MX269026A
EV-DO Forward Link
Measurement Software
Operation Manual
Remote Control

Fourth Edition

- **For safety and warning information, please read this manual before attempting to use the equipment.**
- **Additional safety and warning information is provided within the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation), MS2830A Signal Analyzer Operation Manual (Mainframe Operation) and MX269026A EV-DO Forward Link Measurement Software Operation Manual (Operation). Please also refer to these documents before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

Document No.: M-W3204AE-4.0

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This indicates a warning or caution. The contents are indicated symbolically in or near the triangle.

This indicates a note. The contents are described in the box.

These indicate that the marked part should be recycled.

MX269026A
EV-DO Forward Link Measurement Software
Operation Manual Remote Control

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29 May 2013 (Fourth Edition)

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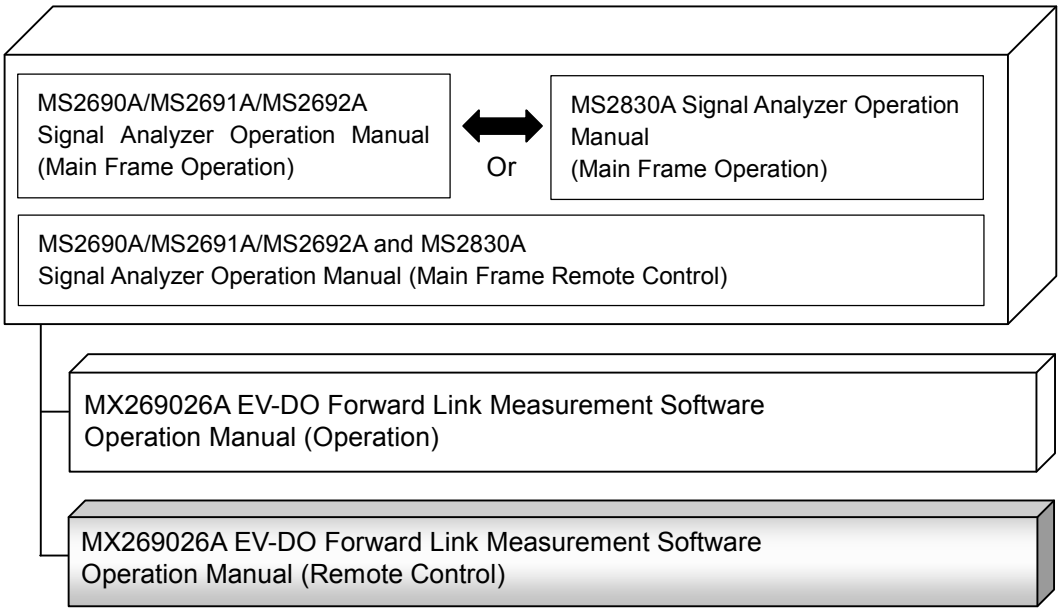
About This Manual

■ Composition of Operation Manuals

The operation manuals for MX269026A EV-DO Forward Link Measurement Software are comprised as shown in the figure below.



- Signal Analyzer Operation Manual (Mainframe Operation)
- Signal Analyzer Operation Manual (Mainframe Remote Control)

These manuals describe basic operating methods, maintenance procedures, common functions, and common remote control of the signal analyzer mainframe.

- MX269026A EV-DO Forward Link Measurement Software Operation Manual (Operation)

This manual describes operating methods of the MX269026A EV-DO Forward Link Measurement Software.

- MX269026A EV-DO Forward Link Measurement Software Operation Manual (Remote Control) <This document>

This manual describes remote control of the MX269026A EV-DO Forward Link Measurement Software.

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IV.

Chapter 1 Outline

This chapter outlines the remote control operation of the MX269026A EV-DO Forward Link Measurement Software (hereinafter referred to as "MX269026A").

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1.1 Outline

This application can be controlled from an external controller (PC) by remote control commands using the MS2690A/MS2691A/MS2692A or MS2830A Signal Analyzer. Remote control commands for this application are in the SCPI format defined by the SCPI Consortium.

1.1.1 Interface

This instrument has GPIB, Ethernet, and USB interfaces for remote control. Only one interface can be used at a time.

The interface is determined automatically when a command is received at the start of communication. The interface enters the remote state when a remote command is detected from the external controller (PC). At remote-interface operation, the front panel Remote lamp lights; the lamp is off at local-interface Operation.

Refer to the "MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)" for more details about remote control and interface setting.

1.1.2 Controlled Application

Two kinds of remote control commands can be used with this instrument: commands that are common to all applications (hereafter common commands), and other commands unique to a specific application. Common commands can be executed at any time and do not depend on the currently controlled application. However, when a command unique to a specific application is executed at another application, the command is not executed and an error occurs.

In this instrument, multiple applications can be activated at the same time. Only one application resource can be executed per piece of hardware at one time. This application performs a measurement for an input signal by using the resource of RF input. Thus, this application cannot be executed at the same time with another application using the same resource. In order to execute a function unique to the application by using remote control, you need to select this application once it has been activated. Furthermore, this application can be executed at the same time as another application that uses by itself a resource not used by this application, such as the Vector Signal Generator.

1.2 Basic Flow of Control

This section describes the basic remote control command programming operations for measuring EV-DO Forward Link signals.

Figure 1.2-1 shows the control flow for a basic test. Note the parameter settings for the measurement, type of measurement function, and measurement execution order (although the measurement order can change).

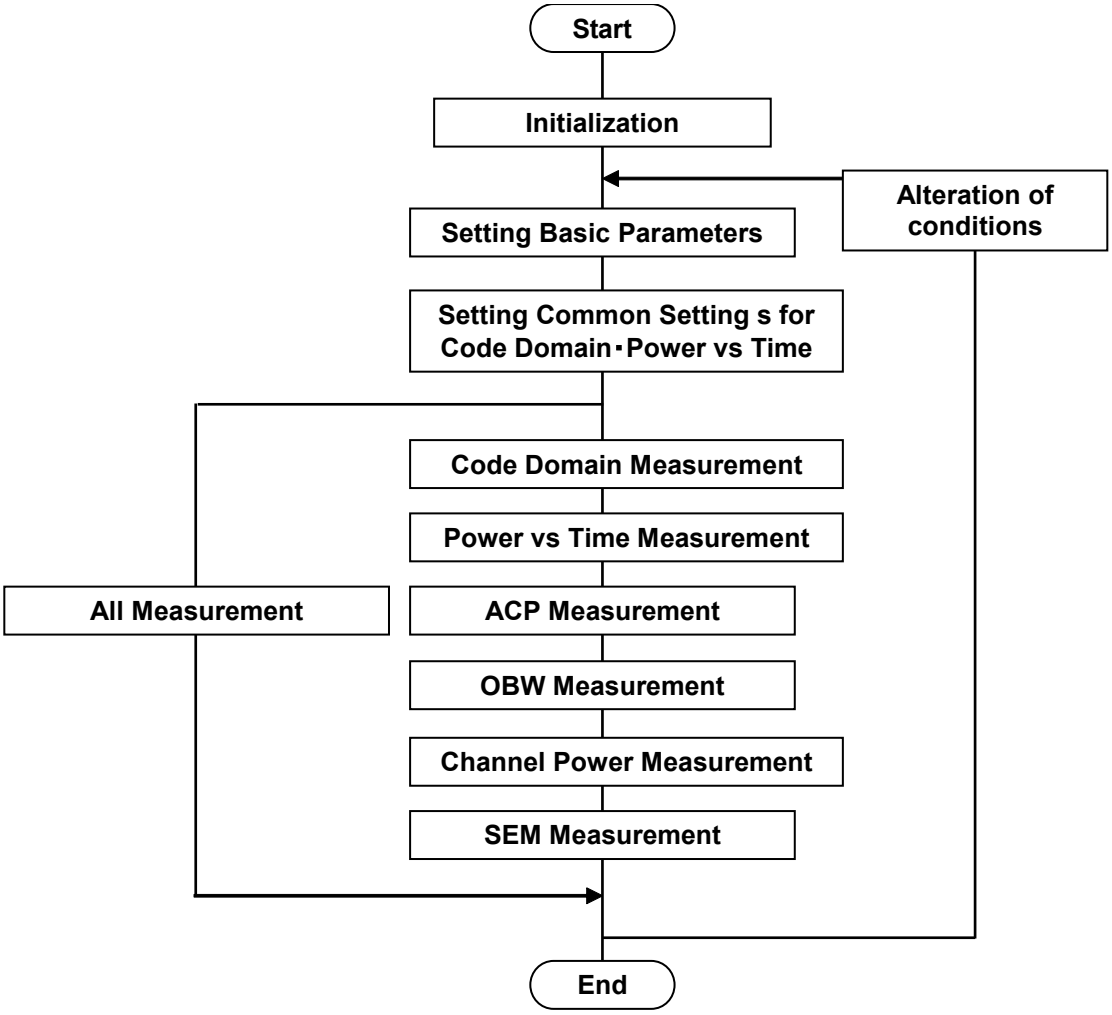

Figure 1.2-1 Flow of Basic Test

(1) Initialization
The communication interface and the parameters are initialized, the communication mode is set, and the application is started and selected.

☞ 1.2.1 Initialization

(2) Setting of Basic Parameters
The parameters used in common by all measurement functions to be executed in this application are set, including the carrier frequency and input level.

☞ 1.2.2 Setting of Basic Parameters

(3) Common Setting for both Code Domain and Power vs Time
Set the common parameters for the Code Domain and Power vs Time measurement function executed by this function, including trigger, modulation method, and band settings.

☞ 1.2.3 Common Setting for both Code Domain and Power vs Time

(4) Measuring Code Domain and Power vs Time
The measurement functions to be executed in this application are executed.
First, the modulation measurement function is selected. Next, the trace mode, storage mode, and other items are set for each measurement function, and then the measurement is executed and the measurement results are read.

☞ 1.2.4 Code Domain Measurement
☞ 1.2.5 Power vs Time Measurement

(5) ACP/Channel Power/OBW/SEM Measurement
The measurement functions to be executed in the Signal Analyzer or Spectrum Analyzer are executed. First, the parameters used in common by the Signal Analyzer or Spectrum Analyzer function are set. Next, the application and the measurement functions for each measurement are selected, the trigger mode, storage mode, BW, analysis time, sweep time, trace point, and other items to be used for the measurement are set, and then the measurement is executed and the measurement results are read.

☞ 1.2.6 ACP Measurement
☞ 1.2.7 OBW Measurement
☞ 1.2.8 Channel Power Measurement
☞ 1.2.9 SEM Measurement

(6) All Measurement
This feature is available when the MX269026A-001 All Measure Function option is installed.

This function performs the Modulation Analysis and the Spectrum Measurement using FFT at the same time. First, set the parameters applied in common to the measurement functions. Next, for each function used for All Measure operation, set parameters such as storage mode, and then execute measurement and read out the results.

1.2.10 All Measure

1.2.1 Initialization

As part of the initial settings, perform the preparations for using the measuring instrument and the application. The following actions are included in the initial settings.

(1) Initialization of Communication Interface
The remote control interface to be used is initialized so sending and receiving of commands can start. Refer to the operation manual of the interface used, for details about the remote control interface.

(2) Setting Language Mode and Response Mode
The language mode and the response mode used to communicate are set. Refer to the "MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)" for details about the language mode and response mode.

(3) Starting Application
The application is started. In addition to this application, the Signal Analyzer and Spectrum Analyzer applications are also started.

(4) Selecting Application
The application is selected.

(5) Initialization
All parameters and states are reset at initialization.

(6) Setting Measurement Mode
After initialization, the measurement mode is at continuous measurement mode. To select single measurement mode, switch to the single measurement mode.

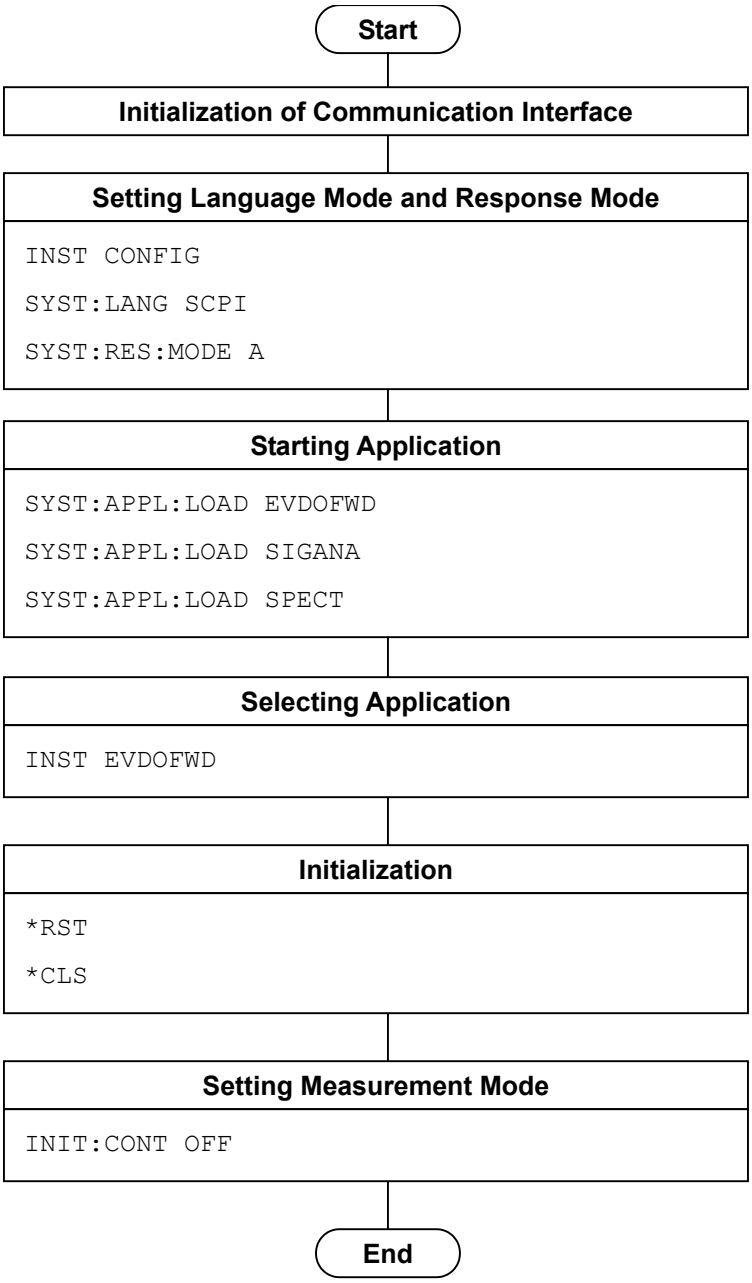

Figure 1.2.1-1 Initialization Flow and Command Example

1.2.2 Setting of Basic Parameters

Set the parameters used in common for to all measurements using this application, the Signal Analyzer, and the Spectrum Analyzer. The basic parameters include the following.

(1) Carrier Frequency
(2) Input Level (Reference Level/Attenuator)
(3) Level Offset
(4) Pre-Amp (Option)

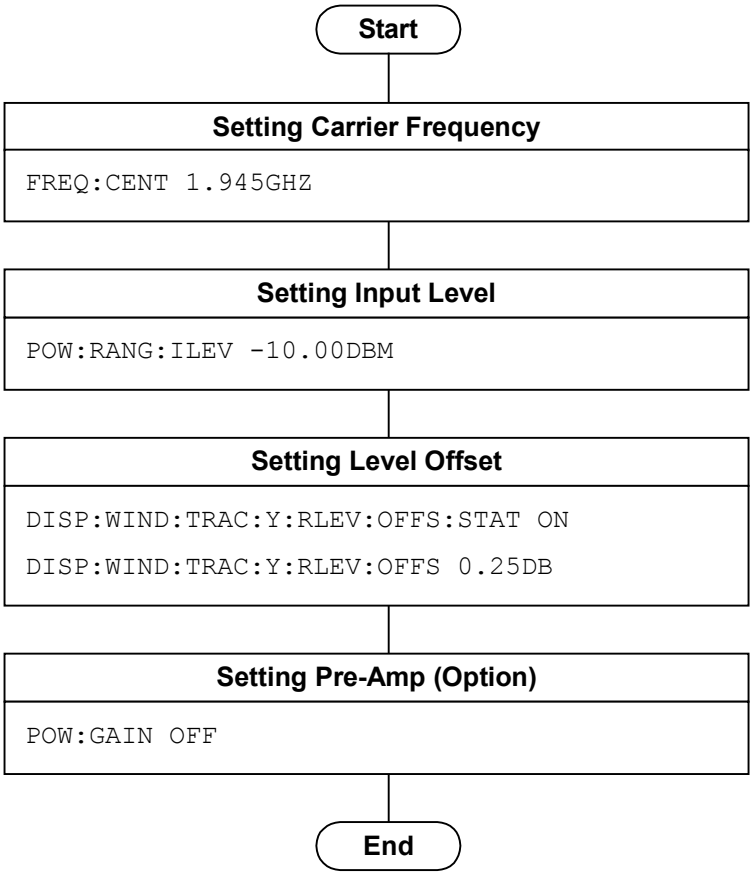

Figure 1.2.2-1 Flow of Basic Parameter Setting and Command Example

1.2.3 Common Setting for both Code Domain and Power vs Time

Set the parameters applied in common to the Code Domain and Power vs Time measurement functions executed by this application. Unless specified, there is no specific parameter setting order.

(1) Trigger
  (a) Trigger Switch
  (b) Trigger Source
  (c) Trigger Slope
  (d) Trigger Delay
(2) Physical Layer Subtype
(3) Slot Type
(4) Modulation Type
(5) Preamble Length
(6) PN Offset
(7) Active Code Threshold
(8) RF Spectrum

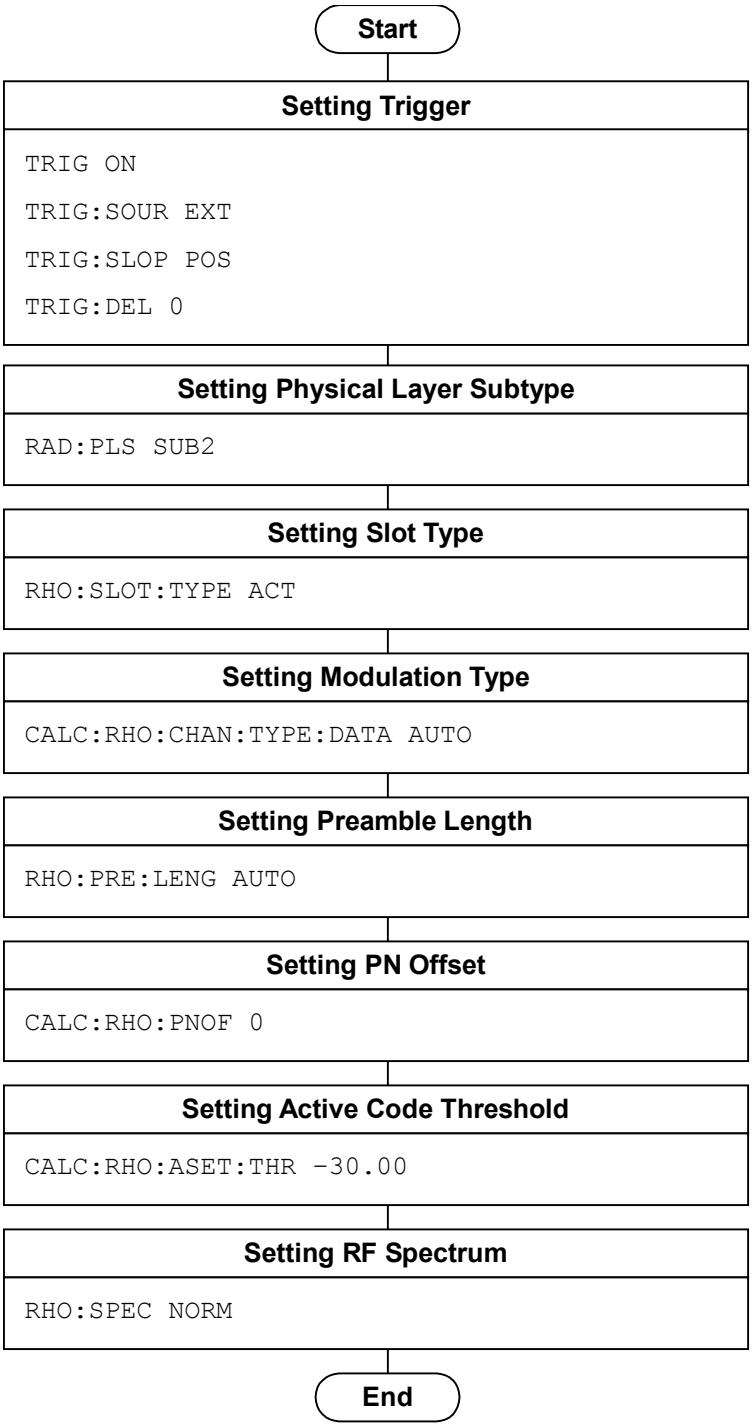

Figure 1.2.3-1 Common Code Domain and Power vs Time Parameter Setting Flow and Command Examples

1.2.4 Code Domain Measurement

Code Domain measurement is executed in the following order:

(1) Selecting measurement function

(2) Setting measurement parameters
The following parameters are used only for the Code Domain measurement.

(a) Code Domain Channel Type

(b) Storage

(c) Display Mode

(3) Measuring and reading results

(4) Set the display content
This setting is required for displaying measured results on the screen, in a manner similar to the manual operation, although it is not necessary when only reading out measured results through remote control.

(a) Branch

(b) Code Number

(c) Scale

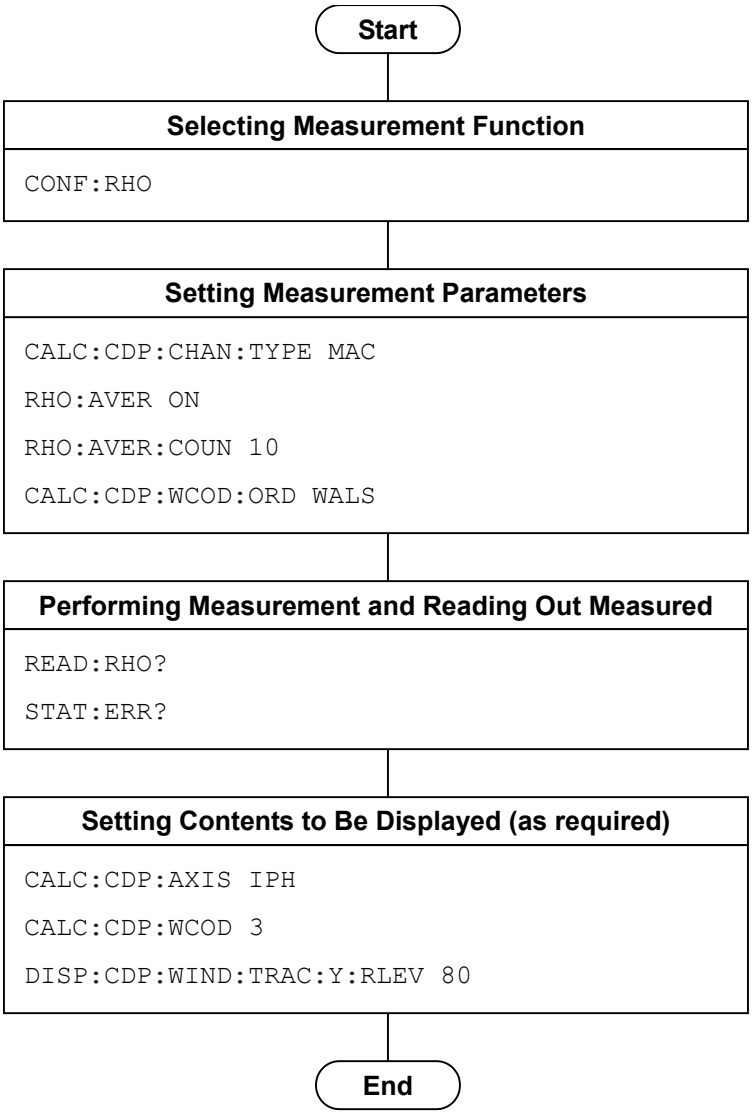

Figure 1.2.4-1 Flow of Code Domain Measurement and Command Example

1.2.5 Power vs Time Measurement

Power vs Time measurement is executed in the following order:

(1) Selecting the measurement function.

(2) Setting Measurement Parameter
The following parameters are used only for the Power vs Time measurement.

- (a) Select Reference Line
- (b) Reference Line Level
- (c) Select Mask
- (d) Upper Limit
- (e) Lower Limit
- (f) Upper Limit Out of Burst
- (g) Filter Type
- (h) Target Halfslot
- (i) Storage

(3) Executing measurement and querying the result

(4) Setting contents to be displayed
This control is not required when simply reading out the measurement results by using the remote control, but is used to display the measurement results on the screen in the same way as during manual operation.

- (a) Unit
- (b) Display Item
- (c) Trace Mode
- (d) Scale

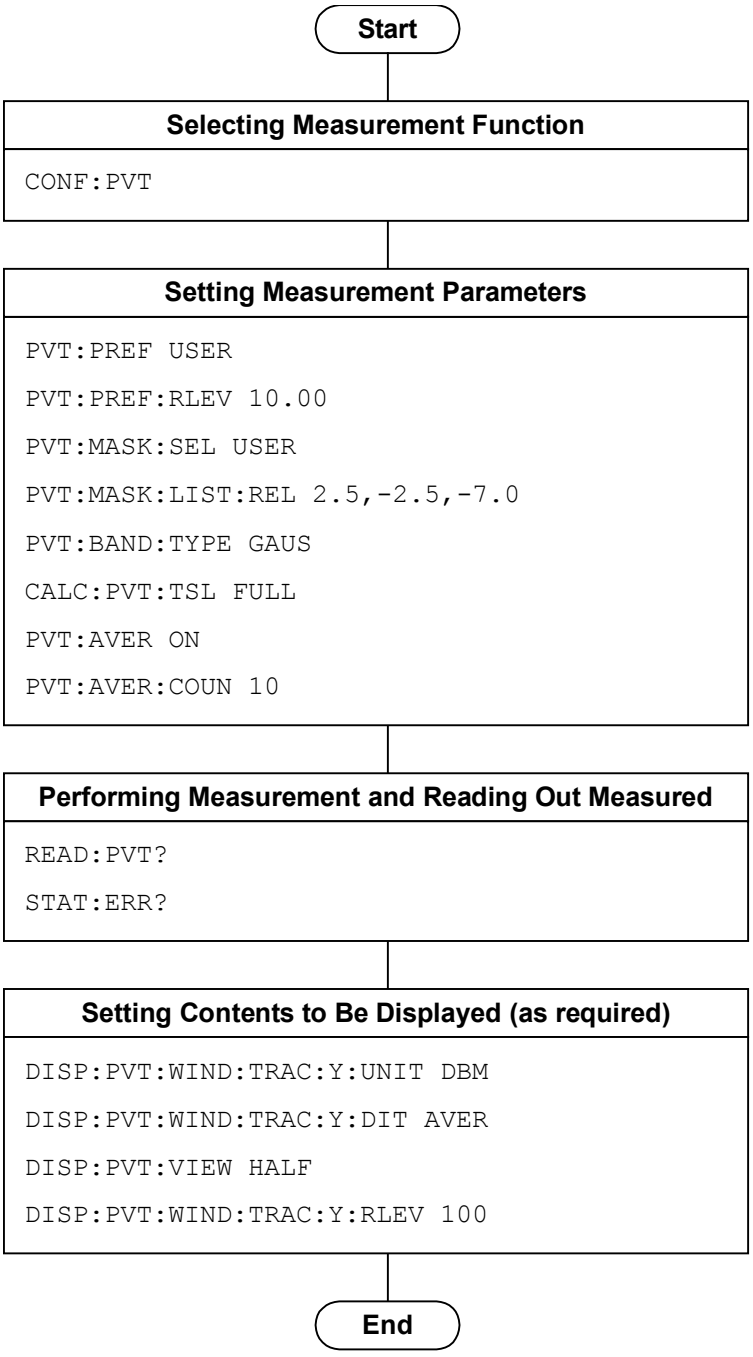

Figure 1.2.5-1 Flow of Power vs Time Measurement and Command Example

1.2.6 ACP (Adjacent Channel Power) Measurement

The ACP measurement is executed in the following order:

(1) Selecting application and the measurement function
Select either Signal Analyzer or Spectrum Analyzer as the application to execute the ACP measurement function. The application will be switched to the selected one if the ACP measurement function is selected. The basic parameter value is reflected to the selected application. Subsequently, only the command/query available in the selected application can be used.

(2) Setting measurement parameters
The following parameters apply only to the specific application selected.

(a) Trigger

(b) Time Length/Filter Type/Storage, etc. (in Signal Analyzer)

(c) Sweep Time/Filter Type/Storage, etc. (in Spectrum Analyzer)

(3) Measuring and reading results

(4) Set the display content
This setting is for displaying the result on the screen. However, you do not need to perform the setting if you only query the result through remote control.

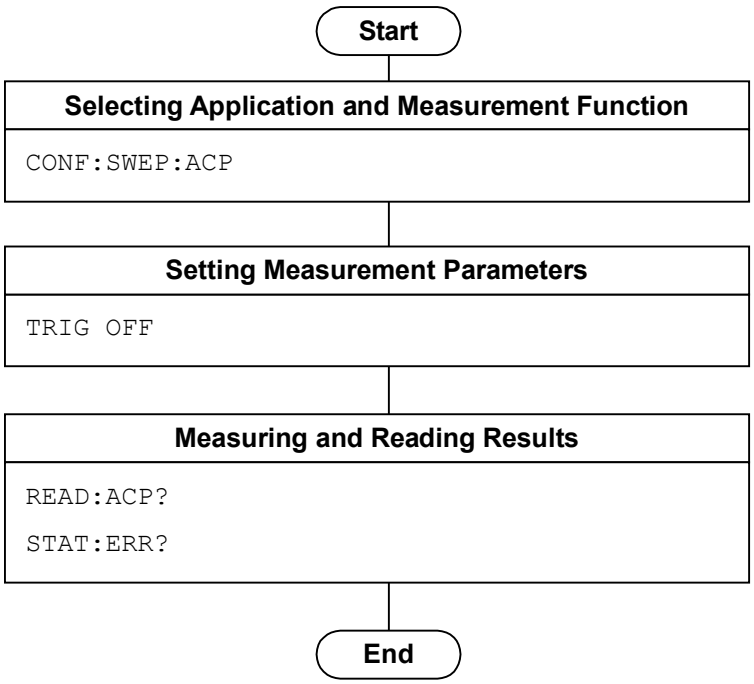

Figure 1.2.6-1 Flow of ACP Measurement using Spectrum Analyzer and Command Example

1.2.7 OBW (Occupied Bandwidth) Measurement

OBW measurement is executed in the following order:

(1) Selecting application and the measurement function
Select either Signal Analyzer or Spectrum Analyzer as the application to execute the OBW measurement function. If the OBW measurement function is selected, then the application is switched to the selected one. The values of the basic parameters are applied to the selected application. After this, only the commands and queries available to the selected application are available.

(2) Setting measurement parameters
The following parameters apply only to the specific application selected.

(a) Trigger

(b) Method, N% Ratio, XdB Value, etc.

(3) Executing measurement and querying the result

(4) Setting contents to be displayed
This control is not required when simply reading out the measurement results by using the remote control, but is used to display the measurement results on the screen in the same way as during manual operation.

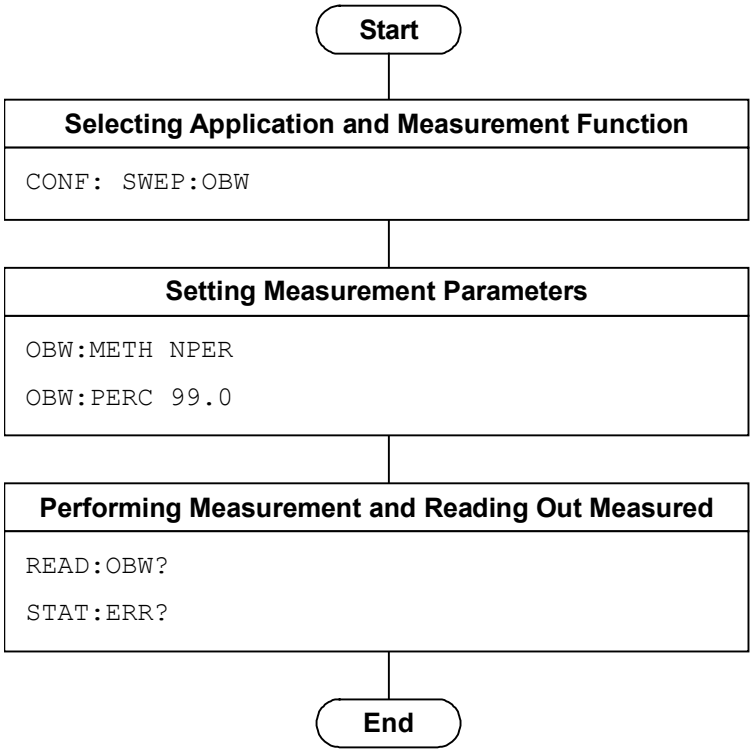

Figure 1.2.7-1 Flow of OBW measurement using Signal Analyzer and Command Examples

1.2.8 Channel Power Measurement

The Channel Power measurement is executed in the following order:

(1) Selecting application and the measurement function
Select either Signal Analyzer or Spectrum Analyzer as the application to execute the Channel Power measurement function. The application will be switched to the selected one if the Channel Power measurement function is selected. The basic parameter value is reflected to the selected application. Subsequently, only the commands/queries available in the selected application can be used.

(2) Setting measurement parameters
The following parameters apply only to the specific application selected.

(a) Trigger

(b) Time Length/Filter Type/Storage, etc. (in Signal Analyzer)

(c) Sweep Time/Filter Type/Storage, etc. (in Spectrum Analyzer)

(3) Measuring and reading results

(4) Set the display content
This setting is for displaying the result on the screen. However, you do not need to perform the setting if you only query the result through remote control.

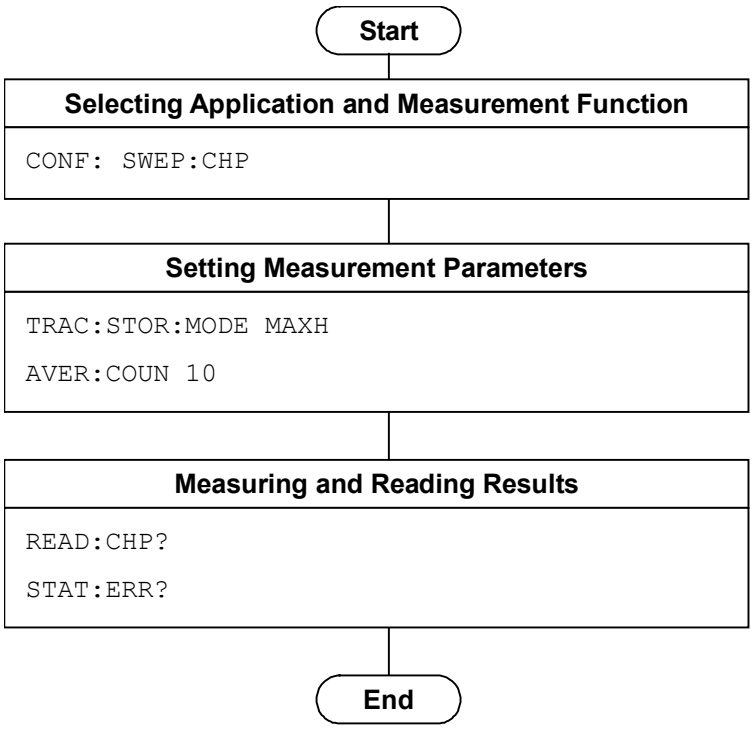

Figure 1.2.8-1 Flow of Channel Power Measurement using Signal Analyzer and Command Example

1.2.9 SEM (Spectrum Emission Mask) Measurement

The SEM measurement is executed in the following order:

(1) Selecting the measurement function
The application will be switched to the Spectrum Analyzer if the SEM measurement function is selected. The basic parameter value is reflected to the Spectrum Analyzer. Subsequently, only the commands/queries available in the Spectrum Analyzer can be used.

Note:

The SEM measurement function is effective only in the Spectrum Analyzer.

(2) Setting measurement parameters
The following parameters apply only to the Spectrum Analyzer.
(a) Trigger
(b) Limit Side/Filter Type/Storage, etc.

(3) Measuring and reading results

(4) Set the display content
This setting is for displaying the result on the screen. However, you do not need to perform the setting if you only query the result through remote control.

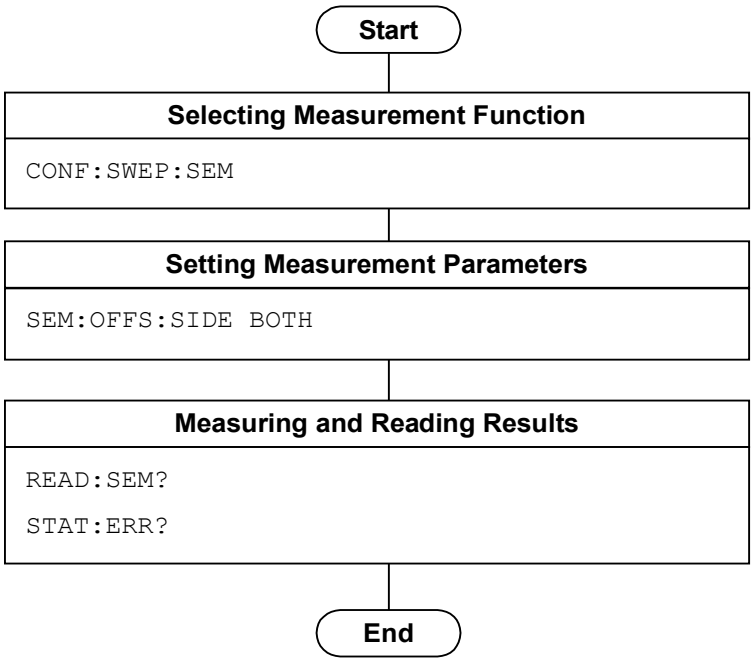

Figure 1.2.9-1 Flow of SEM Measurement using Spectrum Analyzer and Command Example

1.2.10 All Measure

This feature is available when the MX269024A-001 All Measure Function option is installed.

Follow the procedure below:

(1) Set Measurement Function Settings
If All Measure is selected, Power vs Time measurement, modulation analysis, OBW measurement, and SEM measurement are selected.

(2) Set Parameters
Specify the measurement item parameters for each measurement as described in the following sections:

Power vs Time:
1.2.3 "Common Setting for both Code Domain and Power vs Time"
1.2.5 "Power vs Time Measurement"

Modulation Analysis:
1.2.4 "Code Domain Measurement"

OBW Measurement: 1.2.7 "OBW (Occupied Bandwidth) Measurement (Select Signal Analyzer)"

SEM Measurement: 1.2.9 "SEM (Spectrum Emission Mask) Measurement"

(3) Set All Measure Parameters

Modulation Analysis: Measure, Storage, Mask, Smoothing
OBW Measurement: Measure, Storage
SEM Measurement: Measure, Storage, Limit Parameter

(4) Perform All Measure and read measurement results

(5) Setting Contents to be Displayed
This control is not required when simply reading out the measurement results by using the remote control, but is used to display the measurement results on the screen in the same way as during manual operation.

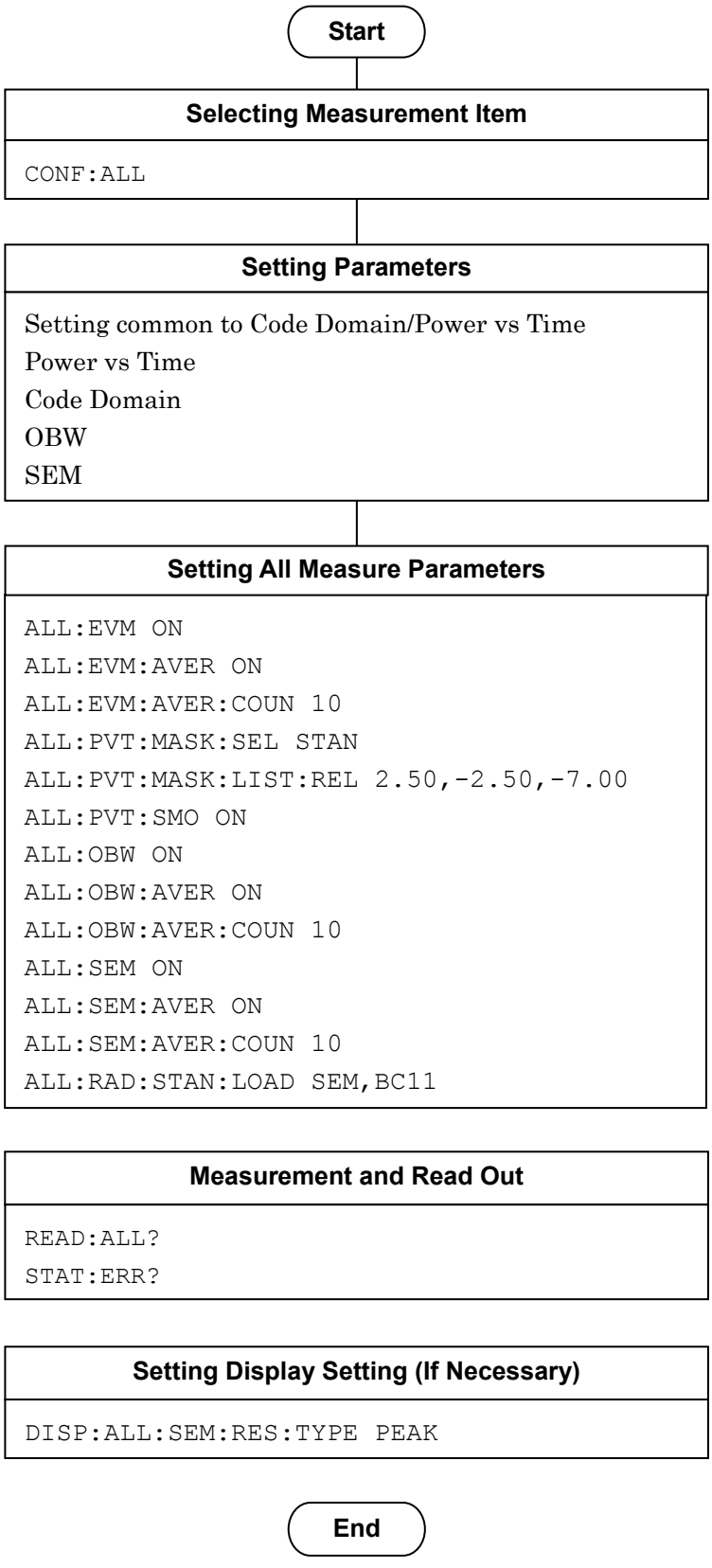

Figure 1.2.10-1 All Measure Measurement Flow and Command Example

1.2.11 Signal Analyzer/Spectrum Analyzer Switching

There are the following two methods for switching from this application to Signal Analyzer/Spectrum Analyzer during remote control.

Note:

For MS2830A: To switch to signal analyzer, the analysis bandwidth option 31.25 MHz or greater is required.

(1) Execute `CONFigureure[:FFT|SWEPt]:<measure>`
The basic parameters such as the carrier frequency/input level (reference level) are reflected to the selected application. Furthermore, a template is automatically set depending on the state of this application. There is no limitation on control of the selected application.

Note:

It is not likely to be able to execute it by selecting application and the measurement function to use.

Also, you can switch between Signal Analyzer and Spectrum Analyzer by using `CONFigureure:FFT|SWEPt:<measure>`. In the same way, the template and the basic parameters such as the carrier frequency/input level (reference level) are reflected.

Similarly, the template and the basic parameters such as the carrier frequency/input level (reference level) changed in Signal Analyzer or Spectrum Analyzer are reflected, when returning to the control of the measurement application by `CONFigureure:<measure>`.

Compared with method (2), you can shorten the execution time of the program, since you do not need to reset the basic parameter per a measurement function.

(2) Execute `:INSTrument[:SELect] SIGANA|SPECT`
No parameter and template are reflected in this method.

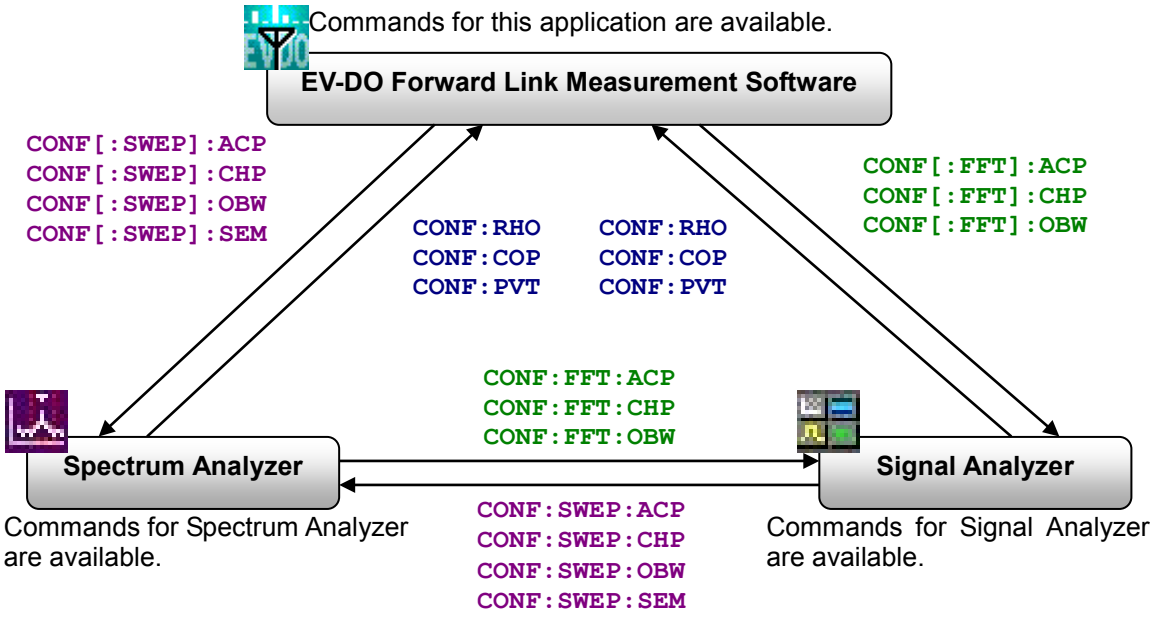

Figure 1.2.11-1 Switching of Measurement Functions among Applications

Figure 1.2.11-1 shows the measurement functions offered by each application and the switching commands. For example, you need to program `CONF:SWEP:ACP`, in order to invoke the ACP measurement function of Spectrum Analyzer from this application. You can write `CONF:ACP` without writing SWEP since it is set to use Spectrum Analyzer for the ACP measurement function if `ACP:INST SWEP` is transmitted in advance. `CONF[:SWEP]:<measure>` in Figure 1.2.11-1 means that `SWEP` can be omitted if `<measure>:INST SWEP` is transmitted in advance.

If you switch the measurement function from Spectrum Analyzer to Signal Analyzer, or in the opposite way, you need to program `CONF:FFT:<measure>` or `CONF:SWEP:<measure>`. If `FFT` or `SWEP` is omitted, the measurement function will be selected by the presently selected application.

1.3 How to use the Native Mode

In this instrument, types of syntax/format format of the remote control commands are defined as “Language mode”. The language mode has two modes, SCPI and Native.

(1) SCPI Mode

Processes commands conforming to the grammar/document format defined in SCPI (ver1999.0)). In the SCPI mode, you can use the character string in long/short form format and can omit angled bracket ([ ]) definition character strings.

On the Configuration screen, the SCPI mode is automatically set after transmitting command `SYST:LANG SCPI`.

(2) Native Mode

Processes commands that are in this instrument’s own definition type. Unless otherwise specified, the character string of the command header is fix. If a command of the application is only defined by SCPI mode, the character string converted by the conversion rule will be the command in the Native mode. For programming, you cannot use the grammar of SCPI mode, such as character string in long/short form format and cannot omit any angled bracket ([ ]) definition character strings.

Note:

The `STATus:QUEStionable` register command and `STATus:OPERation` command cannot be used in the Native mode, even if they are converted following the conversion rule described below.

On the Configuration screen, the Native mode is automatically set after transmitting command `SYST:LANG NAT`.

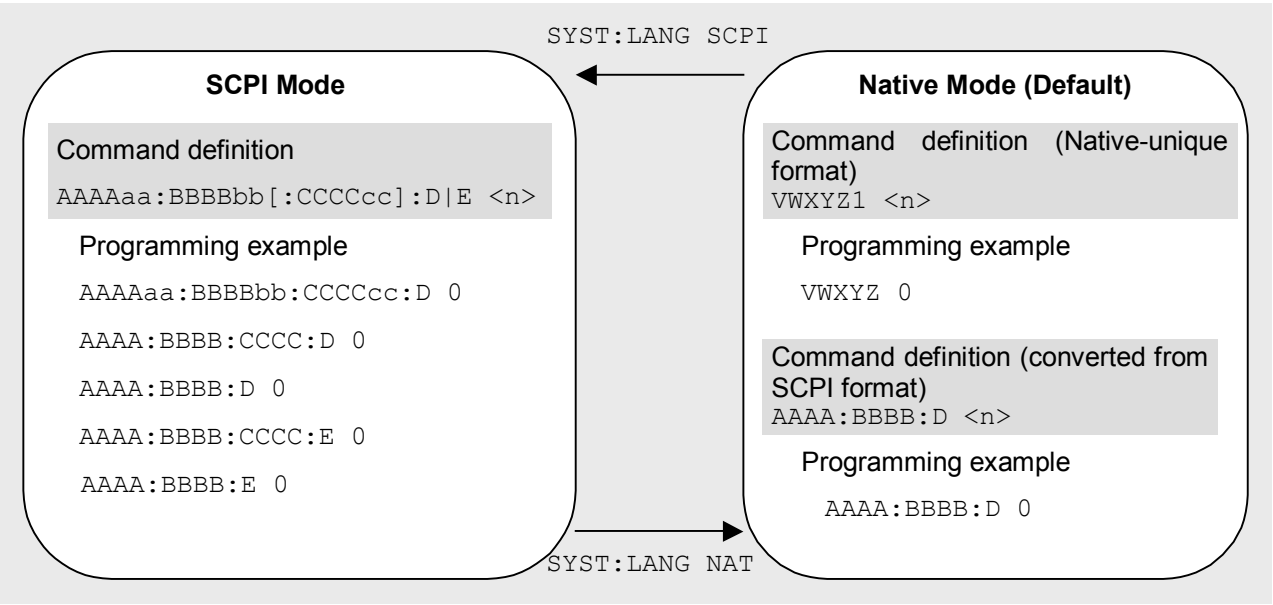

Figure 1.3-1 SCPI mode and Native mode

This application is only defined as the commands of the SCPI mode. You need to follow the conversion rule below in order to control this application by using the Native mode.

Conversion rule

1. Delete the numeric parameter in the program header of an SCPI mode, and describe the argument corresponding to the numeric parameter as the first argument. If the argument can have only one numeric value and the argument can be omitted, omit it. Describe the argument if it cannot be omitted.
2. Use the first one if multiple nodes can be selected.
3. Delete those layers which can be deleted.
4. Alter all long forms into short forms.
5. Delete the colon mark (":") at the head.

Example 1

Convert :CALCulate:MARKer[1]|2[:SET]:CENTer
into a Native mode.

1. Put a numeric parameter of the program header at the head of the argument.
   :CALCulate:MARKer**[1]|2**[:SET]:CENTer
   ↓
   :CALCulate:MARKer[:SET]:CENTer **<integer>**
   (the argument <integer> represents the numeric value 1 or 2)
2. Delete the layers that can be deleted.
   :CALCulate:MARKer**[:SET]**:CENTer <integer>
   ↓
   :CALCulate:MARKer:CENTer <integer>
3. Alter all long forms into short forms.
   :**CALCulate**:**MARKer**:**CENTer** <integer>
   ↓
   :**CALC**:**MARK**:**CENT** <integer>
4. Delete the colon mark (":") at the head.
   :CALC:MARK:CENT <integer>
   ↓
   CALC:MARK:CENT <integer>

Example 2

Convert [:SENSe]:BPOWer|:TXPower[:STATe]?
into a Native mode.

1. Use the leading one if multiple nodes can be selected.
   [:SENSe]**:BPOWer|:TXPower**[:STATe]?
   ↓
   [:SENSe]**:BPOWer**[:STATe]?
2. Delete the layers that can be deleted.
   [:SENSe]:BPOWer**[:STATe]**?
   ↓
   :BPOWer?
3. Alter all long forms into short forms.
   :BPOWer?
   ↓
   :BPOW?
4. Delete the colon mark (":") at the head.
   :BPOW?
   ↓
   BPOW?

Example 3

:Convert FETCh|:EVM[n]? into a Native mode command.

1. Put a numeric parameter of the program header at the head of the argument.
   :FETCh:EVM**[n]**?
   ↓
   :FETCh:EVM? <integer>
2. Alter all the long forms into the short ones.
   :FETCh:EVM? <integer>
   ↓
   :FETC:EVM? <integer>
3. Omit the colon (":") at the head of the command.
   :FETCh:EVM? <integer>
   ↓
   FETC:EVM? <integer>
4. Set the value of arguments.
   FETCh:EVM? <integer>
   ↓
   FETC:EVM? 1

1.4 Character Programs Available for Setting Numeric Program Data

The following character programs can be used for setting numeric program data (numeric parameter) and is applicable only when using the SCPI mode.

(1) `DEFault`

When `DEFault` is specified for numeric program data, the initial value is set for the target parameter.

(2) `MINimum`

When `MINimum` is specified for numeric program data, the minimum value is set for the target parameter.

(3) `MAXimum`

When `MAXimum` is specified for numeric program data, the maximum value is set for the target parameter.

In this application, `DEFault`, `MINimum`, and `MAXimum` can be used for the following parameters.

`<freq>`

`<real>`

`<rel_power>`

`<integer>`

`<time>`

Chapter 2 SCPI Device Message Details

This chapter describes the detailed specifications of SCPI remote control commands for executing the functions of the MX 269026A. The device messages are listed according to function. Refer to the "MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)" for detailed specifications of the IEEE488.2 common device messages and application common device messages.

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2.1 Selecting applications

Table 2.1-1 lists the device messages for setup operations such as loading/selecting/initializing an application.

Table 2.1-1 Selecting applications

Function	Device Messages
Load Application	:SYSTem:APPLication:LOAD EVDOFWD
Unload Application	:SYSTem:APPLication:UNLoad EVDOFWD
Application Switch	:INSTrument[:SELect] EVDOFWD |CONFIG
	:INSTrument[:SELect]?
Application Status	:INSTrument:SYSTem EVDOFWD, [ACTive]|INACtive|MINimum
	:INSTrument:SYSTem? EVDOFWD
Initialization	:INSTrument:DEFault
	:SYSTem:PRESet

2.1.1 Loading applications

:SYSTem:APPLication:LOAD EVDOFWD

Load Application

Function

This command loads the MX 269026A.

Command

```
:SYSTem:APPLication:LOAD EVDOFWD
```

Details

This function loads an installed application and registers it to the Application Switch menu.

Example of Use

To load the MX 269026A.

```
SYST:APPL:LOAD EVDOFWD
```

:SYSTem:APPLication:UNLoad EVDOFWD

Unload Application

Function

This command exits the MX 269026A.

Command

```
:SYSTem:APPLication:UNLoad EVDOFWD
```

Details

This function exits an activated application and deletes it from the Application Switch menu.

Example of Use

To exit the MX 269026A.

```
SYST:APPL:UNL EVDOFWD
```

2.1.2 Selecting applications

:INSTrument[:SELect] EVDOFWD|CONFIG

Application Switch

Function

This command selects the controlled application.

Command

```
:INSTrument[:SELect] <apl_name>
```

Parameter

<apl_name>	Application
EVDOFWD	This application
CONFIG	Config

Details

To select a measurement function of Signal Analyzer or Spectrum Analyzer from the MX 269016A, use the following:

```
:CONFigure[:FFT|SWEPt]:ACP
:CONFigure[:FFT|SWEPt]:CHPower
:CONFigure[:FFT|SWEPt]:OBWidth
:CONFigure[:SWEPt]:SEMask
```

Example of Use

To switch the control target to the MX 269026A.

```
INST EVDOFWD
```

:INSTrument[:SELect]?

Application Switch Query

Function

This command queries the controlled application.

Query

```
:INSTrument[:SELect]?
```

Response

```
<apl_name>
```

Parameter

<apl_name>	Application
EVDOFWD	This application
SIGANA	Signal Analyzer
SPECT	Spectrum Analyzer
CONFIG	Config

Details

EVDOFWD is returned when a measurement function of the MX 269026A is selected.

SIGANA or SPECT is returned when a measurement function of Signal Analyzer or Spectrum Analyzer such as ACP, Channel Power, OBW , and SEM is selected.

Example of Use

To query the controlled application.

```
INST?
> EVDOFWD
```

:INSTrument:SYSTem EVDOFWD,[ACTive]|INACtive|MINimum

Application Switch And Window Status

Function

This command selects the window status of the MX269026A.

Command

```
:INSTrument:SYSTem EVDOFWD,<window>
```

Parameter

<window>	Window status
ACTive	Active
INACtive	Inactive
MINimum	Minimized
When omitted	Active

Example of Use

To set the window status of the MX269026A to the active state.

```
INST:SYST EVDOFWD,ACT
```

:INSTrument:SYSTem? EVDOFWD

Application Switch And Window Status Query

Function

This command queries the status of the MX 269026A.

Query

```
:INSTrument:SYSTem? EVDOFWD
```

Response

```
<status>, <window>
```

Parameter

<status>	Status of MX 269026A
CURR	Executed and targeted for control
RUN	Executed but not targeted for control
IDLE	Loaded but not executed
UNL	Not loaded
<window>	Window status
ACTive	Active
INACtive	Inactive
MINimum	Minimized
NON	Window not displayed

Example of Use

To query the status of this application.

```
INST:SYST? EVDOFWD
> CURR, ACT
```

2.1.3 Initialization

:INSTrument:DEFault

Preset Current Application

Function

This command initializes the settings and status of the currently selected application.

Command

```
:INSTrument:DEFault
```

Details

The parameter of Signal Analyzer/Spectrum Analyzer is initialized, when the ACP/Channel Power/OBW/SEM measurement function is selected by the following commands after `:INST:DEF` has been sent by the MX 269026A.

```
:CONFigure[:FFT|SWEPt]:ACP
:CONFigure[:FFT|SWEPt]:CHPower
:CONFigure[:FFT|SWEPt]:OBWidth
:CONFigure[:SWEPt]:SEMask
```

Example of Use

To initialize the settings and status of the currently selected application.

```
INST:DEF
```

:SYSTem:PRESet

Preset Current Application

Function

This command initializes the settings and status of the currently selected application.

Refer to `:INSTrument:DEFault`.

Command

```
:SYSTem:PRESet
```

Details

Refer to `:INSTrument:DEFault`

Example of Use

To initialize the settings and status of the currently selected application.

```
SYST:PRES
```

2.2 Setting Basic Parameter

Table 2.2-1 lists the parameters applied in common to the MX 269026A, such as frequency and level.

Table 2.2-1 Basic Parameter

Parameter	Device Messages
Carrier Frequency	[:SENSe]:FREQuency:CENTer <freq>
	[:SENSe]:FREQuency:CENTer?
Input Level	[:SENSe]:POWer[:RF]:RANGe:ILEVel <real>
	[:SENSe]:POWer[:RF]:RANGe:ILEVel?
Reference Level (Remote only)	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>
	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
Level Offset	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet <rel_power>
	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?
Level Offset State	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe OFF|ON|0|1
	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?
Pre-Amp State	[:SENSe]:POWer[:RF]:GAIN[:STATe] OFF|ON|0|1
	[:SENSe]:POWer[:RF]:GAIN[:STATe]?

2.2.1 Carrier Frequency

[:SENSe]:FREQuency:CENTer <freq>

Carrier Frequency

Function

This command sets the carrier frequency of the measured signal.

Command

```
[:SENSe]:FREQuency:CENTer <freq>
```

Parameter

`<freq>`		Carrier frequency
	Range	100 MHz to the upper limit of the main unit
	Resolution	1 Hz
	Suffix code	`HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ`
		Hz is used when omitted.
	Default	1000 MHz

Example of Use

To set the carrier frequency to 1.000 GHz.

```
FREQ:CENT 1.000GHZ
```

[:SENSe]:FREQuency:CENTer?

Carrier Frequency Query

Function

This command queries the carrier frequency of the measured signal.

Query

```
[:SENSe]:FREQuency:CENTer?
```

Response

```
<freq>
```

Parameter

<freq>		Carrier frequency
	Range	100 MHz to the upper limit of the main unit
	Resolution	1 Hz
		Value is returned in Hz units.

Example of Use

To query the carrier frequency.

```
FREQ:CENT?
> 6000000000
```

2.2.2 Input Level

[:SENSe]:POWer[:RF]:RANGe:ILEVel <real>

Input Level

Function

This command sets the input level of RF signals.

Command

```
[:SENSe]:POWer[:RF]:RANGe:ILEVel <real>
```

Parameter

<real>	Input level
Range	(–60.00 + Level Offset) to (30.00 + Level Offset) dBm (Pre-Amp Off) (–80.00 + Level Offset) to (10.00 + Level Offset) dBm (Pre-Amp On)
Resolution	0.01 dB
Suffix code	DBM dBm is used when omitted.
Default	–10.00 dBm

Details

The setting range when Pre Amp is Off is applied if the MS2690A/MS2691A/MS2692A Option 008 6 GHz Preamplifier or MS2830A Option 008/208 Preamplifier (hereinafter referred to as "Option 008") is not installed.

Example of Use

To set the input level to 0 dBm.

```
POW:RANG:ILEV 0
```

[:SENSe]:POWer[:RF]:RANGe:ILEVel?

Input Level Query

Function

This command queries the input level of RF signals.

Query

```
[:SENSe]:POWer[:RF]:RANGe:ILEVel?
```

Response

```
<real>
```

Parameter

`<real>`		Input level
	Range	(–60.00 + Level Offset) to (30.00 + Level Offset) dBm (Pre-Amp Off) (–80.00 + Level Offset) to (10.00 + Level Offset) dBm (Pre-Amp On)
	Resolution	0.01 dB Value is returned in dBm units.

Example of Use

To query the input level.

```
POW:RANG:ILEV?
> -15.00
```

2.2.3 Reference Level

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>

Reference Level

Function

This command sets the reference level for ACP/Channel Power/OBW/SEM measurements.

Command

```
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel <real>
```

Parameter

`<real>`		Reference level value
	Range	(Minimum input level + 10) to (Maximum input level + 10) dBm
	Resolution	0.01 dB
	Suffix code	`DBM` dBm is used when omitted.
	Default	0.00 dBm

Details

Reference Level indicates the peak level of the input signal by using the internal parameter which is automatically calculated to Input Level and is not shown on the screen. This Reference level value is applied to the measurement function when fetching ACP/Channel Power/OBW/SEM measurement functions. The Input Level value is also changed when the Reference Level is changed.

Example of Use

To set the reference level to 0.00 dBm.

```
DISP:WIND:TRAC:Y:RLEV 0.00DBM
```

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Reference Level Query

Function

This command queries the reference level for ACP/Channel Power/OBW/SEM measurements.

Query

```
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<real>
```

Parameter

`<real>`		Reference level value
	Range	(Minimum input level + 10) to (Maximum input level + 10) dBm
	Resolution	0.01 dB
		Value is returned in dBm units.

Example of Use

To query the reference level.

```
DISP:WIND:TRAC:Y:RLEV?
> 0.00
```

2.2.4 Level Offset

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet <rel_power>

Level Offset Value

Function

This command sets the input level offset value.

Command

```
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet
<rel_power>
```

Parameter

<rel_power>		Offset value
	Range	–99.99 to + 99.99 dB
	Resolution	0.01 dB
	Suffix code	DB
		dB is used when omitted.
	Default	0 dB

Example of Use

To set the input level offset value to +10 dB.

```
DISP:WIND:TRAC:Y:RLEV:OFFS 10
```

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?

Level Offset Value Query

Function

This command sets the input level offset value.

Query

```
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?
```

Response

```
<rel_power>
```

Parameter

<rel_power>		Offset value
	Range	–99.99 to + 99.99 dB
	Resolution	0.01 dB

Example of Use

To query the input level offset value.

```
DISP:WIND:TRAC:Y:RLEV:OFFS?
> 10.00
```

2.2.5 Level Offset State

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe OFF|ON|0|1

Level Offset State

Function

This command enables/disables the offset function of the input level.

Command

```
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe
<switch>
```

Parameter

<switch>	Enable/disable input level offset function
OFF|0	Disabled (Default)
ON|1	Enables

Example of Use

To enable the input level offset function.

```
DISP:WIND:TRAC:Y:RLEV:OFFS:STAT ON
```

:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?

Level Offset State Query

Function

This command queries the state of the input level offset function.

Query

```
:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?
```

Response

```
<switch>
```

Parameter

<switch>	Enable/disable input level offset function
0	Disabled
1	Enabled

Example of Use

To query the state of the input level offset function.

```
DISP:WIND:TRAC:Y:RLEV:OFFS:STAT?
> 1
```

2.2.6 Pre Amp

[:SENSe]:POWer[:RF]:GAIN[:STATe] OFF|ON|0|1

Pre Amp

Function

This command sets Pre-Amp to On/Off.

Command

```
[:SENSe]:POWer[:RF]:GAIN[:STATe] <switch>
```

Parameter

`<switch>`	Pre-Amp On/Off
`OFF|0`	Off (Default)
`ON|1`	On

Details

This command is disabled when the Option 008 is not installed.

Example of Use

To set Pre-Amp to On.

```
POW:GAIN ON
```

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

Pre Amp Query

Function

This command queries the state of Pre-Amp.

Query

```
[:SENSe]:POWer[:RF]:GAIN[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Pre-Amp On/Off
0	Off
1	On

Details

Off is returned when the Option 008 is not installed.

Example of Use

To query the state of Pre-Amp.

```
POW:GAIN?
> 1
```

2.3 Setting System Parameter Settings

Table 2.3-1 lists the device messages for the communication system of the measurement target.

Table 2.3-1 System Parameter Settings

Parameter	Device Messages
RF Spectrum	[:SENSe]:CDPower:SPECtrum NORMal|REVerse
	[:SENSe]:CDPower:SPECtrum?
	[:SENSe]:RHO:SPECtrum NORMal|REVerse
	[:SENSe]:RHO:SPECtrum?
Physical Layer Subtype	[:SENSe]:RADio:PLSubtype SUB0|SUB2
	[:SENSe]:RADio:PLSubtype?
Slot Type	[:SENSe]:PVTime:SLOT[:TYPE] IDLE|ACTive
	[:SENSe]:PVTime:SLOT[:TYPE]?
	[:SENSe]:RHO:SLOT:TYPE IDLE|ACTive
	[:SENSe]:RHO:SLOT:TYPE?
Modulation Type	:CALCulate:CDPower:TYPE:DATA QPSK|OPSK|QAM|AUTO
	:CALCulate:CDPower:TYPE:DATA?
	:CALCulate:RHO:CHANnel:TYPE:DATA QPSK|OPSK|QAM|AUTO
	:CALCulate:RHO:CHANnel:TYPE:DATA?
Preamble Length	[:SENSe]:CDPower:PREamble:LENGth 0|64|128|256|512|1024|AUTO
	[:SENSe]:CDPower:PREamble:LENGth?
	[:SENSe]:RHO:PREamble:LENGth 0|64|128|256|512|1024|AUTO
	[:SENSe]:RHO:PREamble:LENGth?
PN Offset	:CALCulate:CDPower:PNOFfset <integer>
	:CALCulate:CDPower:PNOFfset?
	:CALCulate:RHO:PNOFfset <integer>
	:CALCulate:RHO:PNOFfset?
Active Code Threshold	:CALCulate:CDPower:ASET:THReshold <rel_power>
	:CALCulate:CDPower:ASET:THReshold?
	:CALCulate:RHO:ASET:THReshold <rel_power>
	:CALCulate:RHO:ASET:THReshold?

2.3.1 RF Spectrum

[:SENSe]:CDPower:SPECtrum NORMal|REVerse

RF Spectrum

Function

This command sets whether to reverse the input signal spectrum.

Command

```
[:SENSe]:CDPower:SPECtrum <mode>
```

Parameter

<mode>	Spectrum reverse
NORMal	Disabled (Default)
REVerse	Enabled

Example of Use

To disable the Spectrum Reverse function.

```
CDP:SPEC REV
```

[:SENSe]:CDPower:SPECtrum?

RF Spectrum Query

Function

This command queries the spectrum reverse function of the input signal spectrum.

Query

```
[:SENSe]:CDPower:SPECtrum?
```

Response

```
<mode>
```

Parameter

<mode>	Spectrum reverse
NORM	Enabled
REV	Disabled

Example of Use

To query the spectrum reverse function setting

```
CDP:SPEC?
> REV
```

[:SENSe]:RHO:SPECtrum NORMal|REVerse

RF Spectrum

Function

This command sets whether to reverse the input signal spectrum.

Command

```
[:SENSe]:RHO:SPECtrum <mode>
```

Parameter

<mode>	Spectrum reverse
NORMal	Enabled (Default)
REVerse	Disabled

Example of Use

To disable the Spectrum Reverse function.

```
RHO:SPEC REV
```

[:SENSe]:RHO:SPECtrum?

RF Spectrum Query

Function

This command queries the spectrum reverse function of the input signal spectrum.

Query

```
[:SENSe]:RHO:SPECtrum?
```

Response

```
<mode>
```

Parameter

<mode>	Spectrum reverse
NORM	Enabled
REV	Disabled

Example of Use

To query the spectrum reverse function setting

```
RHO:SPEC?
> REV
```

2.3.2 Physical Layer Subtype

[:SENSe]:RADio:PLSubtype SUB0|SUB2

Physical Layer Subtype

Function

This command sets the Physical Layer Subtype of the input signal.

Command

```
[:SENSe]:RADio:PLSubtype <mode>
```

Parameter

<mode>	Physical Layer Subtype
SUB0	Subtype0/1 (Default)
SUB2	Subtype2

Example of Use

To set the Physical Layer Subtype to Subtype 2.

```
RAD:PLS SUB2
```

[:SENSe]:RADio:PLSubtype?

Physical Layer Subtype Query

Function

This command queries the Physical Layer Subtype.

Query

```
[:SENSe]:RADio:PLSubtype?
```

Response

```
<mode>
```

Parameter

<mode>	Physical Layer Subtype
SUB0	Subtype0/1
SUB2	Subtype2

Example of Use

To query the Physical Layer Subtype.

```
RAD:PLS?
> SUB2
```

2.3.3 Slot Type

[:SENSe]:PVTime:SLOT[:TYPE] IDLE|ACTive

Slot Type

Function

This command sets the Slot Type of the input signal.

Command

```
[:SENSe]:PVTime:SLOT[:TYPE] <mode>
```

Parameter

<mode>	Slot Type
IDLE	Idle
ACTive	Active (Default)

Example of Use

To se the Slot Type to Idle.

```
PVT:SLOT IDLE
```

[:SENSe]:PVTime:SLOT[:TYPE]?

Slot Type Query

Function

This command queries the Slot Type.

Query

```
[:SENSe]:PVTime:SLOT[:TYPE]?
```

Response

```
<mode>
```

Parameter

<mode>	Slot Type
IDLE	Idle
ACT	Active

Example of Use

To query the Slot Type.

```
PVT:SLOT?
> IDLE
```

[:SENSe]:RHO:SLOT:TYPE IDLE|ACTive

Slot Type

Function

This command sets the Slot Type of the input signal.

Command

```
[:SENSe]:RHO:SLOT:TYPE <mode>
```

Parameter

<mode>	Slot Type
IDLE	Idle
ACTive	Active (Default)

Example of Use

To se the Slot Type to Idle.

```
RHO:SLOT:TYPE IDLE
```

[:SENSe]:RHO:SLOT:TYPE?

Slot Type Query

Function

This command queries the Slot Type.

Query

```
[:SENSe]:RHO:SLOT:TYPE?
```

Response

```
<mode>
```

Parameter

<mode>	Slot Type
IDLE	Idle
ACT	Active

Example of Use

To query the Slot Type.

```
RHO:SLOT:TYPE?
> IDLE
```

2.3.4 Modulation Type

:CALCulate:CDPower:TYPE:DATA QPSK|OPSK|QAM|AUTO

Modulation Type

Function

This command sets the modulation mode for the Data area.

Command

```
:CALCulate:CDPower:TYPE:DATA <mode>
```

Parameter

<mode>	Modulation Type
QPSK	QPSK
OPSK	8PSK
QAM	16QAM
AUTO	AUTO (Default)

Example of Use

To set the Modulation Type to Auto.

```
CALC:CDP:TYPE:DATA AUTO
```

:CALCulate:CDPower:TYPE:DATA?

Modulation Type Query

Function

This command queries the Modulation Type.

Query

```
:CALCulate:CDPower:TYPE:DATA?
```

Response

```
<mode>
```

Parameter

<mode>	Modulation Type
QPSK	QPSK
OPSK	8PSK
QAM	16QAM
AUTO	AUTO

Example of Use

To query the Modulation Type.

```
CALC:CDP:TYPE:DATA?
> AUTO
```

:CALCulate:RHO:CHANnel:TYPE:DATA QPSK|OPSK|QAM|AUTO

Modulation Type

Function

This command sets the modulation mode for the Data area.

Command

```
:CALCulate:RHO:CHANnel:TYPE:DATA <mode>
```

Parameter

<mode>	Modulation Type
QPSK	QPSK
OPSK	8PSK
QAM	16QAM
AUTO	AUTO (Default)

Example of Use

To set the Modulation Type to Auto.

```
CALC:RHO:CHAN:TYPE:DATA AUTO
```

:CALCulate:RHO:CHANnel:TYPE:DATA?

Modulation Type Query

Function

This command queries the Modulation Type.

Query

```
:CALCulate:RHO:CHANnel:TYPE:DATA?
```

Response

```
<mode>
```

Parameter

<mode>	Modulation Type
QPSK	QPSK
OPSK	8PSK
QAM	16QAM
AUTO	AUTO

Example of Use

To query the Modulation Type.

```
CALC:RHO:CHAN:TYPE:DATA?
> AUTO
```

2.3.5 Preamble Length

[:SENSe]:CDPower:PREamble:LENGth 0|64|128|256|512|1024|AUTO

Preamble Length

Function

This command sets the preamble length of the data area.

Command

```
[:SENSe]:CDPower:PREamble:LENGth <mode>
```

Parameter

<mode>	Preamble Length
0	0
64	64
128	128
256	256
512	512
1024	1024
AUTO	AUTO (Default)

Example of Use

To set the Preamble Length to Auto.

```
CDP:PRE:LENG AUTO
```

[:SENSe]:CDPower:PREamble:LENGth?

Preamble Length Query

Function

This command queries the preamble length.

Query

```
[:SENSe]:CDPower:PREamble:LENGth?
```

Response

```
<mode>
```

Parameter

<mode>	Preamble Length
0	0
64	64
128	128
256	256
512	512
1024	1024
AUTO	AUTO

Example of Use

To query the Preamble Length.

```
CDP:PRE:LENG?
> AUTO
```

[:SENSe]:RHO:PREamble:LENGth 0|64|128|256|512|1024|AUTO

Preamble Length

Function

This command sets the preamble length of the data area.

Command

```
[:SENSe]:RHO:PREamble:LENGth <mode>
```

Parameter

<mode>	Preamble Length
0	0
64	64
128	128
256	256
512	512
1024	1024
AUTO	AUTO (Default)

Example of Use

To set the Preamble Length to Auto.

```
RHO:PRE:LENG AUTO
```

[:SENSe]:RHO:PREamble:LENGth?

Preamble Length Query

Function

This command queries the preamble length.

Query

```
[:SENSe]:RHO:PREamble:LENGth?
```

Response

```
<mode>
```

Parameter

<mode>	Preamble Length
0	0
64	64
128	128
256	256
512	512
1024	1024
AUTO	AUTO

Example of Use

To query the Preamble Length.

```
RHO:PRE:LENG?
> AUTO
```

2.3.6 PN Offset

:CALCulate:CDPower:PNOFfset <integer>

PN Offset

Function

This command sets the Offset Index of the Pilot PN Offset.

Command

```
:CALCulate:CDPower:PNOFfset <integer>
```

Parameter

<integer>	PN Offset
Range	0 to 511
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the PN Offset to 10.

```
CALC:CDP:PNOF 10
```

:CALCulate:CDPower:PNOFfset?

PN Offset Query

Function

This command queries the Offset Index of the Pilot PN Offset.

Query

```
:CALCulate:CDPower:PNOFfset?
```

Response

```
<integer>
```

Parameter

<integer>	PN Offset
Range	0 to 511
Resolution	1

Example of Use

To query the Offset Index of the Pilot PN Offset.

```
CALC:CDP:PNOF?
> 10
```

:CALCulate:RHO:PNOFfset <integer>

PN Offset

Function

This command sets the Offset Index of the Pilot PN Offset.

Command

```
:CALCulate:RHO:PNOFfset <integer>
```

Parameter

<integer>	PN Offset
Range	0 to 511
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the PN Offset to 10.

```
CALC:RHO:PNOF 10
```

:CALCulate:RHO:PNOFfset?

PN Offset Query

Function

This command queries the Offset Index of the Pilot PN Offset.

Query

```
:CALCulate:RHO:PNOFfset?
```

Response

```
<integer>
```

Parameter

<integer>	PN Offset
Range	0 to 511
Resolution	1

Example of Use

To query the Offset Index of the Pilot PN Offset.

```
CALC:RHO:PNOF?
> 10
```

2.3.7 Active Code Threshold

:CALCulate:CDPower:ASET:THReshold <rel_power>

Active Code Threshold

Function

Sets the threshold ensuring that the corresponding SF or CH has signals for automatic judgment of the input signal.

Command

```
:CALCulate:CDPower:ASET:THReshold <rel_power>
```

Parameter

<rel_power>	Threshold Value
Range	–80.0 to –10.0 dB
Resolution	0.1
Suffix code	None
Default	–30.0 dB

Example of Use

To set the Active Code Threshold to –20.0 dB.

```
CALC:CDP:ASET:THR -20.0
```

:CALCulate:CDPower:ASET:THReshold?

Active Code Threshold Query

Function

Queries the threshold ensuring that the corresponding SF or CH has signals for automatic judgment of the input signal.

Query

```
:CALCulate:CDPower:ASET:THReshold?
```

Response

```
<rel_power>
```

Parameter

<rel_power>	Threshold Value
Range	–80.0 to –10.0 dB
Resolution	0.1

Example of Use

To query the Active Code Threshold.

```
CALC:CDP:ASET:THR?
> -20.0
```

:CALCulate:RHO:ASET:THReshold <rel_power>

Active Code Threshold

Function

Sets the threshold ensuring that the corresponding SF or CH has signals for automatic judgment of the input signal.

Command

```
:CALCulate:RHO:ASET:THReshold <rel_power>
```

Parameter

<rel_power>	Threshold Value
Range	–80.0 to –10.0 dB
Resolution	0.1
Suffix code	None
Default	–30.0 dB

Example of Use

To set the Active Code Threshold to –20.0 dB.

```
CALC:RHO:ASET:THR -20.0
```

:CALCulate:RHO:ASET:THReshold?

Active Code Threshold Query

Function

Queries the threshold ensuring that the corresponding SF or CH has signals for automatic judgment of the input signal.

Query

```
:CALCulate:RHO:ASET:THReshold?
```

Response

```
<rel_power>
```

Parameter

<rel_power>	Threshold Value
Range	–80.0 to –10.0 dB
Resolution	0.1

Example of Use

To query the Active Code Threshold.

```
CALC:RHO:ASET:THR?
> -20.0
```

2.4 Utility Functions

Table 2.4-1 lists the device messages for the utility function of the measurement target.

Table 2.4-1 Utility Functions

Function	Device Messages
Erase Warm Up Message	:DISPlay:ANNotation:WUP:ERASe
Display Title	:DISPlay:ANNotation:TITLe[:STATe] ON|OFF|1|0
	:DISPlay:ANNotation:TITLe[:STATe]?
Title Entry	:DISPlay:ANNotation:TITLe:DATA <string>
	:DISPlay:ANNotation:TITLe:DATA?

2.4.1 Erase Warm Up Message

:DISPlay:ANNotation:WUP:ERASe

Erase Warm Up Message

Function

This command erases the warmup message displayed immediately after startup.

Command

```
:DISPlay:ANNotation:WUP:ERASe
```

Example of Use

To erase the warmup message

```
DISP:ANN:WUP:ERAS
```

2.4.2 Display Title

:DISPlay:ANNotation:TITLe[:STATe] OFF|ON|0|1

Display Title

Function

This command turns the title on/off.

Command

```
:DISPlay:ANNotation:TITLe[:STATe] <switch>
```

Parameter

<switch>	Title display On/Off
OFF|0	Off
ON|1	On (Default)

Example of Use

To display the title.

```
DISP:ANN:TITL ON
```

:DISPlay:ANNotation:TITLe[:STATe]?

Display Title Query

Function

This command queries whether the title display is enabled/disabled.

Query

```
:DISPlay:ANNotation:TITLe[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Title display On/Off
0	Off
1	On

Example of Use

To query the title display On/Off state.

```
DISP:ANN:TITL?
> 1
```

2.4.3 Title Entry

:DISPlay:ANNotation:TITLe:DATA <string>

Title Entry

Function

This command sets the title character string.

Command

```
:DISPlay:ANNotation:TITLe:DATA <string>
```

Parameter

<string>	Character string within 32 characters enclosed by double quotes (“ ”) or single quotes (‘ ’)

Example of Use

To set the title character string.

```
DISP:ANN:TITL:DATA 'TEST'
```

:DISPlay:ANNotation:TITLe:DATA?

Title Entry Query

Function

This command queries the title character string.

Query

```
:DISPlay:ANNotation:TITLe:DATA?
```

Response

```
<string>
```

Parameter

<string>	Character string within 32 characters.

Example of Use

To query the title character string.

```
DISP:ANN:TITL:DATA?
> TEST
```

2.5 Common Measurement Function

Table 2.5-1 lists the device messages for performing operations common to the measurement functions.

Table 2.5-1 Common Measurement Function

Function	Device Messages
Continuous Measurement	:INITiate:CONTinuous OFF|ON|0|1
	:INITiate:CONTinuous?
	:INITiate:MODE:CONTinuous
Single Measurement	:INITiate:MODE:SINGle
Initiate	:INITiate[:IMMediate]
Calculate	:INITiate:CALCulate
Configure	:CONFigure?
Trigger Switch	:TRIGger[:SEQuence][:STATe] ON|OFF|1|0
	:TRIGger[:SEQuence][:STATe]?
Trigger Source	:TRIGger[:SEQuence]:SOURce EXTernal[1]|IMMediate|SG
	:TRIGger[:SEQuence]:SOURce?
Trigger Slope	:TRIGger[:SEQuence]:SLOPe POSitive|NEGative
	:TRIGger[:SEQuence]:SLOPe?
Trigger Delay	:TRIGger[:SEQuence]:DELay <time>
	:TRIGger[:SEQuence]:DELay?

Note:

The trigger settings are separately retained for each application, and are commonly applied to the measurement functions within the application.

2.5.1 Measurement and Control

:INITiate:CONTinuous OFF|ON|0|1

Continuous Measurement

Function

This command sets continuous or single measurement mode.

Command

```
:INITiate:CONTinuous <switch>
```

Parameter

<switch>	Measurement mode
0|OFF	Single measurement mode
1|ON	Continuous measurement mode (Default)

Details

A continuous measurement starts when it is set to On and in Continuous.
No measurement starts when set to Off and in Single.

Example of Use

To make a continuous measurement.

```
INIT:CONT ON
```

:INITiate:CONTinuous?

Continuous Measurement Query

Function

This command queries the measurement mode.

Query

```
:INITiate:CONTinuous?
```

Response

```
<switch>
```

Parameter

<switch>	Measurement mode
0	Single measurement mode
1	Continuous measurement mode

Example of Use

To query the measurement mode.

```
INIT:CONT?
> 0
```

:INITiate:MODE:CONTinuous

Continuous Measurement

Function

This command starts continuous measurement.

Command

```
:INITiate:MODE:CONTinuous
```

Example of Use

To start continuous measurement.

```
INIT:MODE:CONT
```

:INITiate:MODE:SINGle

Single Measurement

Function

This command starts single measurement.

Command

```
:INITiate:MODE:SINGle
```

Example of Use

To start a single measurement.

```
INIT:MODE:SING
```

:INITiate[:IMMediate]

Initiate

Function

Measurement starts with the current measurement mode.

Command

```
:INITiate[:IMMediate]
```

Example of Use

To start the measurement in the current measurement mode.

```
INIT
```

:CONFigure?

Configure Query

Function

This command queries the name of the current measurement mode.

Query

```
:CONFigure?
```

Response

```
<mode>
```

Parameter

<mode>	Measurement function
CDP	Code Domain Measurement
PVT	Power vs Time Measurement
ACP	ACP Measurement
CHP	Channel Power Measurement
OBW	OBW Measurement
SEM	SEM Measurement
ALL	All Measurement

Example of Use

To query the current measurement mode.

```
CONF?
> CDP
```

2.5.2 Trigger Switch

:TRIGger[:SEQuence][:STATe] OFF|ON|0|1

Trigger Switch

Function

This command sets the trigger wait state On/Off.

Command

```
:TRIGger[:SEQuence][:STATe] <switch>
```

Parameter

`<switch>`	Trigger wait state On/Off
`OFF|0`	Off (Default)
`ON|1`	On

Example of Use

To set the trigger wait state On.

```
TRIG ON
```

:TRIGger[:SEQuence][:STATe]?

Trigger Switch Query

Function

This command queries the trigger wait state On/Off.

Query

```
:TRIGger[:SEQuence][:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Trigger wait state On/Off
`0`	Off
`1`	On

Example of Use

To query the trigger wait state setting.

```
TRIG?
> 0
```

2.5.3 Trigger Source

:TRIGger[:SEQuence]:SOURce EXTernal[1]|IMMediate|SG

Trigger Source

Function

This command selects the trigger signal source.

Command

```
:TRIGger[:SEQuence]:SOURce <mode>
```

Parameter

<mode>		Trigger signal source
	EXTernal[1]	External input (default value)
	IMMediate	Free run
	SG	SG Marker (SG Marker)

Details

SG marker can be selected only when the Option 020 is installed.

Example of Use

To set the trigger signal source to External.

```
TRIG:SOUR EXT
```

:TRIGger[:SEQuence]:SOURce?

Trigger Source Query

Function

This command queries the trigger signal source.

Query

```
:TRIGger[:SEQuence]:SOURce?
```

Response

```
<mode>
```

Parameter

`<mode>`	Trigger signal source
`EXT`	External input
`IMM`	Free run
`SG`	SG Marker (SG Marker)

Details

SG marker is returned only when Option 020 is installed.

Example of Use

To query the trigger signal source.

```
TRIG:SOUR?
> EXT
```

2.5.4 Trigger Slope

:TRIGger[:SEQuence]:SLOPe POSitive|NEGative

Trigger Slope

Function

This command sets the trigger detection mode (rising or falling).

Command

```
:TRIGger[:SEQuence]:SLOPe <mode>
```

Parameter

<mode>		Trigger detection mode
	POSitive	Detects a trigger at the rising edge (default value).
	NEGative	Detects a trigger at the falling edge.

Example of Use

To detect a trigger at the rising edge.

```
TRIG:SLOP POS
```

:TRIGger[:SEQuence]:SLOPe?

Trigger Slope Query

Function

This command queries the trigger detection mode (rising or falling).

Query

```
:TRIGger[:SEQuence]:SLOPe?
```

Response

```
<mode>
```

Parameter

<mode>	Trigger detection mode
POS	Detects a trigger at the rising edge.
NEG	Detects a trigger at the falling edge.

Example of Use

To query the trigger detection mode.

```
TRIG:SLOP?
> POS
```

2.5.5 Trigger Delay

:TRIGger[:SEQuence]:DELay <time>

Trigger Delay

Function

This command sets the delay time from generation of a trigger to start of the capture operation.

Command

```
:TRIGger[:SEQuence]:DELay <time>
```

Parameter

`<time>` Delay time from generation of trigger to start of capture

Range	–2 to 2 s
Resolution	100 nanoseconds
Suffix code	`NS`, `US`, `MS`, `S`
	S is used when the suffix code is omitted.
Default	0 s

Example of Use

To set the trigger delay time to 20 ms.

```
TRIG:DEL 20MS
```

:TRIGger[:SEQuence]:DELay?

Trigger Delay Query

Function

This command queries the delay time from generation of a trigger to start of the capture operation.

Query

```
:TRIGger[:SEQuence]:DELay?
```

Response

```
<time>
```

Parameter

`<time>` Delay time from generation of trigger to start of capture

Range	–2 to +2 s
Resolution	100 nanoseconds Value is returned in s units.

Example of Use

To query the delay time.

```
TRIG:DEL?
> 0.02000000
```

2.6 ACP/Channel Power/OBW/SEM Measurement

Table 2.6-1 lists device messages for fetching the ACP/Channel Power/OBW/SEM measurement functions. The applications to be used (Signal Analyzer or Spectrum Analyzer) must be loaded in advance.

Refer to "MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Signal Analyzer Function Remote Control)" or "MS2690A/MS2691A/MS2692A and MS2830A Spectrum Analyzer Operation Manual (Spectrum Analyzer Function Remote Control)" for commands/queries to be used for control after these measurement functions have been fetched.

Table 2.6-1 ACP/Channel Power/OBW/SEM Measurement

Function	Device Messages
Configure - ACP	`:CONFigure[:FFT|SWEPt]:ACP`
Configure - Channel Power	`:CONFigure[:FFT|SWEPt]:CHPower`
Configure - OBW	`:CONFigure[:FFT|SWEPt]:OBWidth`
Configure - SEM	`:CONFigure[:SWEPt]:SEMask`
Using application for ACP	`[:SENSe]:ACPower:INSTrument[:SELect] FFT|SWEPt`
	`[:SENSe]:ACPower:INSTrument[:SELect]?`
Using application for Channel Power	`[:SENSe]:CHPower:INSTrument[:SELect] FFT|SWEPt`
	`[:SENSe]:CHPower:INSTrument[:SELect]?`
Using application for OBW	`[:SENSe]:OBWidth:INSTrument[:SELect] FFT|SWEPt`
	`[:SENSe]:OBWidth:INSTrument[:SELect]?`

Note:

`FETCh:<measure>`, `INITiate:<measure>`, `READ:<measure>`, and `MEASure:<measure>` `FETCh:<measure>` cannot used when the MX269026A is selected, except for Modulation measurement. The commands/queries can be used when Signal Analyzer or Spectrum Analyzer is selected after executing `CONFigure:<measure>`.

:CONFigure[:FFT|SWEPt]:ACP

ACP

Function

This command selects the ACP measurement function.

The measurement mode can be set by `[:SENSe]:ACPower:INSTrument[:SELect] FFT|SWEPt`, if `FFT` or `SWEPt` is omitted.

Command

```
:CONFigure[:FFT|SWEPt]:ACP
```

Details

No measurement is made.
For MS2830A: To perform FFT measurement using the Signal Analyzer function with this command, the analysis bandwidth option 31.25 MHz or greater is required in all cases.

Example of Use

To select the ACP measurement function of Spectrum Analyzer.

```
CONF:SWEP:ACP
```

:CONFigure[:FFT|SWEPt]:CHPower

Channel Power

Function

This command selects the Channel Power measurement function.

The measurement mode can be set by `[:SENSe]:CHPower:INSTrument[:SELect] FFT|SWEPt`, if `FFT` or `SWEPt` is omitted.

Command

```
:CONFigure[:FFT|SWEPt]:CHPower
```

Details

No measurement is made.
For MS2830A: To perform FFT measurement using the Signal Analyzer function with this command, the analysis bandwidth option 31.25 MHz or greater is required in all cases.

Example of Use

To select the Channel Power measurement function of Spectrum Analyzer.

```
CONF:SWEP:CHP
```

:CONFigure[:FFT|SWEPt]:OBWidth

OBW

Function

This command selects the OBW measurement function.

The measurement mode can be set by `[:SENSe]:OBWidth:INSTrument[:SELect] FFT|SWEPt`, if `FFT` or `SWEPt` is omitted.

Command

```
:CONFigure[:FFT|SWEPt]:OBWidth
```

Details

No measurement is made.
For MS2830A: To perform FFT measurement using the Signal Analyzer function with this command, the analysis bandwidth option 31.25 MHz or greater is required in all cases.

Example of Use

To select the OBW measurement function of Spectrum Analyzer.

```
CONF:SWEP:OBW
```

:CONFigure[:SWEPt]:SEMask

SEM

Function

This command selects the SEM measurement function.

Command

```
:CONFigure[:SWEPt]:SEMask
```

Details

No measurement is made.
The SEM measurement function is enabled only for the Spectrum Analyzer.

Example of Use

To select the SEM measurement function of Spectrum Analyzer.

```
CONF:SEM
```

[:SENSe]:ACPower:INSTrument[:SELect] FFT|SWEPt

Measurement Method for ACP

Function

:This command sets the measurement mode to be applied when :CONFigure:ACP is executed.

Command

```
[:SENSe]:ACPower:INSTrument[:SELect] <mode>
```

Parameter

<mode>	Measurement mode
FFT	Signal Analyzer function
SWEPt	Spectrum analyzer function (Default)

Details

No measurement is made.
FFT can be set with MS2830A, however, to execute with CONFigure command, the analysis bandwidth option 31.25 MHz or greater is required.

Example of Use

To use the Signal Analyzer function when executing the ACP measurement function.

```
ACP:INST SWEP
```

[:SENSe]:ACPower:INSTrument[:SELect]?

Measurement Method for ACP Query

Function

:This command queries the measurement mode to be applied when :CONFigure:ACP is executed.

Query

```
[:SENSe]:ACPower:INSTrument[:SELect]?
```

Response

```
<mode>
```

Parameter

<mode>	Measurement mode
FFT	Signal Analyzer function
SWEP	Spectrum analyzer function

Details

FFT can be set with MS2830A, however, to execute with CONFigure command, the analysis bandwidth option 31.25 MHz or greater is required.

Example of Use

To query the measurement mode to be applied when executing the ACP measurement function.

```
ACP:INST?
> FFT
```

[:SENSe]:CHPower:INSTrument[:SELect] FFT|SWEPt

Measurement Method for Channel Power

Function

:This command sets the measurement mode to be applied when :CONFigure:ACP is executed.

Command

```
[:SENSe]:CHPower:INSTrument[:SELect] <mode>
```

Parameter

<mode>	Measurement mode
FFT	Signal Analyzer function
SWEPt	Spectrum analyzer function (Default)

Details

No measurement is made.
FFT can be set with MS2830A, however, to execute with CONFigure command, the analysis bandwidth option 31.25 MHz or greater is required.

Example of Use

To use the Signal Analyzer function when executing the Channel Power measurement function.

```
CHP:INST SWEP
```

[:SENSe]:CHPower:INSTrument[:SELect]?

Measurement Method for Channel Power Query

Function

:This command queries the measurement mode to be applied when `CONFigure:CHPower` is executed.

Command

`[:SENSe]:CHPower:INSTrument[:SELect]?`

Response

`<mode>`

Parameter

`<mode>`	Measurement mode
`FFT`	Signal Analyzer function
`SWEP`	Spectrum analyzer function

Details

FFT can be set with MS2830A, however, to execute with CONFigure command, the analysis bandwidth option 31.25 MHz or greater is required.

Example of Use

To query the measurement mode to be applied when executing the Channel Power measurement function.

```
CHP:INST?
> FFT
```

[:SENSe]:OBWidth:INSTrument[:SELect] FFT|SWEPt

Measurement Method for OBW

Function

:This command sets the measurement mode to be applied when CONFigure:OBWidth is executed.

Command

```
[:SENSe]:OBWidth:INSTrument[:SELect] <mode>
```

Parameter

<mode>	Measurement mode
FFT	Signal Analyzer function
SWEPt	Spectrum analyzer function (Default)

Details

No measurement is made.
FFT can be set with MS2830A, however, to execute with CONFigure command, the analysis bandwidth option 31.25 MHz or greater is required.

Example of Use

To use the Signal Analyzer function when executing the OBW measurement function.

```
OBW:INST SWEP
```

[:SENSe]:OBWidth:INSTrument[:SELect]?

Measurement Method for OBW Query

Function

:This command queries the measurement mode to be applied when :CONFigure:OBWidth is executed.

Command

```
[:SENSe]:OBWidth:INSTrument[:SELect] <mode>
```

Response

```
<mode>
```

Parameter

<mode>	Measurement mode
FFT	Signal Analyzer function
SWEP	Spectrum analyzer function

Details

FFT can be set with MS2830A, however, to execute with CONFigure command, the analysis bandwidth option 31.25 MHz or greater is required.

Example of Use

To query the measurement mode to be applied when executing the OBW measurement function.

```
OBW:INST?
> FFT
```

2.7 Code Domain Measurement Function

This section describes device messages for the Code Domain measurement functions.

Table 2.7-1 lists device messages to execute the Code Domain measurement and to query the result.

Table 2.7-1 Code Domain Measurement Function

Function	Device Messages
Configure	:CONFigure:CDPower
	:CONFigure:RHO
Initiate	:INITiate:CDPower
	:INITiate:RHO
Fetch	:FETCh:CDPower[n]?
	:FETCh:RHO[n]?
Read/Measure	:READ:CDPower[n]?
	:READ:RHO[n]?
	:MEASure:CDPower[n]?
	:MEASure:RHO[n]?

Table 2.7-2 lists the CDPower responses to the parameter [n] of the device messages in Table 2.7-1.

Table 2.7-2 CD Power response as to the Code Domain measurement result

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. Total Power 2. –999.0 (Reserved) 3. –999.0 (Reserved) 4. –999.0 (Reserved) 5. –999.0 (Reserved) 6. –999.0 (Reserved) 7. –999.0 (Reserved) 8. I Avg. Active CH 9. I Max. Inactive CH 10. Q Avg. Active CH 11. Q Max. Inactive CH 12. –999.0 (Reserved) 13. –999.0 (Reserved) 14. –999.0 (Reserved) 15. I Max. Active CH 16. I Min. Active CH 17. Q Max. Active CH 18. Q Min. Active CH 19. –999.0 (Reserved) 20. Data Modulation Scheme (0:QPSK, 1:8PSK, 2:16QAM) 21. Timing Error (–999.0 in non-measurement)
2	A/B	Responses are returned with comma-separated value formats in the following order: Code Domain Power 1. I Code = Code Power of 0. 2. Q Code = Code Power of 0. … (2 × N) – 1. I Code = Code Power of N (2 × N). Q Code = Code Power of N

Table 2.7-2 CD Power response as to the Code Domain measurement result(Continued)

n	Result Mode	Response
4	A/B	Responses are returned with comma-separated value formats in the following order: Active Status 1. I Code = Active Status of 0 2. Q Code = Active Status of 0 … (2 × N) – 1. I Code = Active Status of N (2 × N). Q Code = Active Status of N *Note:* 1 indicates the active status, and 0 indicates the inactive status.

Table 2.7-3 lists the responses to the RHO parameter [n] of the device messages in Table 2.7-1.

Table 2.7-3 RHO response as to the Code Domain measurement result

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. –999.0 (Reserved) 2. –999.0 (Reserved) 3. –999.0 (Reserved) 4. –999.0 (Reserved) 5. –999.0 (Reserved) 6. Frequency Error (Max.) 7. Rho (Avg.) 8. –999.0 (Reserved) 9. Timing Error (Avg.) 10. EVM(rms) (Avg.) 11. –999.0 (Reserved) 12. –999.0 (Reserved) 13. –999.0 (Reserved) 14. Origin Offset (Avg.) 15. –999.0 (Reserved) 16. Rho overall1 (Avg.) 17. –999.0 (Reserved) 18. –999.0 (Reserved) 19. –999.0 (Reserved) 20. –999.0 (Reserved) 21. –999.0 (Reserved) 22. –999.0 (Reserved) 23. Rho overall2 (Avg.) 24. –999.0 (Reserved) 25. –999.0 (Reserved) 26. –999.0 (Reserved) 27. –999.0 (Reserved) 28. –999.0 (Reserved) 29. Max. MAC Inactive CH Power (Avg.) 30. Max. Data Active CH Power (Avg.) 31. Min. Data Active CH Power (Avg.) 32. –999.0 (Reserved)

Table 2.7-3 RHO response as to the Code Domain measurement result(Continued)

n	Result Mode	Response
40	A/B	1. Rho pilot (Avg.) 2. Rho MAC (Avg.) 3. Rho Data (Avg.) 4. –999.0 (Reserved) 5. Rho Overall1 (Avg.) 6. Rho Overall2 (Avg.) 7. Frequency Error (Avg.) 8. Timing Error (Avg.) 9. Max. MAC Inactive CH Power (Avg.) 10. Max. MAC Inactive CH Channel Number (Avg.) 11. Max. Data Active CH Power (Avg.) 12. Max. Data Active CH Channel Number (Avg.) 13. Min. Data Active CH Power (Avg.) 14. Min. Data Active CH Channel Number (Avg.)
41	A/B	1. Rho pilot (Max.) 2. Rho MAC (Max.) 3. Rho Data (Max.) 4. –999.0 (Reserved) 5. Rho Overall1 (Max.) 6. Rho Overall2 (Max.) 7. Frequency Error (Max.) 8. Timing Error (Max.) Max. Inactive Code Domain Power of MAC Max. Inactive Code Domain Power Channel Number of MAC Max. Active Code Domain Power of Data Max. Active Code Domain Power Channel Number of Data Min. Active Code Domain Power of Data Min. Active Code Domain Power Channel Number of Data

For details on Result Mode, refer to the description of the `:SYSTem:RESult:MODE` command in the "MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)".

Table 2.7-4 lists device messages on Parameter Setting for Code Domain Measurement

Table 2.7-4 Parameter setting for Code Domain measurement

Parameter	Device Messages
Storage Mode	[:SENSe]:CDPower:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:CDPower:AVERage[:STATe]?
	[:SENSe]:RHO:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:RHO:AVERage[:STATe]?
Storage Count	[:SENSe]:CDPower:AVERage:COUNt <integer>
	[:SENSe]:CDPower:AVERage:COUNt?
	[:SENSe]:RHO:AVERage:COUNt <integer>
	[:SENSe]:RHO:AVERage:COUNt?
Scale	:DISPlay:CDPower[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel 20|40|60|80
	:DISPlay:CDPower[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
	:DISPlay:CDPower[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel 0.5|2.5|5|80
	:DISPlay:CDPower[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel?
Display Mode	:CALCulate:CDPower:WCODe:ORDer WALSh|MACindex
	:CALCulate:CDPower:WCODe:ORDer?
Code Domain Channel Type	:CALCulate:CDPower:CHANnel:TYPE MAC|DATA
	:CALCulate:CDPower:CHANnel:TYPE?
Branch	:CALCulate:CDPower:AXIS IPH|QPH
	:CALCulate:CDPower:AXIS?
Code Number I/Q	:CALCulate:CDPower:WCODe[:NUMBer] <integer>
	:CALCulate:CDPower:WCODe[:NUMBer]?

2.7.1 Measure

:CONFigure:CDPower

Code Domain

Function

This command selects the Code Domain measurement function.

Command

```
:CONFigure:CDPower
```

Details

No measurement is made.

Example of Use

To select the Code Domain measurement function.

```
CONF:CDP
```

Related Command

This command has the same function as the following command.

```
:CONFigure:RHO
```

:CONFigure:RHO

Code Domain

Function

This command selects the Code Domain measurement function.

Command

```
:CONFigure:RHO
```

Details

No measurement is made.

Example of Use

To select the Code Domain measurement function.

```
CONF:RHO
```

Related Command

This command has the same function as the following command.

```
:CONFigure:CDPower
```

:INITiate:CDPower

Code Domain

Function

This command executes the Code Domain measurement function.

Command

```
:INITiate:CDPower
```

Example of Use

To execute the Code Domain measurement function.

```
INIT:CDP
```

Related Command

This command has the same function as the following command.

```
:INITiate:RHO
```

:INITiate:RHO

Code Domain

Function

This command executes the Code Domain measurement function.

Command

```
:INITiate:RHO
```

Example of Use

To execute the Code Domain measurement function.

```
INIT:RHO
```

Related Command

This command has the same function as the following command.

```
:INITiate:CDPower
```

:FETCh:CDPower[n]?

Code Domain Query

Function

This command queries the result of the Code Domain measurement.

Query

```
:FETCh:CDPower[n]?
```

Response

See Table 2.7-2. If n is 2 or 4, the number of responses to be returned depends on the settings.

The number of responses N if n is 2 or 4:

32 (When the Code Domain Channel Type is Data)

128 (When the Code Domain Channel Type is MAC and the Physical Layer Subtype is Subtype0/1)

256 (When the Code Domain Channel Type is MAC and the Physical Layer Subtype is Subtype2)

Details

–999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the result of the Code Domain measurement.

```
FETC:CDP?
> -10.00, -999.0, -999.0, -999.0, -999.00, …
```

:FETCh:RHO[n]?

Code Domain Query

Function

This command queries the result of the Code Domain measurement.

Query

```
:FETCh:RHO[n]?
```

Response

See Table 2.7-3.

Details

–999.0 is returned when no measurement is made or an error occurs. Note, however, that "999999999999" is returned in the case of a Frequency Error.

Example of Use

To query the result of the Code Domain measurement.

```
FETC:RHO?
> -999.0, -999.0, -999.0, -999.0, -999.0, …
```

:READ:CDPower[n]?

Code Domain Query

Function

This command performs Code Domain measurement once (single measurement) with the current settings, and then queries the measured result.

Query

```
:READ:CDPower[n]?
```

Response

See Table 2.7-2.

Example of Use

To execute the Code Domain measurement in order to query the result.

```
READ:CDP?
```

Related Command

This command has the same function as the following command.

```
:MEASure:CDPower[n]?
```

:READ:RHO[n]?

Code Domain Query

Function

This command performs Code Domain measurement once (single measurement) with the current settings, and then queries the measured result.

Query

```
:READ:RHO[n]?
```

Response

See Table 2.7-3.

Example of Use

To execute the Code Domain measurement in order to query the result.

```
READ:RHO?
```

Related Command

This command has the same function as the following command.

```
:MEASure:RHO[n]?
```

:MEASure:CDPower[n]?

Code Domain Query

Function

This command performs Code Domain measurement once (single measurement) with the current settings, and then queries the measured result.

Query

```
:MEASure:CDPower[n]?
```

Response

See Table 2.7-2.

Example of Use

To execute the Code Domain measurement in order to query the result.

```
MEAS:CDP?
```

Related Command

This command has the same function as the following command.

```
:READ:CDPower[n]?
```

:MEASure:RHO[n]?

Code Domain Query

Function

This command performs Code Domain measurement once (single measurement) with the current settings, and then queries the measured result.

Query

```
:MEASure:RHO[n]?
```

Response

See Table 2.7-3.

Example of Use

To execute the Code Domain measurement in order to query the result.

```
MEAS:RHO?
```

Related Command

This command has the same function as the following command.

```
READ:RHO[n]?
```

2.7.2 Storage Mode

[:SENSe]:CDPower:AVERage[:STATe] OFF|ON|0|1

Storage Mode

Function

This command sets the storage mode.

Command

```
[:SENSe]:CDPower:AVERage[:STATe] <mode>
```

Parameter

<mode>	Storage Mode
OFF|0	Off (Default)
ON|1	On

Example of Use

To set the storage mode to On.

```
CDP:AVER ON
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:RHO:AVERage[:STATe] <mode>
```

[:SENSe]:CDPower:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the setting of the storage mode.

Query

```
[:SENSe]:CDPower:AVERage[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Storage Mode
0	Off
1	On

Example of Use

To query the setting of the storage mode.

```
CDP:AVER?
> 1
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:RHO:AVERage[:STATe]?
```

[:SENSe]:RHO:AVERage[:STATe] OFF|ON|0|1

Storage Mode

Function

This command sets the storage mode.

Command

```
[:SENSe]:RHO:AVERage[:STATe] <mode>
```

Parameter

<mode>	Storage Mode
OFF|0	Off (Default)
ON|1	On

Example of Use

To set the storage mode to On.

```
RHO:AVER ON
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:CDPower:AVERage[:STATe] <mode>
```

[:SENSe]:RHO:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the setting of the storage mode.

Query

```
[:SENSe]:RHO:AVERage[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Storage Mode
0	Off
1	On

Example of Use

To query the setting of the storage mode.

```
RHO:AVER?
> 1
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:CDPower:AVERage[:STATe]?
```

2.7.3 Storage Count

[:SENSe]:CDPower:AVERage:COUNt <integer>

Storage Count

Function

This command sets the storage count.

Command

```
[:SENSe]:CDPower:AVERage:COUNt <integer>
```

Parameter

`<integer>`		Storage Count
	Range	2 to 9999
	Resolution	1
	Default	10

Example of Use

To set the storage count to 10.

```
CDP:AVER:COUN 10
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:RHO:AVERage:COUNt <integer>
```

[:SENSe]:CDPower:AVERage:COUNt?

Storage Count Query

Function

This command queries the storage count.

Query

```
[:SENSe]:CDPower:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

<integer>	Storage Count
Range	2 to 9999
Resolution	1

Example of Use

To query the storage count.

```
CDP:AVER:COUN?
> 10
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:RHO:AVERage:COUNt?
```

[:SENSe]:RHO:AVERage:COUNt <integer>

Storage Count

Function

This command sets the storage count.

Command

```
[:SENSe]:RHO:AVERage:COUNt <integer>
```

Parameter

<integer>	Storage Count
Range	2 to 9999
Resolution	1
Default	10

Example of Use

To set the storage count to 10.

```
RHO:AVER:COUN 10
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:CDPower:AVERage:COUNt <integer>
```

[:SENSe]:RHO:AVERage:COUNt?

Storage Count Query

Function

This command queries the storage count.

Query

```
[:SENSe]:RHO:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

<integer>	Storage Count
Range	2 to 9999
Resolution	1

Example of Use

To query the storage count.

```
RHO:AVER:COUN?
> 10
```

Related Command

This command has the same function as the following command.

```
[:SENSe]:CDPower:AVERage:COUNt?
```

2.7.4 Scale

:DISPlay:CDPower[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel 20|40|60|80

Scale

Function

Sets the vertical scale of the graph where the vertical (Y) axis indicates the code power in the MAC area.

Command

```
:DISPlay:CDPower[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
<mode>
```

Parameter

<mode>	Lower limit
20	–20 dB
40	–40 dB
60	–60 dB
80	–80 dB (Default)

Example of Use

Sets the lower limit to –60 dB.

```
DISP:CDP:WIND:TRAC:Y:RLEV 60
```

:DISPlay:CDPower[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Scale Query

Function

Queries the vertical scale of the graph where the vertical (Y) axis indicates the code power in the MAC area.

Query

```
:DISPlay:CDPower[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
?
```

Response

```
<mode>
```

Parameter

<mode>	Lower limit
20	–20 dB
40	–40 dB
60	–60 dB
80	–80 dB

Example of Use

To query the lower limit.

```
DISP:CDP:WIND:TRAC:Y:RLEV?
> 60
```

:DISPlay:CDPower[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel 0.5|2.5|5|80

Scale

Function

Sets the vertical scale of the graph where the vertical (Y) axis indicates the code power in the data area.

Command

```
:DISPlay:CDPower[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel
<mode>
```

Parameter

<mode>	Scale
0.5	–15.5 to –14.5 Db (Default)
2.5	–17.5 to –12.5 dB
5	–20.0 to –10.0 dB
80	–80.0 to 0 dB

Example of Use

Sets the lower limit between –20.0 and –10 dB.

```
DISP:CDP:WIND2:TRAC:Y:RLEV 5
```

:DISPlay:CDPower[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel?

Scale Query

Function

Queries the vertical scale of the graph where the vertical (Y) axis indicates the code power in the data area.

Query

```
:DISPlay:CDPower[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<mode>
```

Parameter

<mode>	Scale
0.5	–15.5 to –14.5 dB
2.5	–17.5 to –12.5 dB
5	–20.0 to –10.0 dB
80	–80.0 to 0 dB

Example of Use

To query the scale.

```
DISP:CDP:WIND2:TRAC:Y:RLEV?
> 5
```

2.7.5 Display Mode

:CALCulate:CDPower:WCODe:ORDer WALSh|MACindex

Display Mode

Function

Sets the code sequence of the code domain graph.

Command

```
:CALCulate:CDPower:WCODe:ORDer <mode>
```

Parameter

<mode>	Screen display mode
WALSh	Walsh code (default)
MACindex	MAC index

Details

Available when the Code Domain Channel Type is MAC.

Example of Use

To specify the Walsh code for the code sequence.

```
CALC:CDP:WCOD:ORD WALS
```

:CALCulate:CDPower:WCODe:ORDer?

Display Mode Query

Function

This command queries the code sequence of the Code Domain Graph.

Command

```
:CALCulate:CDPower:WCODe:ORDer?
```

Response

```
<mode>
```

Parameter

<mode>	Screen display mode
WALS	Walsh code
MAC	MAC index

Example of Use

To query the code sequence of the code domain graph.

```
CALC:CDP:WCOD:ORD?
> WALS
```

2.7.6 Code Domain Channel Type

:CALCulate:CDPower:CHANnel:TYPE MAC|DATA

Code Domain Channel Type

Function

This command sets the channel type on the code domain graph.

Command

```
:CALCulate:CDPower:CHANnel:TYPE <mode>
```

Parameter

<mode>	Channel
MAC	MAC (Default)
DATA	Data

Example of Use

To set the channel type to Data.

```
CALC:CDP:CHAN:TYPE DATA
```

:CALCulate:CDPower:CHANnel:TYPE?

Code Domain Channel Type Query

Function

This command queries the channel type on the code domain graph.

Command

```
:CALCulate:CDPower:CHANnel:TYPE?
```

Response

```
<mode>
```

Parameter

<mode>	Channel
MAC	MAC
DATA	Data

Example of Use

To query the channel type.

```
CALC:CDP:CHAN:TYPE?
> DATA
```

2.7.7 Branch

:CALCulate:CDPower:AXIS IPH|QPH

Branch

Function

This command sets the axis of the Code to be analyzed.

Command

```
:CALCulate:CDPower:AXIS <mode>
```

Parameter

<mode>	Axis
IPH	I (Default)
QPH	Q

Example of Use

To set the code axis to be analyzed to I.

```
CALC:CDP:AXIS I
```

:CALCulate:CDPower:AXIS?

Branch Query

Function

This command queries the axis of the Code to be analyzed.

Command

```
:CALCulate:CDPower:AXIS?
```

Response

```
<mode>
```

Parameter

<mode>	Axis
IPH	I
QPH	Q

Example of Use

To query the axis of the Code to be analyzed.

```
CALC:CDP:AXIS?
> IPH
```

2.7.8 Code Number I/Q

:CALCulate:CDPower:WCODe[:NUMBer] <integer>

Code Number I/Q

Function

This command sets the axis of the Code to be displayed as a result.

Command

```
:CALCulate:CDPower:WCODe[:NUMBer] <integer>
```

Parameter

`<integer>` Display code number

When the Code Domain Channel Type is Data:

Range	0 to 15
Resolution	1
Suffix code	None
Default	0

When the Code Domain Channel Type is MAC and the Physical Layer Subtype is Subtype0/1:

Range	0 to 63
Resolution	1
Suffix code	None
Default	0

When the Code Domain Channel Type is MAC and the Physical Layer Subtype is Subtype2:

Range	0 to 127
Resolution	1
Suffix code	None
Default	0

Example of Use

To display the results for Code 1.

```
CALC:CDP:WCOD 1
```

:CALCulate:CDPower:WCODe[:NUMBer]?

Code Number I/Q Query

Function

This command queries the axis of the Code to be displayed as a result.

Command

```
:CALCulate:CDPower:WCODe[:NUMBer]?
```

Response

```
<integer>
```

Parameter

`<integer>`	Display code number

When the Code Domain Channel Type is Data:

Range	0 to 15
Resolution	1

When the Code Domain Channel Type is MAC and the Physical Layer Subtype is Subtype0/1:

Range	0 to 63
Resolution	1

When the Code Domain Channel Type is MAC and the Physical Layer Subtype is Subtype2:

Range	0 to 127
Resolution	1

Example of Use

To query the axis of the Code to be displayed as a result.

```
CALC:CDP:WCOD?
> 1
```

2.8 Power vs Time Measurement Function

This section describes device messages for the Power vs Time measurement functions.

Table 2.8-1 lists the device messages related to execution and result readout for Power vs Time Measurement.

Table 2.8-1 Power vs Time Measurement Function

Function	Device Messages
Configure	:CONFigure:PVTime
Initiate	:INITiate:PVTime
Fetch	:FETCh:PVTime[n]?
Read/Measure	:READ:PVTime[n]?
	:MEASure:PVTime[n]?

Table 2.8-2 lists the PVTime responses to parameter [n] of the device messages in Table 2.8-1.

Table 2.8-2 PVTime response as to the Power vs Time measurement result

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. Sample Time 0.20345052 2. –999.0 (Reserved) 3. On Power 4. Number of Samples 4897 5. –999.0 (Reserved) 6. –999.0 (Reserved) 7. Index of Burst Center Point 2446 8. –999.0 (Reserved) 9. –999.0 (Reserved) 10. –999.0 (Reserved) 11. –999.0 (Reserved) 12. Storage Count 13. –999.0 (Reserved) 14. Template Total Judgement (0:passed,1:failed) 15. –999.0 (Reserved) 16. –999.0 (Reserved) 17. On Power (Avg.) When Slot Type is Active. 18. –999.0 (Reserved) 19. On Power (Avg.) When Slot Type is Idle.

Table 2.8-2 PVTime response as to the Power vs Time measurement result(Cont'd)

n	Result Mode	Response
1 or omitted	A/B	20. –999.0 (Reserved) 21. –999.0 (Reserved) 22. On Power (Rel.)(Avg.) When Slot Type is Active. 23. –999.0 (Reserved) 24. On Power (Rel.)(Avg.) When Slot Type is Idle. 25. –999.0 (Reserved) 26. –999.0 (Reserved) 27. On Power (Max.) When Slot Type is Active. 28. –999.0 (Reserved) 29. On Power (Max.) When Slot Type is Idle. 30. –999.0 (Reserved) 31. –999.0 (Reserved) 32. On Power (Rel.)(Max.) When Slot Type is Active. 33. –999.0 (Reserved) 34. On Power (Rel.)(Max.) When Slot Type is Idle. 35. –999.0 (Reserved) 36. –999.0 (Reserved) 37. On Power (Min.) When Slot Type is Active. 38. –999.0 (Reserved) 39. On Power (Min.) When Slot Type is Idle. 40. –999.0 (Reserved) 41. –999.0 (Reserved) 42. On Power (Rel.)(Min.) When Slot Type is Active. 43. –999.0 (Reserved) 44. On Power (Rel.)(Min.) When Slot Type is Idle. 45. –999.0 (Reserved) 46. –999.0 (Reserved)
2	A/B	Responses are returned with comma-separated value formats in the following order: Average waveform data 1. Average Power of –100.00PNChips 2. Average Power of –99.75PNChips … Average Power of 4897. 1124.00PNChips
3	A/B	Responses are returned with comma-separated value formats in the following order: Max. waveform data 1. Maximum of –100.00PNChips Power 2. Maximum of –99.75PNChips Power … Max. Power of 4897. 1124.00PNChips

Table 2.8-2 PVTime response as to the Power vs Time measurement result(Cont'd)

n	Result Mode	Response
4	A/B	Responses are returned with comma-separated value formats in the following order: Min. waveform data 1. Min. Power of –100.00PNChips 2. Min. Power of –99.75PNChips … Min. Power of 4897. 1124.00PNChips

For details on Result Mode, refer to the description of the `:SYSTem:RESult:MODE` command in the "MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)".

Table 2.8-3 lists device messages on Parameter Setting for Power vs Time Measurement.

Table 2.8-3 Power vs Time parameter settings

Parameter	Device Messages
Storage Mode	[:SENSe]:PVTime:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:PVTime:AVERage[:STATe]?
Storage Count	[:SENSe]:PVTime:AVERage:COUNt <integer>
	[:SENSe]:PVTime:AVERage:COUNt?
Scale	:DISPlay:PVTime[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel 10|20|50|100
	:DISPlay:PVTime[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
	:DISPlay:PVTime[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel 10|20
	:DISPlay:PVTime[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel?
	:DISPlay:PVTime[:VIEW]:WINDow3:TRACe:Y[:SCALe]:RLEVel 10|20|50|100
	:DISPlay:PVTime[:VIEW]:WINDow3:TRACe:Y[:SCALe]:RLEVel?
Trace Mode	:DISPlay:PVTime:VIEW HALF|ONPortion|RAMP
	:DISPlay:PVTime:VIEW?
Target Halfslot	:CALCulate:PVTime:TSLot 1ST|2ND|FULL
	:CALCulate:PVTime:TSLot?
Select Reference Line	[:SENSe]:PVTime:PREFerence ONPower|USER
	[:SENSe]:PVTime:PREFerence?
Reference Line Level	[:SENSe]:PVTime:PREFerence:RLEVel <abs_power>
	[:SENSe]:PVTime:PREFerence:RLEVel?
Select Mask	[:SENSe]:PVTime:MASK:SELect STANdard|USER
	[:SENSe]:PVTime:MASK:SELect?
Upper Limit/Lower Limit/Upper Limit Out of Burst	[:SENSe]:PVTime:MASK:LIST:RELative <rel_power1>,<rel_power2>,<rel_power3>
	[:SENSe]:PVTime:MASK:LIST:RELative?
Unit	:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y[:SCALe]:UNIT DB|DBM
	:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y[:SCALe]:UNIT?
Display Item	:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y:DITem AVERage|ALL
	:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y:DITem?

Table 2.8-3 Power vs Time parameter settings (Cont'd)

Parameter	Device Messages
Smoothing	[:SENSe]:PVTime:SMOothing OFF|ON|0|1
	[:SENSe]:PVTime:SMOothing?
Filter Type	[:SENSe]:PVTime:BANDwidth:TYPE GAUSsian|FLATtop|NARRow
	[:SENSe]:PVTime:BANDwidth:TYPE?
Marker	:CALCulate:PVTime:MARKer[:STATe] OFF|ON|0|1
	:CALCulate:PVTime:MARKer[:STATe]?
	:CALCulate:PVTime:MARKer:X[:POINt] <real>
	:CALCulate:PVTime:MARKer:X?
	:CALCulate:PVTime:MARKer:Y[:AVERage]?
	:CALCulate:PVTime:MARKer:Y:MAXimum?
	:CALCulate:PVTime:MARKer:Y:MINimum?

2.8.1 Measure

:CONFigure:PVTime

Power vs Time

Function

This command selects the Power vs Time measurement functions.

Command

```
:CONFigure:PVTime
```

Details

No measurement is made.

Example of Use

To select the Power vs Time measurement function.

```
CONF:PVT
```

:INITiate:PVTime

Power vs Time

Function

This command executes the Power vs Time measurement.

Command

```
:INITiate:PVTime
```

Example of Use

To initiate the Power vs Time measurement.

```
INIT:PVT
```

:FETCh:PVTime[n]?

Power vs Time Query

Function

This command queries the Power vs Time measurement result.

Query

```
:FETCh:PVTime[n]?
```

Response

See Table 2.8-2.

Details

–999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the Power vs Time measurement result.

```
FETC:PVT?
> 0.20345052,-999.0,-10.00,4897,-999.00, …
```

:READ:PVTime[n]?

Power vs Time Query

Function

This command performs Power vs Time measurement once (single measurement) using the current settings, and then queries the measurement results.

Query

```
:READ:PVTime[n]?
```

Response

See Table 2.8-2.

Example of Use

To initiate the Power vs Time measurement and query the result.

```
READ:PVT?
```

Related Command

This command has the same function as the following command.

```
:MEASure:PVTime[n]?
```

:MEASure:PVTime[n]?

Power vs Time Query

Function

This command performs Power vs Time measurement once (single measurement) using the current settings, and then queries the measurement results.

Query

```
:MEASure:PVTime[n]?
```

Response

See Table 2.8-2.

Example of Use

To initiate the Power vs Time measurement and query the result.

```
MEAS:PVT?
```

Related Command

This command has the same function as the following command.

```
:READ:PVTime[n]?
```

2.8.2 Storage Mode

[:SENSe]:PVTime:AVERage[:STATe] OFF|ON|0|1

Storage Mode

Function

This command sets the storage mode.

Command

```
[:SENSe]:PVTime:AVERage[:STATe] <mode>
```

Parameter

<mode>	Storage Mode
OFF|0	Off (Default)
ON|1	On

Example of Use

To set the storage mode to On.

```
PVT:AVER ON
```

[:SENSe]:PVTime:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the setting of the storage mode.

Query

```
[:SENSe]:PVTime:AVERage[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Storage Mode
0	Off
1	On

Example of Use

To query the setting of the storage mode.

```
PVT:AVER?
> 1
```

2.8.3 Storage Count

[:SENSe]:PVTime:AVERage:COUNt <integer>

Storage Count

Function

This command sets the storage count.

Command

```
[:SENSe]:PVTime:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage Count
	Range	2 to 9999
	Resolution	1
	Default	10

Example of Use

To set the storage count to 10.

```
PVT:AVER:COUN 10
```

[:SENSe]:PVTime:AVERage:COUNt?

Storage Count Query

Function

This command queries the storage count.

Query

```
[:SENSe]:PVTime:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

<integer>		Storage Count
	Range	2 to 9999
	Resolution	1

Example of Use

To query the storage count.

```
PVT:AVER:COUN?
> 10
```

2.8.4 Scale

:DISPlay:PVTime[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel 10|20|50|100

Scale

Function

Sets the vertical scale of the graph that indicates the power when Trace Mode is Halfslot.

Command

```
:DISPlay:PVTime[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel
<mode>
```

Parameter

<mode>	Scale
10	–5.0 to 5.0 dB
20	–10.0 to 10.0 dB
50	–40.0 to 10.0 dB
100	–90.0 to 10.0 dB (Default)

Example of Use

To set the scale between –40.0 and –10 dB.

```
DISP:PVT:WIND:TRAC:Y:RLEV 50
```

:DISPlay: PVTime [:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?

Scale Query

Function

Queries the vertical scale of the graph that indicates the power when Trace Mode is Halfslot.

Query

```
:DISPlay:PVTime[:VIEW]:WINDow[1]:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<mode>
```

Parameter

<mode>	Scale
10	–5.0 to 5.0 dB
20	–10.0 to 10.0 dB
50	–40.0 to 10.0 dB
100	–90.0 to 10.0 dB

Example of Use

To query the scale.

```
DISP:PVT:WIND:TRAC:Y:RLEV?
> 50
```

:DISPlay:PVTime[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel 10|20

Scale

Function

Sets the vertical scale of the graph that indicates the power when Trace Mode is OnPortion.

Command

```
:DISPlay:PVTime[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel
<mode>
```

Parameter

<mode>	Scale
10	–5.0 to 5.0 dB
20	–10.0 to 10.0 dB (Default)

Example of Use

To set the scale between –10.0 and –10 dB.

```
DISP:PVT:WIND2:TRAC:Y:RLEV 20
```

:DISPlay:PVTime[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel?

Scale Query

Function

Queries the vertical scale of the graph that indicates the power when Trace Mode is OnPortion.

Query

```
:DISPlay:PVTime[:VIEW]:WINDow2:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<mode>
```

Parameter

<mode>	Scale
10	–5.0 to 5.0 dB
20	–10.0 to 10.0 dB

Example of Use

To query the scale.

```
DISP:PVT:WIND2:TRAC:Y:RLEV?
> 20
```

:DISPlay:PVTime[:VIEW]:WINDow3:TRACe:Y[:SCALe]:RLEVel 10|20|50|100

Scale

Function

Sets the vertical scale of the graph that indicates the power when Trace Mode is Ramp.

Command

```
:DISPlay:PVTime[:VIEW]:WINDow3:TRACe:Y[:SCALe]:RLEVel
<mode>
```

Parameter

<mode>	Scale
10	–5.0 to 5.0 dB
20	–10.0 to 10.0 dB
50	–40.0 to 10.0 dB
100	–90.0 to 10.0 dB (Default)

Example of Use

To set the scale between –40.0 and –10 dB.

```
DISP:PVT:WIND3:TRAC:Y:RLEV 50
```

:DISPlay: PVTime [:VIEW]:WINDow3:TRACe:Y[:SCALe]:RLEVel?

Scale Query

Function

Queries the vertical scale of the graph that indicates the power when Trace Mode is Ramp.

Query

```
:DISPlay:PVTime[:VIEW]:WINDow3:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<mode>
```

Parameter

<mode>	Scale
10	–5.0 to 5.0 dB
20	–10.0 to 10.0 dB
50	–40.0 to 10.0 dB
100	–90.0 to 10.0 dB

Example of Use

To query the scale.

```
DISP:PVT:WIND3:TRAC:Y:RLEV?
> 50
```

2.8.5 Trace Mode

:DISPlay:PVTime:VIEW HALF|ONPortion|RAMP

Trace Mode

Function

This command sets the Trace Mode.

Command

```
:DISPlay:PVTime:VIEW <mode>
```

Parameter

<mode>	Trace Mode
HALF	Halfslot (Default)
ONPortion	OnPortion
RAMP	Ramp

Example of Use

To set the Trace Mode to Ramp.

```
DISP:PVT:VIEW RAMP
```

:DISPlay:PVTime:VIEW?

Trace Mode Query

Function

This command queries the Trace Mode.

Query

```
:DISPlay:PVTime:VIEW?
```

Response

```
<mode>
```

Parameter

<mode>	Trace Mode
HALF	Halfslot
ONP	OnPortion
RAMP	Ramp

Example of Use

To query the Trace Mode.

```
DISP:PVT:VIEW?
> ONP
```

2.8.6 Target Halfslot

:CALCulate:PVTime:TSLot 1ST|2ND|FULL

Target Halfslot

Function

This command sets the Target Halfslot.

Command

```
:CALCulate:PVTime:TSLot <mode>
```

Parameter

<mode>	Target Halfslot
1ST	1st Halfslot
2ND	2nd Halfslot
FULL	Full slot (Default)

Example of Use

To set the Target Halfslot to 1st Halfslot.

```
CALC:PVT:TSL 1ST
```

:CALCulate:PVTime:TSLot?

Target Halfslot Query

Function

This command queries the Target Halfslot.

Query

```
:CALCulate:PVTime:TSLot?
```

Response

```
<mode>
```

Parameter

<mode>	Target Halfslot
1ST	1st Halfslot
2ND	2nd Halfslot
FULL	Full slot

Example of Use

To query the Target Halfslot.

```
CALC:PVT:TSL?
> 1ST
```

2.8.7 Select Reference Line

[:SENSe]:PVTime:PREFerence ONPower|USER

Select Reference Line

Function

This command sets the Select Reference Line.

Command

```
[:SENSe]:PVTime:PREFerence <mode>
```

Parameter

<mode>	Select Reference Line
ONPower	On Power (Default)
USER	User

Example of Use

To set the Select Reference Line to User.

```
PVT:PREF USER
```

[:SENSe]:PVTime:PREFerence?

Select Reference Line Query

Function

This command queries the Select Reference Line.

Query

```
[:SENSe]:PVTime:PREFerence?
```

Response

```
<mode>
```

Parameter

<mode>	Select Reference Line
ONP	On Power
USER	User

Example of Use

To query the Select Reference Line.

```
PVT:PREF?
> USER
```

2.8.8 Reference Line Level

[:SENSe]:PVTime:PREFerence:RLEVel <abs_power>

Reference Line Level

Function

This command sets the Reference Line Level.

Command

```
[:SENSe]:PVTime:PREFerence:RLEVel <abs_power>
```

Parameter

<abs_power>	Reference Line Level
Range	–99.99 to 99.99 dBm
Resolution	0.01
Suffix code	None
Default	0.00 dBm

Example of Use

To set the Reference Line Level to 10.00 dBm.

```
PVT:PREF:RLEV 10.00
```

[:SENSe]:PVTime:PREFerence:RLEVel?

Reference Line Level Query

Function

This command queries the Reference Line Level.

Query

```
[:SENSe]:PVTime:PREFerence:RLEVel?
```

Response

```
<mode>
```

Parameter

<abs_power>	Reference Line Level
Range	–99.99 to 99.99 dBm
Resolution	0.01

Example of Use

To query the Reference Line Level.

```
PVT:PREF:RLEV?
> 10.00
```

2.8.9 Select Mask

[:SENSe]:PVTime:MASK:SELect STANdard|USER

Select Mask

Function

This command sets the Select Mask setting.

Command

```
[:SENSe]:PVTime:MASK:SELect <mode>
```

Parameter

<mode>	Select Mask
STANdard	Standard (Default)
USER	User

Example of Use

To set the Select Mask setting to User.

```
PVT:MASK:SEL USER
```

[:SENSe]:PVTime:MASK:SELect?

Select Mask Query

Function

This command queries the Select Mask setting.

Query

```
[:SENSe]:PVTime:MASK:SELect?
```

Response

```
<mode>
```

Parameter

<mode>	Select Mask
STAN	Standard
USER	User

Example of Use

To query the Select Mask setting.

```
PVT:MASK:SEL?
> USER
```

2.8.10 Upper Limit/Lower Limit/Upper Limit Out of Burst

[:SENSe]:PVTime:MASK:LIST:RELative <rel_power1>,<rel_power2>,<rel_power3>,

Upper Limit,Lower Limit,Upper Limit Out of Burst

Function

This command sets the Upper Limit, Lower Limit, and Upper Limit Out of Burst settings.

Command

```
[:SENSe]:PVTime:MASK:LIST:RELative
<rel_power1>,<rel_power2>,<rel_power3>
```

Parameter

<rel_power1>	Upper Limit
Range	0.01 to 30.00 dB
Resolution	0.01
Suffix code	None
Default	2.50 dB
<rel_power2>	Lower Limit
Range	–30.00 to –0.01 dB
Resolution	0.01
Suffix code	None
Default	–2.50 dB
<rel_power3>	Upper Limit Out of Burst
Range	–30.00 to 30.00 dB
Resolution	0.01
Suffix code	None
Default	–7.00 dB

Example of Use

To set Upper Limit to 10.00 dB, Lower Limit to –10.00 dB, and Upper Limit Out of Burst to –20.00 dB.

```
PVT:MASK:LIST:REL 10.00, -10.00, -20.00
```

[:SENSe]:PVTime:MASK:LIST:RELative?

Upper Limit,Lower Limit,Upper Limit Out of Burst Query

Function

This command queries the Upper Limit, Lower Limit, and Upper Limit Out of Burst settings.

Query

```
[:SENSe]:PVTime:MASK:LIST:RELative?
```

Response

```
<rel_power1>,<rel_power2>,<rel_power3>
```

Parameter

`<rel_power1>`	`Upper Limit`
Range	0.01 to 30.00 dB
Resolution	0.01
`<rel_power2>`	`Lower Limit`
Range	–30.00 to –0.01 dB
Resolution	0.01
`<rel_power3>`	`Upper Limit Out of Burst`
Range	–30.00 to 30.00 dB
Resolution	0.01

Example of Use

To query the following settings: Reference Line Level, Upper Limit, Lower Limit, and Upper Limit Out of Burst.

```
PVT:MASK:LIST:REL?
> 10.00, -10.00, -20.00
```

2.8.11 Unit

:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y[:SCALe]:UNIT DB|DBM

Unit

Function

This command sets the unit system of the vertical axis.

Command

```
:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y[:SCALe]:UNI
T <mode>
```

Parameter

<mode>	Unit
DB	dB (Default)
DBM	dBm

Example of Use

To set the Unit to dBm.

```
DISP:PVT:WIND:TRAC:Y:UNIT DBM
```

:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y[:SCALe]:UNIT?

Unit Query

Function

This command queries the unit system of the vertical axis.

Query

```
:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y[:SCALe]:UNI
T?
```

Response

```
<mode>
```

Parameter

<mode>	Unit
DB	dB
DBM	dBm

Example of Use

To query the unit.

```
DISP:PVT:WIND:TRAC:Y:UNIT?
> DBM
```

2.8.12 Display Item

:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y:DITem AVERage|ALL

Display Item

Function

This command sets the waveform pattern to be displayed on a graph.

Command

```
:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y:DITem <mode>
```

Parameter

<mode>	Display Item
AVERage	Average
ALL	All (Default)

Example of Use

To set the Display Item to Average.

```
DISP:PVT:WIND:TRAC:Y:DIT AVER
```

:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y:DITem?

Display Item Query

Function

This command queries the Display Item.

Query

```
:DISPlay:PVTime[:VIEW]:WINDow[1]|2|3:TRACe:Y:DITem?
```

Response

```
<mode>
```

Parameter

<mode>	Display Item
AVER	Average
ALL	All

Example of Use

To query the Display Item.

```
DISP:PVT:WIND:TRAC:Y:DIT?
> AVER
```

2.8.13 Smoothing

[:SENSe]:PVTime:SMOothing OFF|ON|0|1

Smoothing

Function

This command enables or disables Smoothing.

Command

```
[:SENSe]:PVTime:SMOothing <switch>
```

Parameter

<switch>	Smoothing On/Off
ON|1	On
Off|0	Off (Default)

Example of Use

To enable smoothing

```
PVT:SMO ON
```

[:SENSe]:PVTime:SMOothing?

Smoothing Query

Function

This command queries Smoothing On/Off status.

Query

```
[:SENSe]:PVTime:SMOothing?
```

Response

```
<switch>
```

Parameter

<switch>	Smoothing On/Off
1	On
0	Off

Example of Use

To query Smoothing On/Off status.

```
PVT:SMO?
> 1
```

2.8.14 Filter Type

[:SENSe]:PVTime:BANDwidth:TYPE GAUSsian|FLATtop|NARRow

Filter Type

Function

This command sets the Filter Type.

Command

```
[:SENSe]:PVTime:BANDwidth:TYPE <mode>
```

Parameter

<mode>	Filter Type
GAUSsian	Gaussian
FLATtop	Flattop (Default)
NARRow	Narrow

Example of Use

To set Filter Type to Gaussian.

```
PVT:BAND:TYPE GAUS
```

[:SENSe]:PVTime:BANDwidth:TYPE?

Filter Type Query

Function

This command queries the Filter Type.

Query

```
[:SENSe]:PVTime:BANDwidth:TYPE?
```

Response

```
<mode>
```

Parameter

<mode>	Filter Type
GAUS	Gaussian
FLAT	Flattop
NARR	Narrow

Example of Use

To query the Filter Type.

```
PVT:BAND:TYPE?
> GAUS
```

2.8.15 Marker

:CALCulate:PVTime:MARKer[:STATe] OFF|ON|0|1

Marker

Function

This command sets whether to display the marker.

Command

```
:CALCulate:PVTime:MARKer[:STATe] <mode>
```

Parameter

<mode>	Marker
0|OFF	Off
1|ON	On (Default)

Example of Use

To hide the marker.

```
CALC:PVT:MARK OFF
```

:CALCulate:PVTime:MARKer[:STATe]?

Marker Query

Function

This command queries the show/hide setting of the marker.

Query

```
:CALCulate:PVTime:MARKer[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Marker
0	Off
1	On

Example of Use

To query the marker display On/Off state.

```
CALC:PVT:MARK?
> 0
```

:CALCulate:PVTime:MARKer:X[:POINt] <real>

Marker

Function

This command sets the position of the horizontal marker axis.

Query

```
:CALCulate:PVTime:MARKer:X[:POINt]?
```

Response

```
<real>
```

Parameter

`<real>` Marker

When Trace Mode is Halfslot:

Range	–100.00 to 1124.00 PNChip
Resolution	0.25
Suffix Code	None
Default	400.00 PNChip

When Trace Mode is OnPortion:

Range	390.00 to 634.00 PNChip
Resolution	0.25
Suffix Code	None
Default	400.00 PNChip

When Trace Mode is Ramp:

Range	380.00 to 643.00 PNChip
Resolution	0.25
Suffix Code	None
Default	400.00 PNChip

Example of Use

To set the position of the horizontal marker axis to 100PNChip.

```
CALC:PVT:MARK:X 100
```

:CALCulate:PVTime:MARKer:X?

Marker Query

Function

This command queries the position of the horizontal marker axis.

Query

```
:CALCulate:PVTime:MARKer:X?
```

Response

```
<real>
```

Parameter

`<real>` Marker

When Trace Mode is Halfslot:

Range	–100.00 to 1124.00 PNChip
Resolution	0.25

When Trace Mode is OnPortion:

Range	390.00 to 634.00 PNChip
Resolution	0.25

When Trace Mode is Ramp:

Range	380.00 to 643.00 PNChip
Resolution	0.25

Example of Use

To query the position of the horizontal marker axis.

```
CALC:PVT:MARK:X?
> 100.00
```

:CALCulate:PVTime:MARKer:Y[:AVERage]?

Marker Query

Function

This command queries the position of the vertical marker axis for Average waveform.

Query

```
:CALCulate:PVTime:MARKer:Y[:AVERage]?
```

Response

```
<real>
```

Parameter

`<real>`		Marker
	Unit	Value specified under Unit
	Resolution	0.01

Example of Use

To query the position of the vertical marker axis for Average waveform.

```
CALC:PVT:MARK:Y?
> 10.00
```

:CALCulate:PVTime:MARKer:Y:MAXimum?

Marker Query

Function

This command queries the position of the vertical marker axis for Maximum waveform.

Query

```
:CALCulate:PVTime:MARKer:Y:MAXimum?
```

Response

```
<real>
```

Parameter

`<real>`		Marker
	Unit	Value specified under Unit
	Resolution	0.01

Example of Use

To query the position of the vertical marker axis for Maximum waveform.

```
CALC:PVT:MARK:Y:MAX?
> 10.00
```

:CALCulate:PVTime:MARKer:Y:MINimum?

Marker Query

Function

This command queries the position of the vertical marker axis for Minimum waveform.

Query

```
:CALCulate:PVTime:MARKer:Y:MINimum?
```

Response

```
<real>
```

Parameter

<real>		Marker
	Unit	Value specified under Unit
	Resolution	0.01

Example of Use

```
To query the position of the vertical marker axis for Minimum
waveform.
CALC:PVT:MARK:Y:MIN?
> 10.00
```

2.9 All Measure Function

This feature is available when the MX269026A-001 All Measure Function option is installed.

This section explains the device messages that pertains to All Measure function.

Table 2.9-1 shows the device messages for executing and querying the result for the All Measure function.

Table 2.9-1 All Measurement Function

Function	Device Messages
Configure	:CONFigure:ALL
Initiate	:INITiate:ALL
Fetch	:FETCh:ALL[n]?
Read/Measure	:READ:ALL[n]?
	:MEASure:ALL[n]?

Table 2.9-2 lists the All Measure responses to parameter [n] of the device messages in Table 2.9-1.

Table 2.9-2 All Measure Response

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. Power vs Time Template Judge 2. On Power (Average) 3. Channel Power (Average) 4. Frequency Error (Hz, Average) 5. Frequency Error (ppm, Average) 6. Rho pilot (Average) 7. Rho MCA (Average) 8. Rho DATA (Average) 9. Rho overall1 (Average) 10. Rho overall2 (Average) 11. EVM (Average) 12. Origin Offset (Average) 13. Data Modulation Scheme 14. Timing Error (Average) 15. Max. MAC Inactive CH Power (Average) 16. Max. Data Active CH Power (Average) 17. Min. Data Active CH Power (Average) 18. Occupied Bandwidth 19. SEM Total Judge

Table 2.9-2 All Measure Response (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 1. –999.0 (Reserved) 2. On Power (Max) 3. Channel Power (Max) 4. Frequency Error (Hz, Max) 5. Frequency Error (ppm, Max) 6. Rho pilot (Max) 7. Rho MCA (Max) 8. Rho DATA (Max) 9. Rho overall1 (Max) 10. Rho overall2 (Max) 11. EVM (Max) 12. Origin Offset (Max) 13. –999.0 (Reserved) 14. Timing Error (Max) 15. Max. MAC Inactive CH Power (Max) 16. Max. Data Active CH Power (Max) 17. Min. Data Active CH Power (Max) 18. –999.0 (Reserved) 19. –999.0 (Reserved)

Table 2.9-2 All Measure Response (Cont'd)

n	Result Mode	Response
3	A/B	Responses are returned with comma-separated value formats in the following order: 1. –999.0 (Reserved) 2. On Power (Min) 3. –999.0 (Reserved) 4. –999.0 (Reserved) 5. –999.0 (Reserved) 6. –999.0 (Reserved) 7. –999.0 (Reserved) 8. –999.0 (Reserved) 9. –999.0 (Reserved) 10. –999.0 (Reserved) 11. –999.0 (Reserved) 12. –999.0 (Reserved) 13. –999.0 (Reserved) 14. –999.0 (Reserved) 15. –999.0 (Reserved) 16. –999.0 (Reserved) 17. –999.0 (Reserved) 18. –999.0 (Reserved) 19. –999.0 (Reserved)

Table 2.9-2 All Measure Response (Cont'd)

n	Result Mode	Response
4	A/B	SEM measurement results are returned with comma-separated value formats in the following order: 1. total_judge 2. ref_power 3. abs_lower_offset_1 4. margin_lower_offset_1 5. freq_lower_offset_1 6. lower_offset_1 7. abs_upper_offset_1 8. margin_upper_offset_1 9. freq_upper_offset_1 10. upper_offset_1 11-18. xxx_2 19-26. xxx_3 27-34. xxx_4 35-42. xxx_5 43-50. xxx_6

For details on Result Mode, refer to the description of the :SYSTem:RESult:MODE command in the "MS2690A/MS2691A/MS2692A or MS2830A Signal Analyzer Operation Manual (Mainframe Remote Control)".

Parameters

Parameters details when [n]=4.

<total_judge>	Total judgment result
<ref_power>	Reference absolute power
<abs_lower_offset_n>	Peak value of absolute power of lower Offset-n
<abs_upper_offset_n>	Peak value of absolute power of upper Offset-n No suffix code, dBm unit, 0.01 dB resolution. –999.0 is returned when no measurement is performed.
<margin_lower_offset_n>	Minimum value of margin of lower Offset-n
<margin_upper_offset_n>	Minimum value of margin of upper Offset-n No suffix code, dB unit, 0.01 dB resolution. –999.0 is returned when no measurement is performed.
<freq_lower_offset_n>	Frequency of peak level of lower Offset-n
<freq_upper_offset_n>	Frequency of peak level of upper Offset-n No suffix code, Hz unit, 100 Hz resolution –999999999999 is returned when no measurement is performed.
<lower_offset_n>	Judgment result of lower Offset-n
<upper_offset_n>	Judgment result of upper Offset-n This command returns 0 when it is PASS, and returns 1 when it is FAIL. This command returns –999.0 when no measurement is performed.

Table 2.9-3 lists the device messages for All Measure parameter settings.

Table 2.9-3 Parameter Setting for All Measure mode

Parameter	Device Messages
Measure Modulation Analysis	[:SENSe]:ALL:EVM[:STATe] OFF|ON|0|1
	[:SENSe]:ALL:EVM[:STATe]?
Measure OBW	[:SENSe]:ALL:OBWidth[:STATe] OFF|ON|0|1
	[:SENSe]:ALL:OBWidth[:STATe]?
Measure SEM	[:SENSe]:ALL:SEMask[:STATe] OFF|ON|0|1
	[:SENSe]:ALL:SEMask[:STATe]?
Storage Mode	[:SENSe]:ALL:EVM:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:ALL:EVM:AVERage[:STATe]?
	[:SENSe]:ALL:OBWidth:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:ALL:OBWdith:AVERage[:STATe]?
	[:SENSe]:ALL:SEMask:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:ALL:SEMask:AVERage[:STATe]?
Storage Count	[:SENSe]:ALL:EVM:AVERage:COUNt <integer>
	[:SENSe]:ALL:EVM:AVERage:COUNt?
	[:SENSe]:ALL:OBWidth:AVERage:COUNt <integer>
	[:SENSe]:ALL:OBWidth:AVERage:COUNt?
	[:SENSe]:ALL:SEMask:AVERage:COUNt <integer>
	[:SENSe]:ALL:SEMask:AVERage:COUNt?
SEM Result Type	DISPlay:ALL:SEMask:RESult:TYPE PEAK|MARGin
	DISPlay:ALL:SEMask:RESult:TYPE?
Load Limit Parameter	[:SENSe]:ALL:RADio:STANdard:LOAD SEM,[,<pattern>]
	[:SENSe]:ALL:RADio:STANdard:LOAD? SEM
Select Mask	[:SENSe]:ALL:PVTime:MASK:SELect STANdard|USER
	[:SENSe]:ALL:PVTime:MASK:SELect?
Mask Setup Upper Limit/Lower Limit/Upper Limit Out of Burst	[:SENSe]:ALL:PVTime:MASK:LIST:RELative <rel_power1>,<rel_power2>,<rel_power3>
	[:SENSe]:ALL:PVTime:MASK:LIST:RELative?
Smoothing	[:SENSe]:ALL:PVTime:SMOothing OFF|ON|0|1
	[:SENSe]:ALL:PVTime:SMOothing?

2.9.1 ALL Measure

:CONFigure:ALL

Configure ALL

Function

This command selects the All Measure function.

Command

```
:CONFigure:ALL
```

Details

No measurement is made.

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To select the All Measure function.

```
CONF:ALL
```

:INITiate:ALL

Initiate ALL

Function

This command starts the All Measure function.

Command

```
:INITiate:ALL
```

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To start the All Measure function.

```
INIT:ALL
```

:FETCh:ALL[n]?

All Measure Query

Function

This command queries the result of All Measure.

Query

```
:FETCh:ALL[n]?
```

Response

See Table 2.9-2.

Details

–999.0 is returned when no measurement is made or an error occurs.

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the result of All Measure.

```
FETC:ALL3?
> -999.0, -999.0, -999.0, -999.0, -999.0, …
```

:READ:ALL[n]?

All Measure Query

Function

This command executes single All Measure operation with current setting, and then queries the result.

Query

```
:READ:ALL[n]?
```

Response

See Table 2.9-2.

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To execute single All Measure operation with current setting and then query the result.

```
READ:ALL?
```

Related Command

This command has the same function as the following command.

```
:MEASure:ALL[n]?
```

:MEASure:ALL[n]?

ALL Measure Query

Function

This command executes single All Measure operation with current setting, and then queries the result.

Query

```
:MEASure:ALL[n]?
```

Response

See Table 2.9-2.

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To execute single All Measure operation with current setting and then query the result.

```
MEAS:ALL?
```

Related Command

This command has the same function as the following command.

```
:READ:ALL[n]?
```

2.9.2 Measure

[:SENSe]:ALL:EVM[:STATe] OFF|ON|0|1

Measure Modulation Analysis

Function

This command enables/disables the EVM measurement during All Measure.

Command

```
[:SENSe]:ALL:EVM[:STATe] <switch>
```

Parameter

<switch>	EVM measurement On/Off
OFF|0	Off (Default)
ON|1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the EVM measurement to On.

```
ALL:EVM ON
```

[:SENSe]:ALL:EVM[:STATe]?

Measure Modulation Analysis Query

Function

This command queries the EVM measurement On/Off status during All Measure.

Query

```
[:SENSe]:ALL:EVM[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	EVM measurement On/Off
0	Off
1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the EVM measurement On/Off status

```
ALL:EVM?
> 1
```

[:SENSe]:ALL:OBWidth[:STATe] OFF|ON|0|1

Measure OBW

Function

This command enables/disables the OBW measurement during All Measure.

Command

```
[:SENSe]:ALL:OBWidth[:STATe] <switch>
```

Parameter

<switch>	OBW measurement On/Off
OFF|0	Off (Default)
ON|1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the OBW measurement to On.

```
ALL:OBW ON
```

[:SENSe]:ALL:OBWidth[:STATe]?

Measure OBW Query

Function

This command queries the OBW measurement On/Off status during All Measure.

Query

```
[:SENSe]:ALL:OBWidth[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	OBW measurement On/Off
0	Off
1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the OBW measurement On/Off status

```
ALL:OBW?
> 1
```

[:SENSe]:ALL:SEMask[:STATe] OFF|ON|0|1

Measure SEM

Function

This command enables/disables the SEM measurement during All Measure.

Command

```
[:SENSe]:ALL:SEMask[:STATe] <switch>
```

Parameter

<switch>	SEM measurement On/Off
OFF|0	Off (Default)
ON|1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the SEM measurement to On.

```
ALL:SEM ON
```

[:SENSe]:ALL:SEMask[:STATe]?

Measure SEM Query

Function

This command queries the SEM measurement On/Off status during All Measure.

Query

```
[:SENSe]:ALL:SEMask[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	SEM measurement On/Off
0	Off
1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the SEM measurement On/Off status

```
ALL:SEM?
> 1
```

2.9.3 Storage Mode

[:SENSe]:ALL:EVM:AVERage[:STATe] OFF|ON|0|1

Storage Mode

Function

This command sets the Storage Mode of the EVM measurement during All Measure.

Command

```
[:SENSe]:ALL:EVM:AVERage[:STATe] <mode>
```

Parameter

<mode>	Storage Mode
OFF|0	Off (Default)
ON|1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the Storage Mode to On.

```
ALL:EVM:AVER ON
```

[:SENSe]:ALL:EVM:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the Storage Mode of the EVM measurement during All Measure.

Query

```
[:SENSe]:ALL:EVM:AVERage[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Storage Mode
0	Off
1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the setting of the storage mode.

```
ALL:EVM:AVER?
> 1
```

[:SENSe]:ALL:OBWidth:AVERage[:STATe] OFF|ON|0|1

Storage Mode

Function

This command sets the Storage Mode of the OBW measurement during All Measure.

Command

```
[:SENSe]:ALL:OBWidth:AVERage[:STATe] <mode>
```

Parameter

<mode>	Storage Mode
OFF|0	Off (Default)
ON|1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the Storage Mode to On.

```
ALL:OBW:AVER ON
```

[:SENSe]:ALL:OBWdith:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the Storage Mode of the OBW measurement during All Measure.

Query

```
[:SENSe]:ALL:OBWdith:AVERage[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Storage Mode
0	Off
1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the setting of the storage mode.

```
ALL:OBW:AVER?
> 1
```

[:SENSe]:ALL:SEMask:AVERage[:STATe] OFF|ON|0|1

Storage Mode

Function

This command sets the Storage Mode of the SEM measurement during All Measure.

Command

```
[:SENSe]:ALL:SEMask:AVERage[:STATe] <mode>
```

Parameter

<mode>	Storage Mode
OFF|0	Off (Default)
ON|1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the Storage Mode to On.

```
ALL:AVER ON
```

[:SENSe]:ALL:SEMask:AVERage[:STATe]?

Storage Mode Query

Function

This command queries the Storage Mode of the SEM measurement during All Measure.

Query

```
[:SENSe]:ALL:SEMask:AVERage[:STATe]?
```

Response

```
<mode>
```

Parameter

<mode>	Storage Mode
0	Off
1	On

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the setting of the storage mode.

```
ALL:SEM:AVER?
> 1
```

2.9.4 Storage Count

[:SENSe]:ALL:EVM:AVERage:COUNt <integer>

Storage Count

Function

This command sets the Storage Count of the EVM measurement during All Measure.

Command

```
[:SENSe]:ALL:EVM:AVERage:COUNt <integer>
```

Parameter

<integer>	Storage Count
Range	2 to 999
Resolution	1
Default	10

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the storage count to 10.

```
ALL:EVM:AVER:COUN 10
```

[:SENSe]:ALL:EVM:AVERage:COUNt?

Storage Count Query

Function

This command queries the Storage Count of the EVM measurement during All Measure.

Query

```
[:SENSe]:ALL:EVM:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>`		Storage Count
	Range	2 to 999
	Resolution	1

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the storage count.

```
ALL:EVM:AVER:COUN?
> 10
```

[:SENSe]:ALL:OBWidth:AVERage:COUNt <integer>

Storage Count

Function

This command sets the Storage Count of the OBW measurement during All Measure.

Command

```
[:SENSe]:ALL:OBWidth:AVERage:COUNt <integer>
```

Parameter

<integer>	Storage Count
Range	2 to 999
Resolution	1
Default	10

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the storage count to 10.

```
ALL:OBW:AVER:COUN 10
```

[:SENSe]:ALL:OBWidth:AVERage:COUNt?

Storage Count Query

Function

This command queries the Storage Count of the OBW measurement during All Measure.

Query

```
[:SENSe]:ALL:OBWidth:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>`		Storage Count
	Range	2 to 999
	Resolution	1

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the storage count.

```
ALL:OBW:AVER:COUN?
> 10
```

[:SENSe]:ALL:SEMask:AVERage:COUNt <integer>

Storage Count

Function

This command sets the Storage Count of the SEM measurement during All Measure.

Command

```
[:SENSe]:ALL:SEMask:AVERage:COUNt <integer>
```

Parameter

<integer>	Storage Count
Range	2 to 999
Resolution	1
Default	10

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the storage count to 10.

```
ALL:SEM:AVER:COUN 10
```

[:SENSe]:ALL:SEMask:AVERage:COUNt?

Storage Count Query

Function

This command queries the Storage Count of the SEM measurement during All Measure.

Query

```
[:SENSe]:ALL:SEMask:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>`		Storage Count
	Range	2 to 999
	Resolution	1

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the storage count.

```
ALL:SEM:AVER:COUN?
> 10
```

2.9.5 SEM Result Type

DISPlay:ALL:SEMask:RESult:TYPE PEAK|MARGin

SEM Result Type

Function

This command sets the result display type of the SEM measurement during All Measure.

Command

```
DISPlay:ALL:SEMask:RESult:TYPE <type>
```

Parameter

<type>	Result display type
PEAK	Displays peak (Default)
MARGin	Displays margin relative to limit line.

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the display type to Peak

```
DISP:ALL:SEM:RES:TYPE PEAK
```

DISPlay:ALL:SEMask:RESult:TYPE?

SEM Result Type Query

Function

This command queries the result display type of the SEM measurement during All Measure.

Query

```
DISPlay:ALL:SEMask:RESult:TYPE?
```

Response

```
<type>
```

Parameter

<type>	Result display type
PEAK	Displays peak
MARG	Displays margin relative to limit line.

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the result display type

```
DISP:ALL:SEM:RES:TYPE?
> PEAK
```

2.9.6 Load Limit Parameter

[:SENSe]:ALL:RADio:STANdard:LOAD SEM,[,<pattern>]

Load Limit Parameter

Function

This command loads the Limit Parameter of the SEM measurement during All Measure.

Command

```
[:SENSe]:ALL:RADio:STANdard:LOAD SEM,[,<pattern>]
```

Parameter

<pattern>	Specified limit parameter
BC0_PLT28	Band Class 0,2,5,7,9,10 (Default)
BC1_PLT28	Band Class 1,4,14,15
BC6	Band Class 6,8,13
BC11	Band Class 11,12
When omitted	Band Class 0,2,5,7,9,10

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set Band Class 11,12 as limit parameter

```
ALL:RAD:STAN:LOAD SEM,BC11
```

[:SENSe]:ALL:RADio:STANdard:LOAD? SEM

Load Limit Parameter Query

Function

This command queries the Limit Parameter of the SEM measurement during All Measure.

Query

```
[:SENSe]:ALL:RADio:STANdard:LOAD? SEM
```

Response

```
<pattern>
```

Parameter

`<pattern>`	Specified limit parameter
`BC0`	Band Class 0,2,5,7,9,10
`BC1`	Band Class 1,4,14,15
`BC6`	Band Class 6,8,13
`BC11`	Band Class 11,12
When omitted	Band Class 0,2,5,7,9,10

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the specified limit parameter

```
ALL:RAD:STAN:LOAD? SEM
> BC11
```

2.9.7 Select Mask

[:SENSe]:ALL:PVTime:MASK:SELect STANdard|USER

Select Mask

Function

This command sets the Select Mask setting of the Power vs Time measurement during All Measure.

Command

```
[:SENSe]:ALL:PVTime:MASK:SELect <mode>
```

Parameter

<mode>	Select Mask
STANdard	Standard (Default)
USER	User

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set the Select Mask setting to User.

```
ALL:PVT:MASK:SEL USER
```

[:SENSe]:ALL:PVTime:MASK:SELect?

Select Mask Query

Function

This command queries the Select Mask setting of the Power vs Time measurement during All Measure.

Query

```
[:SENSe]:ALL:PVTime:MASK:SELect?
```

Response

```
<mode>
```

Parameter

<mode>	Select Mask
STAN	Standard
USER	User

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the Select Mask setting.

```
ALL:PVT:MASK:SEL?
> USER
```

2.9.8 Mask Setup

[:SENSe]:ALL:PVTime:MASK:LIST:RELative <rel_power1>,<rel_power2>,<rel_power3>

Upper Limit,Lower Limit,Upper Limit Out of Burst

Function

This command sets the Upper Limit, Lower Limit, and Upper Limit Out of Burst settings of the Power vs Time measurement during All Measure.

Command

```
[:SENSe]:ALL:PVTime:MASK:LIST:RELative
<rel_power1>,<rel_power2>,<rel_power3>
```

Parameter

<rel_power1>	Upper Limit
Range	0.01 to 30.00 dB
Resolution	0.01
Suffix code	None
Default	2.50 dB
<rel_power2>	Lower Limit
Range	–30.00 to –0.01 dB
Resolution	0.01
Suffix code	None
Default	–2.50 dB
<rel_power3>	Upper Limit Out of Burst
Range	–30.00 to 30.00 dB
Resolution	0.01
Suffix code	None
Default	–7.00 dB

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To set Upper Limit to 10.00 dB, Lower Limit to –10.00 dB, and Upper Limit Out of Burst to –20.00 dB.

```
ALL:PVT:MASK:LIST:REL 10.00,-10.00,-20.00
```

[:SENSe]:ALL:PVTime:MASK:LIST:RELative?

Upper Limit,Lower Limit,Upper Limit Out of Burst Query

Function

This command queries the Upper Limit, Lower Limit, and Upper Limit Out of Burst settings of the Power vs Time measurement during All Measure.

Query

```
[:SENSe]:ALL:PVTime:MASK:LIST:RELative?
```

Response

```
<rel_power1>,<rel_power2>,<rel_power3>
```

Parameter

`<rel_power1>`	`Upper Limit`
Range	0.01 to 30.00 dB
Resolution	0.01
`<rel_power2>`	`Lower Limit`
Range	–30.00 to –0.01 dB
Resolution	0.01
`<rel_power3>`	`Upper Limit Out of Burst`
Range	–30.00 to 30.00 dB
Resolution	0.01

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query the Upper Limit, Lower Limit, and Upper Limit Out of Burst settings.

```
ALL:PVT:MASK:LIST:REL?
> 10.00, -10.00, -20.00
```

2.9.9 Smoothing

[:SENSe]:ALL:PVTime:SMOothing OFF|ON|0|1

Smoothing

Function

This command enables/disables Smoothing of the Power vs Time measurement during All Measure.

Command

```
[:SENSe]:ALL:PVTime:SMOothing <switch>
```

Parameter

<switch>	Smoothing On/Off
ON|1	On
OFF|0	Off (Default)

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To enable smoothing

```
ALL:PVT:SMO ON
```

[:SENSe]:ALL:PVTime:SMOothing?

Smoothing Query

Function

This command queries the Smoothing status of the Power vs Time measurement during All Measure.

Query

```
[:SENSe]:ALL:PVTime:SMOothing?
```

Response

```
<switch>
```

Parameter

<switch>	Smoothing On/Off
1	On
0	Off

Details

This feature is available when the MX269026A-001 All Measure Function option is installed.

Example of Use

To query Smoothing On/Off status.

```
ALL:PVT:SMO?
> 1
```

Chapter 3 SCPI Status Register

This chapter explains the SCPI commands used to read the state of the application and the status register.

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3.2 STATus:QUEStionable Register 3-3
:STATus:QUEStionable[:EVENt]? 3-5
:STATus:QUEStionable:CONDition? 3-5
:STATus:QUEStionable:ENABle <integer> 3-6
:STATus:QUEStionable:ENABle? 3-6
:STATus:QUEStionable:NTRansition <integer> 3-7
:STATus:QUEStionable:NTRansition? 3-7
:STATus:QUEStionable:PTRansition <integer> 3-8
:STATus:QUEStionable:PTRansition? 3-8
:STATus:QUEStionable:MEASure[:EVENt]? 3-9
:STATus:QUEStionable:MEASure:CONDition? 3-9
:STATus:QUEStionable:MEASure:ENABle <integer> 3-10
:STATus:QUEStionable:MEASure:ENABle? 3-10
:STATus:QUEStionable:MEASure:NTRansition <integer> 3-11
:STATus:QUEStionable:MEASure:NTRansition? 3-11
:STATus:QUEStionable:MEASure:PTRansition <integer> 3-12
:STATus:QUEStionable:MEASure:PTRansition? 3-12
3.3 STATus:OPERation Register 3-13
:STATus:OPERation[:EVENt]? 3-14
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:STATus:OPERation:ENABle? 3-15
:STATus:OPERation:NTRansition <integer> 3-16
:STATus:OPERation:NTRansition? 3-16
:STATus:OPERation:PTRansition <integer> 3-17
:STATus:OPERation:PTRansition? 3-17

3.1 Reading Measurement Status

:STATus:ERRor?

Measurement Status Error Query

Function

This command queries a measurement error.

Query

```
:STATus:ERRor?
```

Response

```
<status>
```

Parameter

`<status>` Measurement Status

Value = bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6 + bit7 + bit8 + bit9 + bit10 + bit11 + bit12 + bit13 + bit14 + bit15

bit0: 2^0 = 1	No measurement
bit1: 2^1 = 2	Level Over
bit2: 2^2 = 4	Signal Abnormal
bit3: 2^3 = 8	(Not Used)
bit4: 2^4 = 16	(Not Used)
bit5: 2^5 = 32	(Not Used)
bit6: 2^6 = 64	(Not Used)
bit7: 2^7 = 128	(Not Used)
bit8: 2^8 = 256	(Not Used)
bit9: 2^9 = 512	(Not Used)
bit10: 2^{10} = 1024	(Not Used)
bit11: 2^{11} = 2048	(Not Used)
bit12: 2^{12} = 4096	(Not Used)
bit13: 2^{13} = 8192	(Not Used)
bit14: 2^{14} = 16384	(Not Used)
bit15: 2^{15} = 32768	(Not Used)

Range 0 to 65535

Details

0 is returned at normal termination.

Usage Example

To query a measurement error.

```
STAT:ERR?
> 0
```

3.2 STATus:QUEStionable Register

The hierarchical structure of the QUEStionable Status register is described in Figures 3.2-1 and 3.2-2, and Tables 3.2-1 and 3.2-2.

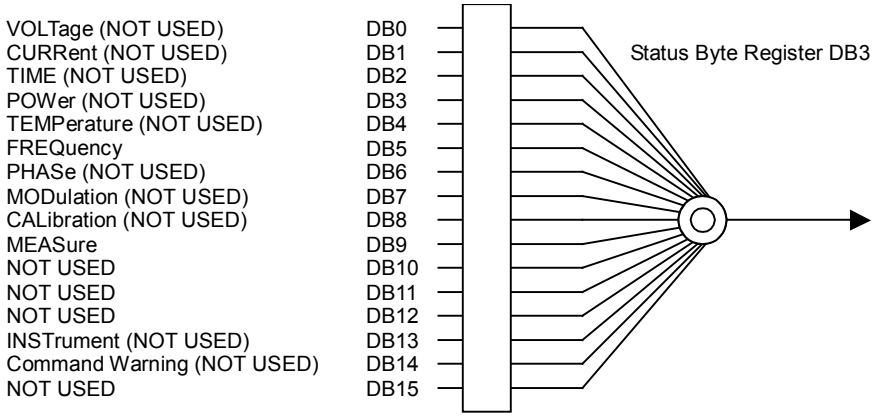

Figure 3.2-1 QUEStionable Status Register

Table 3.2-1 Bit Definition of QUEStionable Status Register

Bit	Definition
DB5	Reference Clock Unlock
DB9	QUEStionable Measure Register Summary

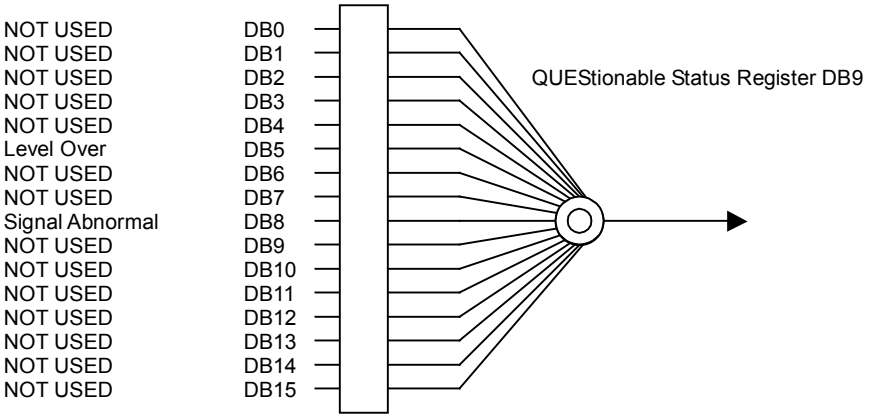

Figure 3.2-2 QUEStionable Measure Register

Table 3.2-2 Bit Definition of QUEStionable Measure Register

Bit	Definition
DB5	Level Over
DB8	Signal Abnormal

Table 3.2-3 lists the device messages for the QUEStionable Status register.

Table 3.2-3 Device Messages for QUEStionable Status Register

Function	Device Message
Questionable Status Register Event	:STATus:QUEStionable[:EVENt]?
Questionable Status Register Condition	:STATus:QUEStionable:CONDition?
Questionable Status Register Enable	:STATus:QUEStionable:ENABle <integer>
	:STATus:QUEStionable:ENABle?
Questionable Status Register Negative Transition	:STATus:QUEStionable:NTRansition <integer>
	:STATus:QUEStionable:NTRansition?
Questionable Status Register Positive Transition	:STATus:QUEStionable:PTRansition <integer>
	:STATus:QUEStionable:PTRansition?
Questionable Measure Register Event	:STATus:QUEStionable:MEASure[:EVENt]?
Questionable Measure Register Condition	:STATus:QUEStionable:MEASure:CONDition?
Questionable Measure Register Enable	:STATus:QUEStionable:MEASure:ENABle <integer>
	:STATus:QUEStionable:MEASure:ENABle?
Questionable Measure Register Negative Transition	:STATus:QUEStionable:MEASure:NTRansition <integer>
	:STATus:QUEStionable:MEASure:NTRansition?
Questionable Measure Register Positive Transition	:STATus:QUEStionable:MEASure:PTRansition <integer>
	:STATus:QUEStionable:MEASure:PTRansition?

:STATus:QUEStionable[:EVENt]?

Questionable Status Register Event

Function

This command queries Event register of QUEStionable Status register.

Query

```
:STATus:QUEStionable[:EVENt]?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit Sum Total of Event Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query event register of QUEStionable Status register.

```
STAT:QUES?
> 0
```

:STATus:QUEStionable:CONDition?

Questionable Status Register Condition

Function

This command queries Condition register of QUEStionable Status register

Query

```
:STATus:QUEStionable:CONDition?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit Sum Total of Condition Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Condition register of QUEStionable Status register.

```
STAT:QUES:COND?
> 0
```

:STATus:QUEStionable:ENABle <integer>

Questionable Status Register Enable

Function

This command sets Event Enable register of QUEStionable Status register.

Command

```
:STATus:QUEStionable:ENABle <integer>
```

Parameter

<integer>		Bit Sum Total of Event Enable Register
	Resolution	1
	Range	0 to 65535

Usage Example

To set value of Event Enable register of QUEStionable Status register to 16.

```
STAT:QUES:ENAB 16
```

:STATus:QUEStionable:ENABle?

Questionable Status Register Enable Query

Function

This command queries Event Enable register of QUEStionable Status register.

Query

```
:STATus:QUEStionable:ENABle?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Event Enable Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Event Enable register of QUEStionable Status register.

```
STAT:QUES:ENAB?
> 16
```

:STATus:QUEStionable:NTRansition <integer>

Questionable Status Register Negative Transition

Function

This command sets transition filter (Negative Transition) of QUEStionable Status register.

Command

```
:STATus:QUEStionable:NTRansition <integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Negative Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To set transition filter (Negative Transition) of QUEStionable Status register to 16.

```
STAT:QUES:NTR 16
```

:STATus:QUEStionable:NTRansition?

Questionable Status Register Negative Transition Query

Function

This command queries transition filter (Negative Transition) of QUEStionable Status register.

Query

```
:STATus:QUEStionable:NTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Negative Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To query transition filter (Negative Transition) of QUEStionable Status register.

```
STAT:QUES:NTR?
> 16
```

:STATus:QUEStionable:PTRansition <integer>

Questionable Status Register Positive Transition

Function

This command sets transition filter (Positive Transition) of QUEStionable Status register.

Command

```
:STATus:QUEStionable:PTRansition <integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Positive Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To set transition filter (Positive Transition) of QUEStionable Status register to 16.

```
STAT:QUES:PTR 16
```

:STATus:QUEStionable:PTRansition?

Questionable Status Register Positive Transition Query

Function

This command queries transition filter (Positive Transition) of QUEStionable Status register.

Query

```
:STATus:QUEStionable:PTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Positive Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To query transition filter (Positive Transition) of QUEStionable Status register.

```
STAT:QUES:PTR?
> 16
```

:STATus:QUEStionable:MEASure[:EVENt]?

Questionable Measure Register Event

Function

This command queries Event register of QUEStionable Measure register.

Query

```
:STATus:QUEStionable:MEASure[:EVENt]?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit Sum Total of Event Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Event register of QUEStionable Measure register.

```
STAT:QUES:MEAS?
> 0
```

:STATus:QUEStionable:MEASure:CONDition?

Questionable Measure Register Condition

Function

This command queries Condition register of QUEStionable Measure register.

Query

```
:STATus:QUEStionable:MEASure:CONDition?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit Sum Total of Condition Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Condition register of QUEStionable Measure register.

```
STAT:QUES:MEAS:COND?
> 0
```

:STATus:QUEStionable:MEASure:ENABle <integer>

Questionable Measure Register Enable

Function

This command sets Event Enable register of QUEStionable Measure register.

Command

```
:STATus:QUEStionable:MEASure:ENABle <integer>
```

Parameter

<integer>		Bit Sum Total of Event Enable Register
	Resolution	1
	Range	0 to 65535

Usage Example

To set a value of Event Enable register of QUEStionable Measure register to 16.

```
STAT:QUES:MEAS:ENAB 16
```

:STATus:QUEStionable:MEASure:ENABle?

Questionable Measure Register Enable Query

Function

This command queries Event Enable register of QUEStionable Measure register.

Query

```
:STATus:QUEStionable:MEASure:ENABle?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Event Enable Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Event Enable register of QUEStionable Measure register.

```
STAT:QUES:MEAS:ENAB?
> 16
```

:STATus:QUEStionable:MEASure:NTRansition <integer>

Questionable Measure Register Negative Transition

Function

This command sets transition filter (Negative Transition) of QUEStionable Measure register.

Command

```
:STATus:QUEStionable:MEASure:NTRansition <integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Negative Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To set transition filter (Negative Transition) of QUEStionable Measure register to 16.

```
STAT:QUES:MEAS:NTR 16
```

:STATus:QUEStionable:MEASure:NTRansition?

Questionable Measure Register Negative Transition Query

Function

This command queries transition filter (Negative Transition) of QUEStionable Measure register.

Query

```
:STATus:QUEStionable:MEASure:NTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Negative Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To query transition filter (Negative Transition) of QUEStionable Measure register.

```
STAT:QUES:MEAS:NTR?
> 16
```

:STATus:QUEStionable:MEASure:PTRansition <integer>

Questionable Measure Register Positive Transition

Function

This command sets transition filter (Positive Transition) of QUEStionable Measure register.

Command

```
:STATus:QUEStionable:MEASure:PTRansition <integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Positive Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To set transition filter (Positive Transition) of QUEStionable Measure register to 16.

```
STAT:QUES:MEAS:PTR 16
```

:STATus:QUEStionable:MEASure:PTRansition?

Questionable Measure Register Positive Transition Query

Function

This command queries transition filter (Positive Transition) of QUEStionable Measure register.

Query

```
:STATus:QUEStionable:MEASure:PTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Positive Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To query transition filter (Positive Transition) of QUEStionable Measure register.

```
STAT:QUES:MEAS:PTR?
> 16
```

3.3 STATus:OPERation Register

The hierarchical structure of the OPERation Status register is described in Figure 3.3-1 and Table 3.3-1.

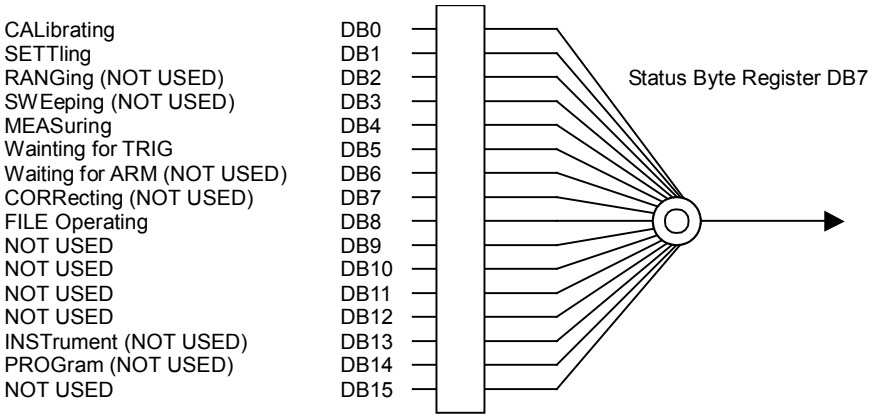

Figure 3.3-1 OPERation Status Register

Table 3.3-1 Bit Definition for OPERation Status Register

Bit	Definition
DB0	CAL Executed
DB1	Warm-up displayed
DB4	Capture executed (Always 1 at Continuous measurement)
DB5	Waiting for trigger signal
DB8	Operating on file

Table 3.3-2 lists the device messages for the OPERation status register.

Table 3.3-2 Device Messages for OPERation Status Register

Function	Device Message
Operation Status Register Event	`:STATus:OPERation[:EVENt]?`
Operation Status Register Condition	`:STATus:OPERation:CONDition?`
Operation Status Register Enable	`:STATus:OPERation:ENABle <integer>`
	`:STATus:OPERation:ENABle?`
Operation Status Register Negative Transition	`:STATus:OPERation:NTRansition <integer>`
	`:STATus:OPERation:NTRansition?`
Operation Status Register Positive Transition	`:STATus:OPERation:PTRansition <integer>`
	`:STATus:OPERation:PTRansition?`

:STATus:OPERation[:EVENt]?

Operation Status Register Event

Function

This command queries Event register of OPERation Status register.

Query

```
:STATus:OPERation[:EVENt]?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit Sum Total of Event Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Event register of OPERation Status register.

```
STAT:OPER?
> 0
```

:STATus:OPERation:CONDition?

Operation Status Register Condition

Function

This command queries Event register of OPERation Condition register.

Query

```
:STATus:OPERation:CONDition?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit Sum Total of Condition Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Event register of OPERation Condition register.

```
STAT:OPER:COND?
> 0
```

:STATus:OPERation:ENABle <integer>

Operation Status Register Enable

Function

This command sets Event Enable register of OPERation Status register.

Command

```
:STATus:OPERation:ENABle <integer>
```

Parameter

<integer>		Bit Sum Total of Event Enable Register
	Resolution	1
	Range	0 to 65535

Usage Example

To set Event Enable register of OPERation Status register to 16.

```
STAT:OPER:ENAB 16
```

:STATus:OPERation:ENABle?

Operation Status Register Enable Query

Function

This command queries Event Enable register of OPERation Status register.

Query

```
:STATus:OPERation:ENABle?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Event Enable Register
	Resolution	1
	Range	0 to 65535

Usage Example

To query Event Enable register of OPERation Status register.

```
STAT:OPER:ENAB?
> 16
```

:STATus:OPERation:NTRansition <integer>

Operation Status Register Negative Transition

Function

This command sets transition filter (Negative Transition) of OPERation Status register.

Command

```
:STATus:OPERation:NTRansition <integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Negative Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To set transition filter (Negative Transition) of OPERation Status register to 16.

```
STAT:OPER:NTR 16
```

:STATus:OPERation:NTRansition?

Operation Status Register Negative Transition Query

Function

This command queries transition filter (Negative Transition) of OPERation Status register.

Query

```
:STATus:OPERation:NTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Negative Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To query transition filter (Negative Transition) of OPERation Status register.

```
STAT:OPER:NTR?
> 16
```

:STATus:OPERation:PTRansition <integer>

Operation Status Register Positive Transition

Function

This command sets transition filter (Positive Transition) of OPERation Status register.

Command

```
:STATus:OPERation:PTRansition <integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Positive Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To set transition filter (Positive Transition) of OPERation Status register to 16.

```
STAT:OPER:PTR 16
```

:STATus:OPERation:PTRansition?

Operation Status Register Positive Transition Query

Function

This command queries transition filter (Positive Transition) of OPERation Status register.

Query

```
:STATus:OPERation:PTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit Sum Total of Transition Filter (Positive Transition)
	Resolution	1
	Range	0 to 65535

Usage Example

To query transition filter (Positive Transition) of OPERation Status register.

```
STAT:OPER:PTR?
> 16
```