep. Using the *SCPI.TRIGger.SEQuence.Single* command is the simplest way to set the waiting for the sweep completion.

On completion of the sweep, three arrays are read out: frequency values, magnitude values and phase values. Before the magnitude and phase arrays are read out, the corresponding trace format is set.

The array size of frequency *F* is equal to the number of measurement points, and the array size of magnitude *M* and phase *P* is equal to the double number of measurement points (see section 11 “Measurement Data Arrays”). In rectangular formats (for magnitude and phase) the measurement data are real numbers located in even cells of the array. Odd cells of the array contain 0.

On completion of the program, the frequency, magnitude and phase values for each measurement point are written string by string into the file named *TESTFILE*.

```
Dim app As Object
Dim F, M, P

Public Sub Example4()
Set app = CreateObject("Planar304.Application")

app.SCPI.SYSTem.PRESet

app.SCPI.TRIGger.SEQuence.Source = "bus"
app.SCPI.TRIGger.SEQuence.Single

F = app.SCPI.SENSe.Frequency.Data

app.SCPI.Calculate.Selected.Format = "MLOG"
M = app.SCPI.Calculate.Selected.Data.FDATa

app.SCPI.Calculate.Selected.Format = "PHASe"
P = app.SCPI.Calculate.Selected.Data.FDATa

Open "TESTFILE" For Output As #1

For i = LBound(F) To UBound(F)
    Print #1, F(i), M(i * 2), P(i * 2)
Next i

Close #1
End Sub
```

Example 5. Program Written in C++

The following C++ program represents an example of the measurement parameter setting, as well as acquisition and display of the measurement data array. The program also shows a method of the sweep triggering and waiting for the sweep completion.

```
//--------------------------------------------------------------------------
// Simple example of using COM object of Planar804.exe application.
//
// This example is console application. GUI is not used in this example to
// simplify the program. Error proccessing is very restricted too.
//
#include "stdafx.h"

//--------------------------------------------------------------------------
// Generate description of COM object of Planar804.exe application.
#import "Planar804.exe" no_namespace


//--------------------------------------------------------------------------
int _tmain(int argc, _TCHAR* argv[])
{
   IPlanar804Ptr pNWA;          // Pointer to COM object of Planar804.exe
   CComVariant Data;            // Variable for measurement data

   // Init COM subsystem
   HRESULT hr = CoInitialize(NULL);
   if(hr != S_OK) return -1;

   // Create COM object
   hr = pNWA.CreateInstance(__uuidof(Planar804));
   if(hr != S_OK) return -1;

   // Preset network analyzer
   pNWA->SCPI->SYSTem->PRESet();
   // Set frequency start to 1 GHz
   pNWA->SCPI->GetSENSe(1)->FREQuency->STARt = 1e9;
   // Set frequency stop to 2 GHz
   pNWA->SCPI->GetSENSe(1)->FREQuency->STOP = 2e9;
   // Set number of measurement points to 51
   pNWA->SCPI->GetSENSe(1)->SWEep->POINts = 51;
   // Set measured parameter to S21
   pNWA->SCPI->GetCALCulate(1)->GetPARameter(1)->DEFine = "S21";
   // Set trigger source to GPIB/LAN bus or COM interface
   pNWA->SCPI->TRIGger->SEQuence->SOURce = "bus";
   // Trigger measurement and wait
   pNWA->SCPI->TRIGger->SEQuence->SINGle();
   // Get measurement data (array of complex numbers)
   Data = pNWA->SCPI->GetCALCulate(1)->SELected->DATA->FDATa;

   // Display measurement data.
   // Data is array of NOP * 2 (number of measurement points).
   // Where n is an integer between 0 and NOP - 1.
   // Data(n*2)   : Primary value at the n-th measurement point.
   // Data(n*2+1) : Secondary value at the n-th measurement point. Always 0
   //               when the data format is not the Smith chart or the polar.

   CComSafeArray<double> mSafeArray;
   if (mSafeArray.Attach(Data.parray) == S_OK)
   {
      for (unsigned int n = 0; n < mSafeArray.GetCount() / 2; ++n)
      {
         printf("%+.9E\t%+.9E\n",
         mSafeArray.GetAt(n*2),
         mSafeArray.GetAt(n*2+1));
      }
      mSafeArray.Detach();
   }

   printf("Press ENTER to exit.\n");
   getc(stdin);

   // Release COM object
   pNWA.Release();
   CoUninitialize();
   return 0;
}
```

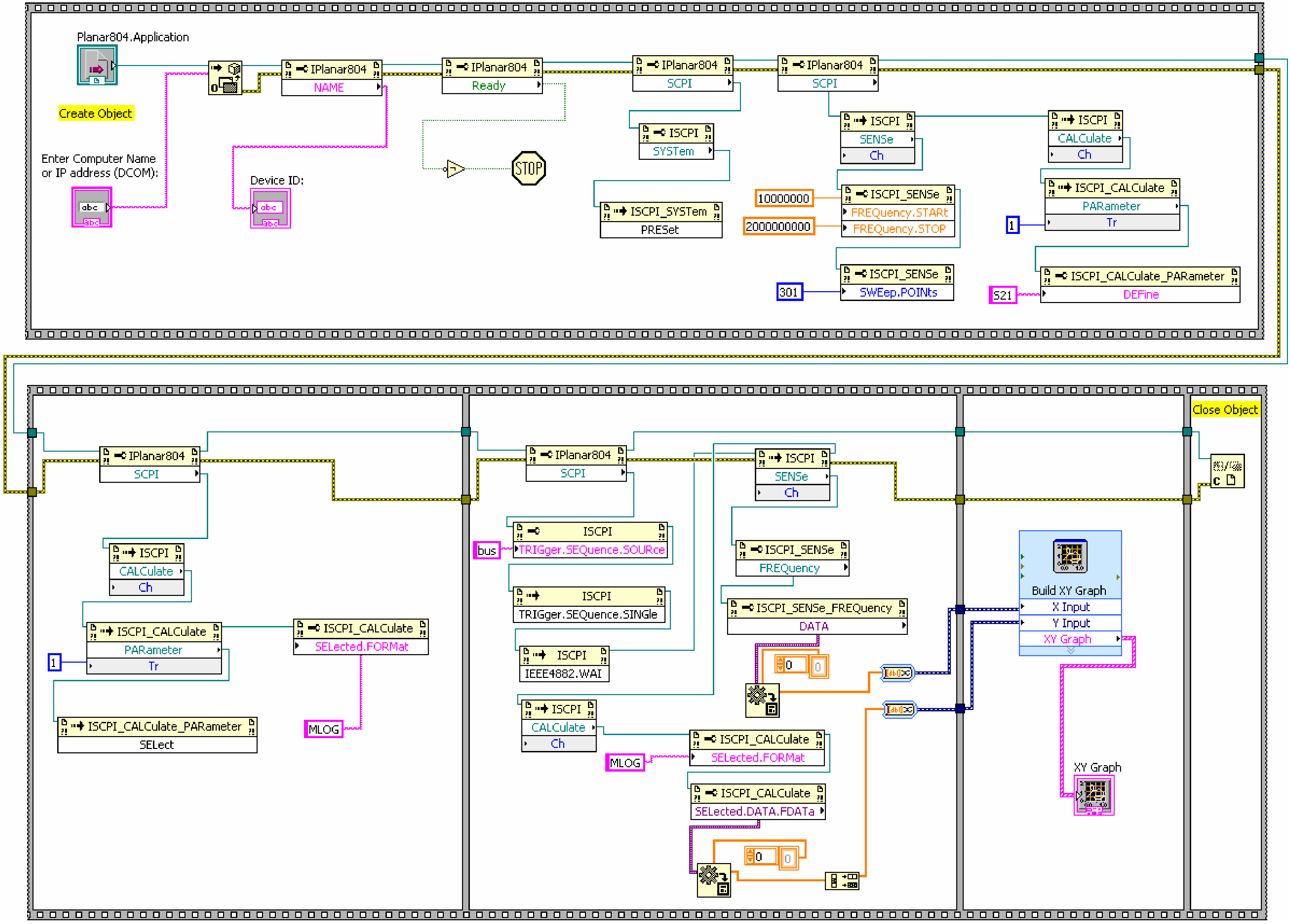
Example 6. Program Written in LabView

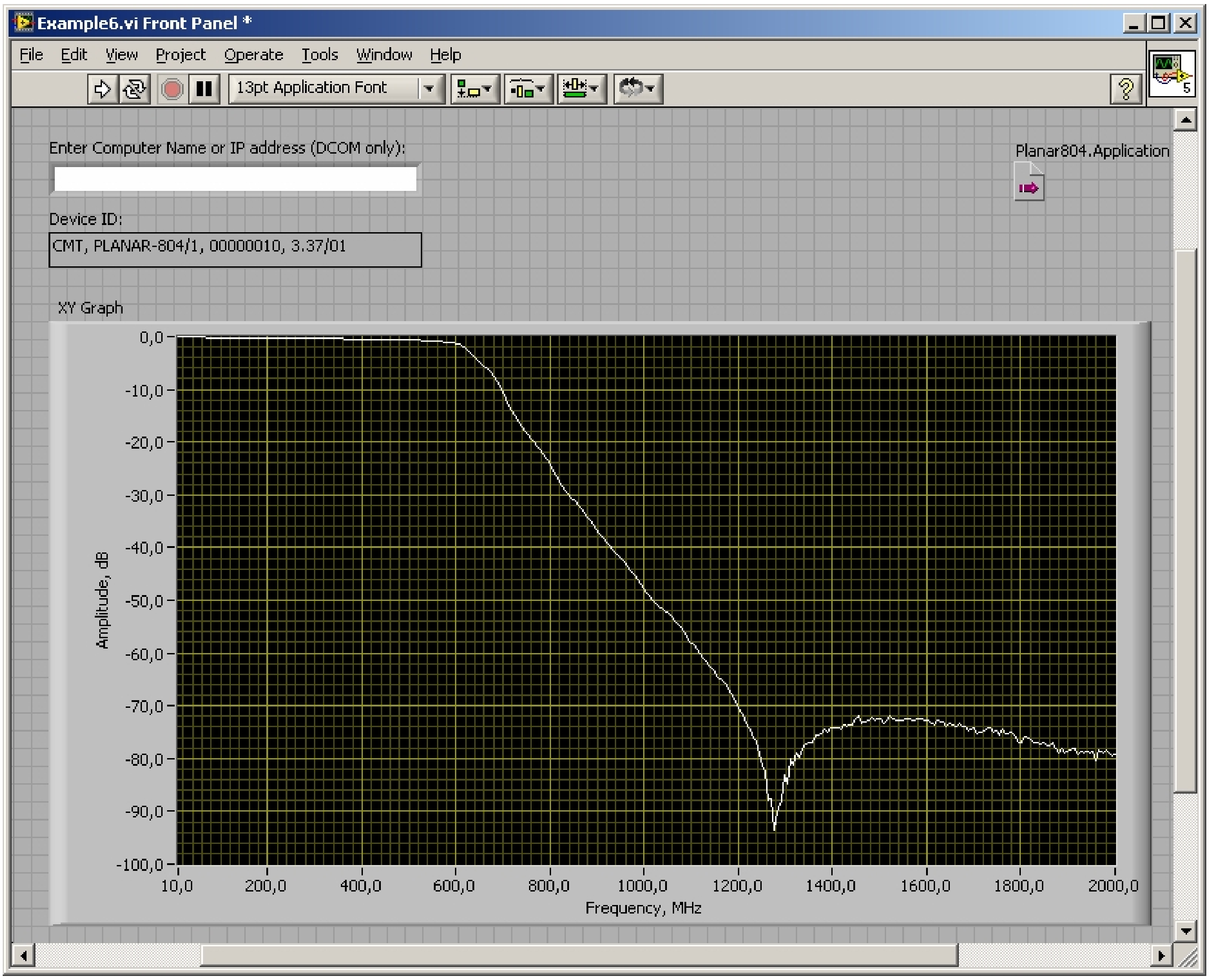
The following LabView program represents an example of the measurement parameter setting, as well as acquisition and display of the measurement data array. The program also shows a method of the sweep triggering and waiting for the sweep completion.

Below see the block diagram of the program and the front panel of the program with the program execution result.

The front panel contains the entry field for the instrument network name or IP address. This field is used to control the instrument with DCOM technology from a remote PC, on which the LabView package is executed. This example can also be used on a single PC running the instrument program. In this case leave this field empty.

The user must enter the instrument name in the entry field and click the “Run” button. As the result of the program, the instrument information string will be displayed and the measurement trace of transmission coefficient will be plotted.


Planar804.Application
Create Object
Enter Computer Name or IP address (DCOM):
Device ID:
IPlanar804
NAME
IPlanar804
Ready
STOP
IPlanar804
SCPI
ISCPI
SYSTem
ISCPI_SYSTem
PRESet
IPlanar804
SCPI
ISCPI
SENSe
Ch
10000000
2000000000
ISCPI_SENSe
FREQuency.STARt
FREQuency.STOP
301
ISCPI_SENSe
SWEep.POINts
ISCPI
CALCulate
Ch
1
ISCPI_CALCulate
PARameter
Tr
521
ISCPI_CALCulate_PARameter
DEFine
IPlanar804
SCPI
ISCPI
CALCulate
Ch
1
ISCPI_CALCulate
PARameter
Tr
ISCPI_CALCulate_PARameter
SELect
ISCPI_CALCulate
SELected.FORMat
MLOG
IPlanar804
SCPI
bus
ISCPI
TRIGger.SEQuence.SOURce
ISCPI
TRIGger.SEQuence.SINGle
ISCPI
IEEE4882.WAI
ISCPI
CALCulate
Ch
MLOG
ISCPI_CALCulate
SELected.FORMat
ISCPI_CALCulate
SELected.DATA.FDATa
ISCPI
SENSe
Ch
ISCPI_SENSe
FREQuency
ISCPI_SENSe_FREQuency
DATA
0
0
0
0
Build XY Graph
X Input
Y Input
XY Graph
XY Graph
Close Object



Enter Computer Name or IP address (DCOM only):

Device ID:
CMT, PLANAR-804/1, 00000010, 3.37/01