MX285051A-011/MX269051A-011
NR TDD sub-6GHz Downlink
MX285051A-021 NR TDD mmWave Downlink
MX285051A-061/MX269051A-061
NR TDD sub-6GHz Uplink
MX285051A-071 NR TDD mmWave Uplink
Operation Manual
Remote Control

Sixth 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 MS2850A Signal Analyzer Operation Manual (Mainframe Operation) or MS2690A/MS2691A/ MS2692A Signal Analyzer Operation Manual (Mainframe Operation), MX285051A/MX269051A 5G Standard Measurement Software (Base License) Operation Manual and MX285051A-011/ MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink / MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Operation Manual (Operation). Please also refer to them before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

Document No.: M-W3964AE-6.0

Safety Symbols

To prevent the risk of personal injury or loss related to equipment malfunction, Anritsu Corporation uses the following safety symbols to indicate safety-related information. Ensure that you clearly understand the meanings of the symbols BEFORE using the equipment. Some or all of the following symbols may be used on all Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

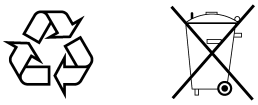
Symbols used in manual

⚠ **DANGER**	This indicates a very dangerous procedure that could result in serious injury or death if not performed properly.
⚠ **WARNING**	This indicates a hazardous procedure that could result in serious injury or death if not performed properly.
⚠ **CAUTION**	This indicates a hazardous procedure or danger that could result in light-to-severe injury, or loss related to equipment malfunction, if proper precautions are not taken.

Safety Symbols Used on Equipment and in Manual

The following safety symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions BEFORE using the equipment.

⃠	This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.
○	This indicates an obligatory safety precaution. The obligatory operation is indicated symbolically in or near the circle.
△	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.

MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink
MX285051A-021 NR TDD mmWave Downlink
MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink
MX285051A-071 NR TDD mmWave Uplink
Operation Manual Remote Control

23 March 2018 (First Edition)
31 October 2019 (Sixth Edition)

Printed in Japan

Notes On Export Management

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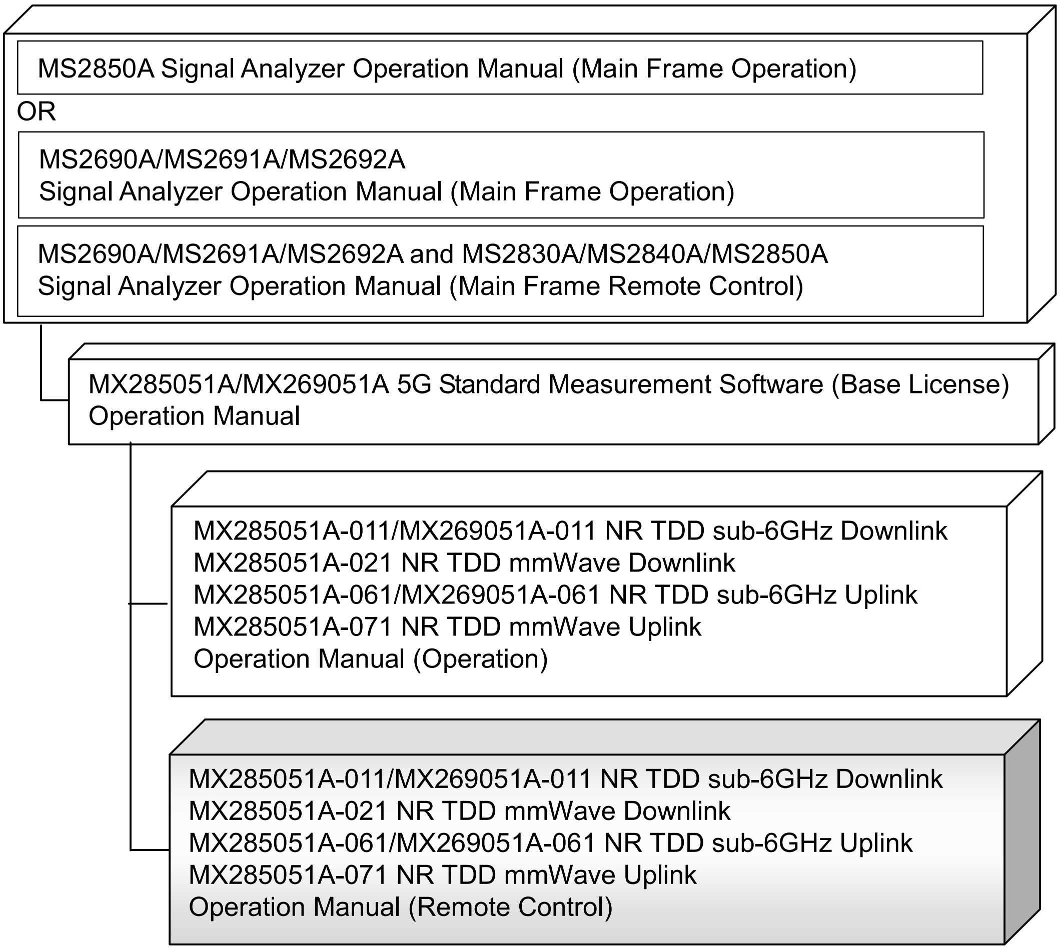
Before re-exporting the product or manuals, please contact us to confirm whether they are export-controlled items or not.

When you dispose of export-controlled items, the products/manuals need to be broken/shredded so as not to be unlawfully used for military purpose.

About This Manual

■ Composition of Operation Manuals

The operation manuals for the
MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink
MX285051A-021 NR TDD mmWave Downlink
MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink
MX285051A-071 NR TDD mmWave Uplink
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.

- 5G Standard Measurement Software (Base License) Operation Manual

This manual describes operating methods of the 5G Standard (Base License) Measurement Software.

- MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink
  MX285051A-021 NR TDD mmWave Downlink
  MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink
  MX285051A-071 NR TDD mmWave Uplink
  Operation Manual (Operation)

This manual describes basic operating methods, and functions.
As for signal analyzer hardware and its basic functions and operation outline, refer to *MS2850A Signal Analyzer Operation Manual (Mainframe Operation) or MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation)*.

- MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink
  MX285051A-021 NR TDD mmWave Downlink
  MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink
  MX285051A-071 NR TDD mmWave Uplink
  Operation Manual (Remote Control) <This document>

This manual describes remote control.
As for signal analyzer application's basic remote control functions and its definitions of common commands, refer to *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control)*.

Convention Used in This Manual

Throughout this document, the use of MS2850A is assumed unless otherwise specified. If using with MS269x Series, "MX285051A-011 and MX285051A-061" should be read as "MX269051A-011 and MX269051A-061".

In this manual, "*MX285051A-011 Operation Manual (Operation)*" indicates the following:
MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink
MX285051A-021 NR TDD mmWave Downlink
MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink
MX285051A-071 NR TDD mmWave Uplink
Operation Manual (Operation)

Table of Contents

Chapter 1 Outline

This chapter outlines the remote control of the MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink, MX285051A-021 NR TDD mmWave Downlink, MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink, and MX285051A-071 NR TDD mmWave Uplink (hereinafter, referred to as “this application”).

1.1 Outline

This application can be controlled from an external controller (PC) by remote control commands using the MS2850A or MS269xA Signal Analyzer (hereafter referred to as “this instrument”). 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/MS2840A /MS2850A 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 Option.

1.2 Basic Flow of Control

This section explains the basic remote control command programming for measuring the NR TDD Downlink and NR TDD Uplink signals using this application.

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).

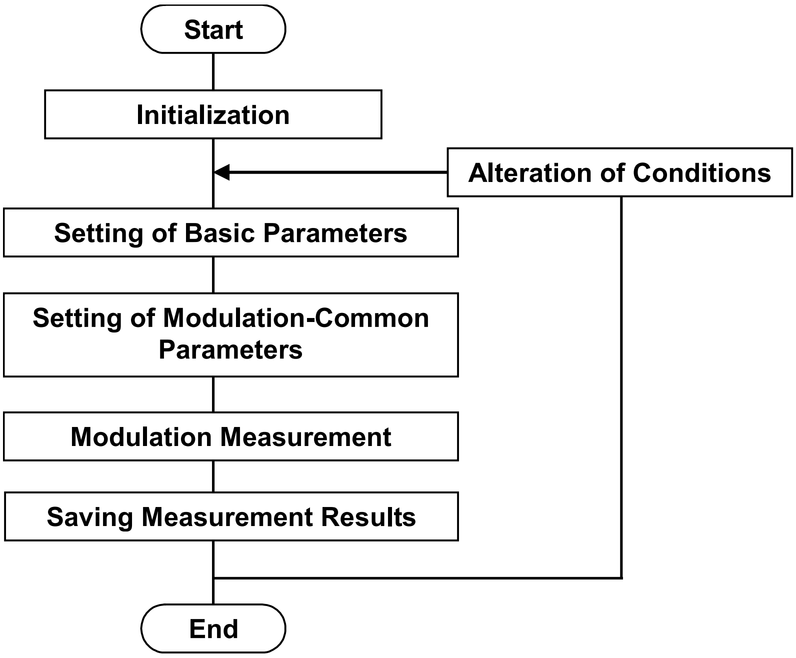


Figure 1.2-1 Flow of Basic Test

(1) Initialization

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

Refer to 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.

Refer to 1.2.2 “Setting of Basic Parameters”

(3) Setting of Modulation-Common Parameters

The parameters used in common by the modulation measurement function to be executed in this application are set. These parameters are used to set a trigger, modulation mode, bandwidth, and other items.

Refer to 1.2.3 “Setting of Modulation-Common Parameters”

(4) Modulation Measurement

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.

Refer to 1.2.4 “Modulation Measurement”

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.

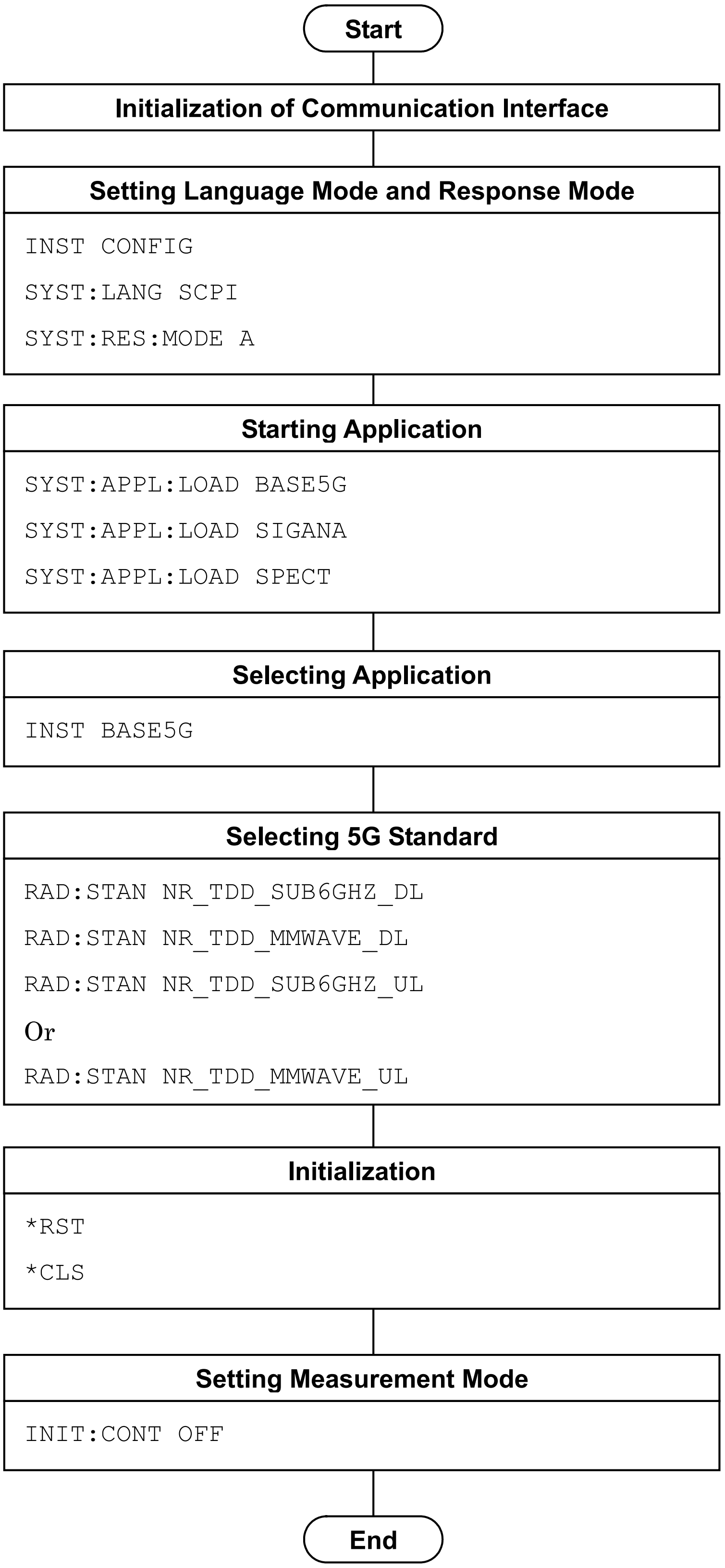
(2) Setting Language Mode and Response Mode
The language mode and the response mode used to communicate are set. Refer to the *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control)* for details about the language mode and response mode.

(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.



```
INST CONFIG
SYST:LANG SCPI
SYST:RES:MODE A
```

```
SYST:APPL:LOAD BASE5G
SYST:APPL:LOAD SIGANA
SYST:APPL:LOAD SPECT
```

```
INST BASE5G
```

```
RAD:STAN NR_TDD_SUB6GHZ_DL
RAD:STAN NR_TDD_MMWAVE_DL
RAD:STAN NR_TDD_SUB6GHZ_UL
Or
RAD:STAN NR_TDD_MMWAVE_UL
```

```
*RST
*CLS
```

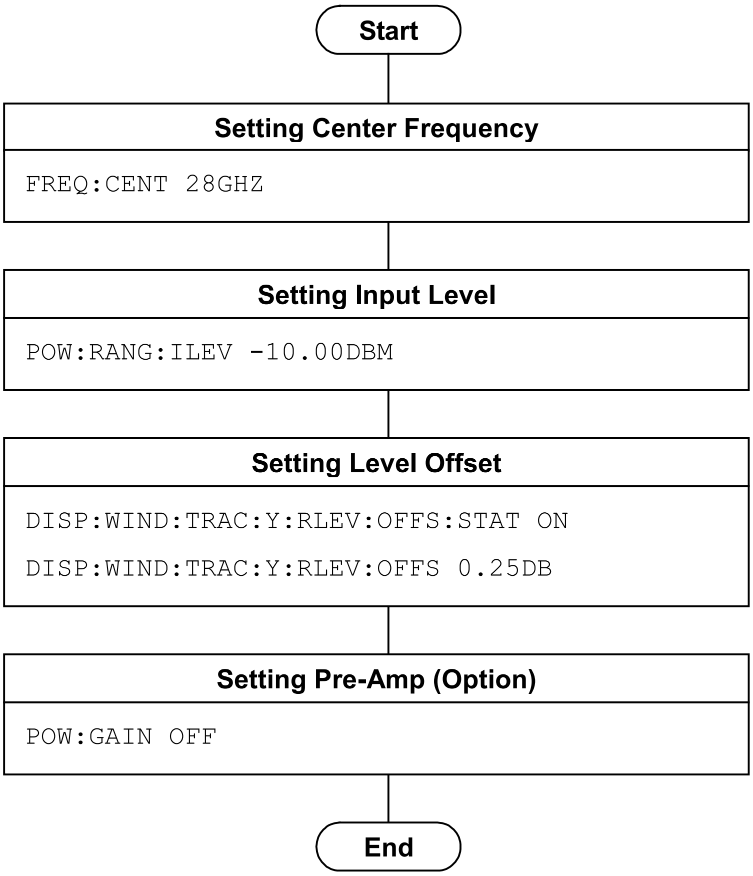
```
INIT:CONT OFF
```

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



```
FREQ:CENT 28GHZ
```

```
POW:RANG:ILEV -10.00DBM
```

```
DISP:WIND:TRAC:Y:RLEV:OFFS:STAT ON
DISP:WIND:TRAC:Y:RLEV:OFFS 0.25DB
```

```
POW:GAIN OFF
```

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

1.2.3 Setting of Modulation-Common Parameters

Set the parameters used in common for the Modulation measurement functions executed in this application. **Standard** should be set first, and after that, there is no specific parameter setting order unless specified.

Set the following parameters to analyze single carrier signal when Standard is NR TDD sub-6GHz Downlink.

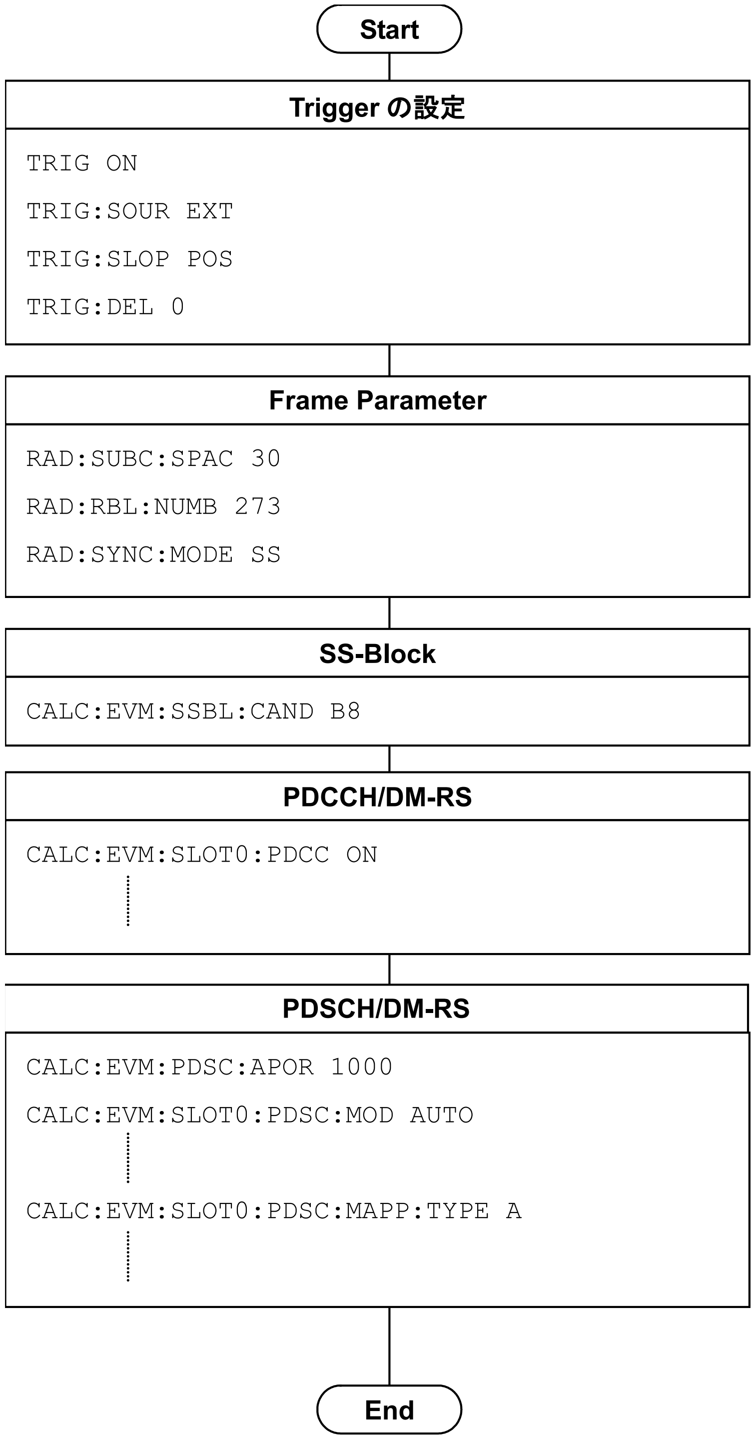
(1) Trigger
  (a) Trigger Switch
  (b) Trigger Source
  (c) Trigger Slope
  (d) Trigger Delay

(2) Frame Parameter
  (a) Subcarrier Spacing
  (b) Number of RBs
  (c) Synchronization Mode

(3) SS-Block
  (a) SS-Block Candidate

(4) PDCCH/DM-RS (This parameter can be set at each slot.)
  (a) Enable

(5) PDSCH/DM-RS (This parameter can be set at each slot.)
  (a) Antenna Port
  (b) Modulation Scheme
  (c) PDSCH Mapping Type



```
TRIG ON
TRIG:SOUR EXT
TRIG:SLOP POS
TRIG:DEL 0
```

```
RAD:SUBC:SPAC 30
RAD:RBL:NUMB 273
RAD:SYNC:MODE SS
```

```
CALC:EVM:SSBL:CAND B8
```

```
CALC:EVM:SLOT0:PDCC ON
       ⋮
```

```
CALC:EVM:PDSC:APOR 1000
CALC:EVM:SLOT0:PDSC:MOD AUTO
       ⋮
CALC:EVM:SLOT0:PDSC:MAPP:TYPE A
       ⋮
```

Figure 1.2.3-1 Flow of Common Settings for Modulation and Command Example

Set the following parameters to analyze multi carrier signal when Standard is NR TDD sub-6GHz Uplink.

(1) Trigger

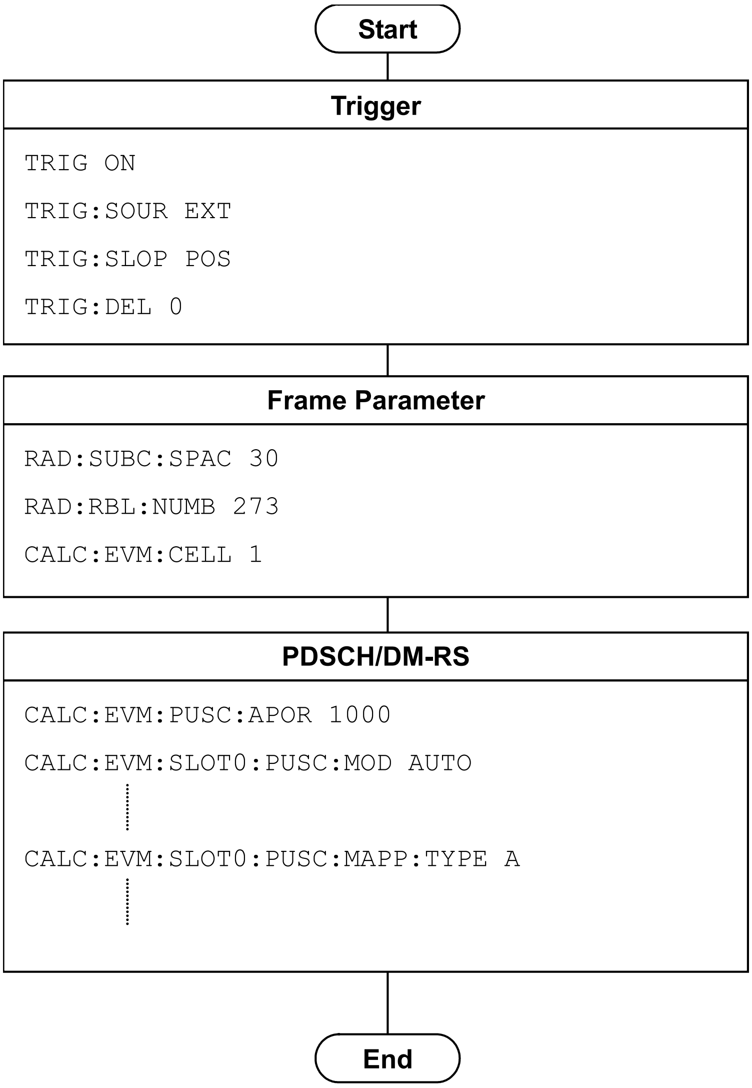
  (a) Trigger Switch
  (b) Trigger Source
  (c) Trigger Slope
  (d) Trigger Delay

(2) Frame Parameter

  (a) Subcarrier Spacing
  (b) Number of RBs
  (c) Cell ID

(3) PUSCH/DM-RS (This parameter can be set at each slot.)

  (a) Antenna Port
  (b) Modulation Scheme
  (c) PUSCH Mapping Type



```
TRIG ON
TRIG:SOUR EXT
TRIG:SLOP POS
TRIG:DEL 0
```

```
RAD:SUBC:SPAC 30
RAD:RBL:NUMB 273
CALC:EVM:CELL 1
```

```
CALC:EVM:PUSC:APOR 1000
CALC:EVM:SLOT0:PUSC:MOD AUTO
      ⋮
CALC:EVM:SLOT0:PUSC:MAPP:TYPE A
      ⋮
```

Figure 1.2.3-2 Flow of Common Settings for Modulation and Command Example

1.2.4 Modulation Measurement

The Modulation measurement is executed in the following order:

(1) Selecting measurement function

(2) Setting measurement parameters
The following parameters are only applied to Modulation measurement:

  (a) Storage

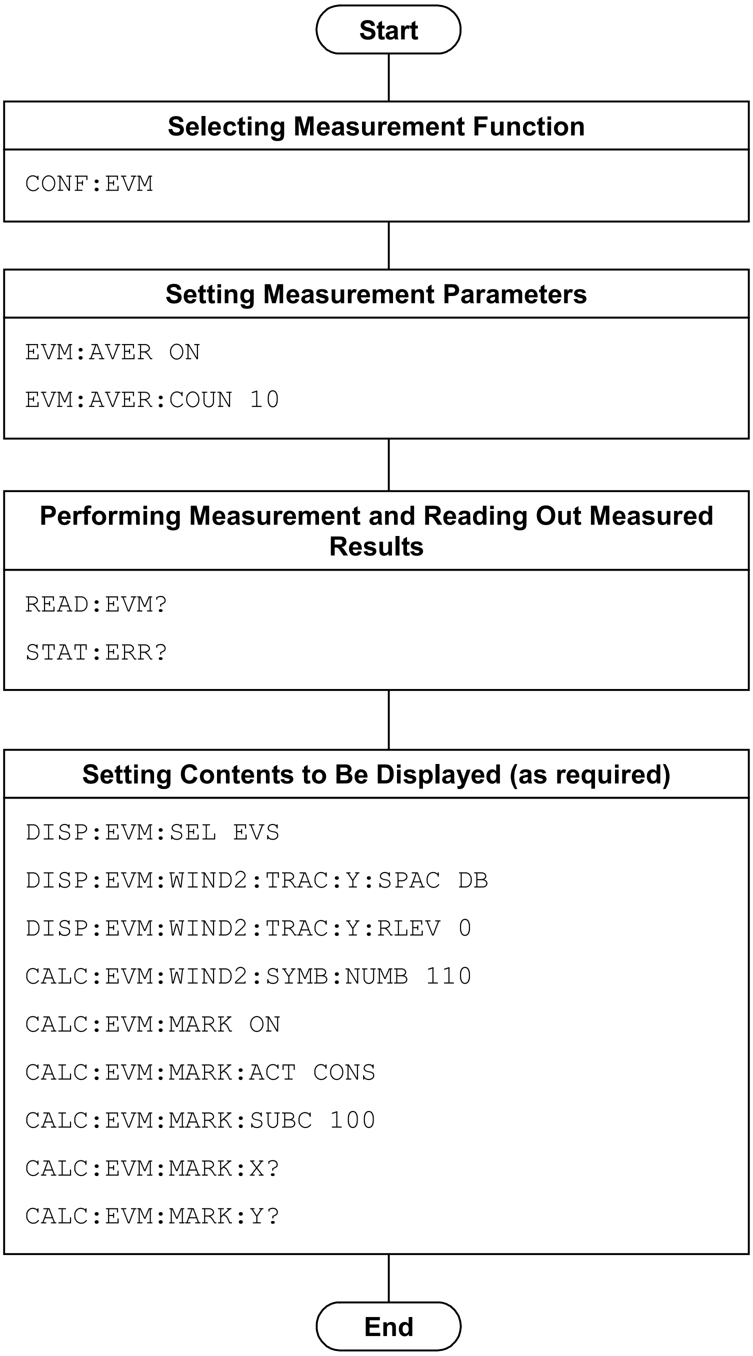
(3) Measuring and reading results

(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) Trace Mode

  (b) Scale

  (c) Marker



```
CONF:EVM
```

```
EVM:AVER ON
EVM:AVER:COUN 10
```

```
READ:EVM?
STAT:ERR?
```

```
DISP:EVM:SEL EVS
DISP:EVM:WIND2:TRAC:Y:SPAC DB
DISP:EVM:WIND2:TRAC:Y:RLEV 0
CALC:EVM:WIND2:SYMB:NUMB 110
CALC:EVM:MARK ON
CALC:EVM:MARK:ACT CONS
CALC:EVM:MARK:SUBC 100
CALC:EVM:MARK:X?
CALC:EVM:MARK:Y?
```

Figure 1.2.4-1 Flow of Modulation Measurement and Command Example

1.3 How to use the Native Mode

In this instrument, types of syntax/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`.

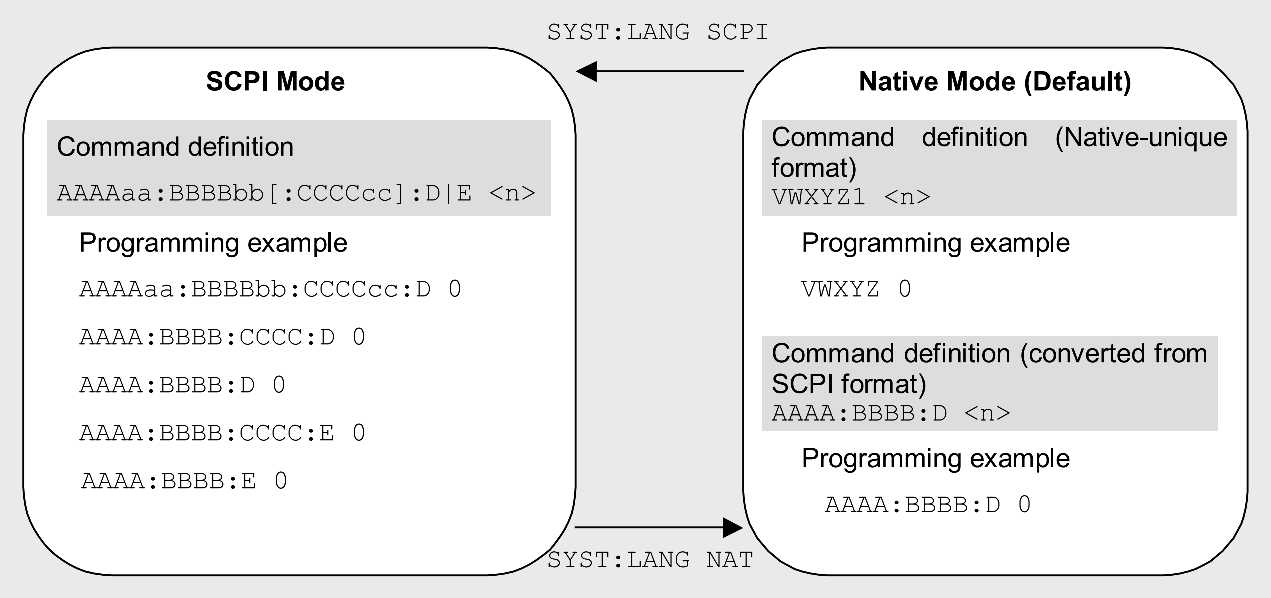
(2) Native Mode

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`.



```
SYST:LANG SCPI
SYST:LANG NAT
```

Command definition

```
AAAAaa:BBBBbb[:CCCCcc]:D|E <n>
```

Programming example

```
AAAAaa:BBBBbb:CCCCcc:D 0
AAAA:BBBB:CCCC:D 0
AAAA:BBBB:D 0
AAAA:BBBB:CCCC:E 0
AAAA:BBBB:E 0
```

Command definition (Native-unique format)

```
VWXYZ1 <n>
```

Programming example

```
VWXYZ 0
```

Command definition (converted from SCPI format)

```
AAAA:BBBB:D <n>
```

Programming example

```
AAAA:BBBB:D 0
```

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 this application. The device messages are listed according to function. Refer to the *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control)* for detailed specifications of the IEEE488.2 common device messages and application common device messages.

2.1 Selecting Application

Table 2.1-1 lists the device messages used for setup applications, such as activation, selection, and initialization of the application.

Table 2.1-1 Device Messages for Selecting Application

Function	Device Message
Load Application	`:SYSTem:APPLication:LOAD BASE5G`
Unload Application	`:SYSTem:APPLication:UNLoad BASE5G`
Application Switch	`:INSTrument[:SELect] BASE5G|CONFIG`
	`:INSTrument[:SELect]?`
Application Status	`:INSTrument:SYSTem BASE5G,[ACTive]|INACtive|MINimum`
	`:INSTrument:SYSTem? BASE5G`
Initialization	`:INSTrument:DEFault`
	`:SYSTem:PRESet`

2.1.1 Loading application

:SYSTem:APPLication:LOAD BASE5G

Load Application

Function

This command loads this application.

Command

```
:SYSTem:APPLication:LOAD BASE5G
```

Details

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

Example of Use

To load this application.

```
SYST:APPL:LOAD BASE5G
```

:SYSTem:APPLication:UNLoad BASE5G

Unload Application

Function

This command exits this application.

Command

```
:SYSTem:APPLication:UNLoad BASE5G
```

Details

This function exits the application being loaded, and removes it from the Application Switch menu.

Example of Use

To exit this application.

```
SYST:APPL:UNL BASE5G
```

2.1.2 Selecting application

:INSTrument[:SELect] BASE5G|CONFIG

Application Switch

Function

This command selects the application to be controlled.

Command

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

Parameter

`<apl_name>`	Application name
`BASE5G`	This application
`CONFIG`	Config

Example of Use

To switch the control target to this application.

```
INST BASE5G
```

:INSTrument[:SELect]?

Application Switch Query

Function

This command queries the application being controlled currently.

Query

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

Response

```
<apl_name>
```

Parameter

`<apl_name>`	Application name
`BASE5G`	This application
`SIGANA`	Signal Analyzer
`SPECT`	Spectrum Analyzer
`CONFIG`	Config

Details

`BASE5G` is returned when a measurement function of this application is selected.

Example of Use

To query the application being controlled.

```
INST?
> BASE5G
```

:INSTrument:SYSTem BASE5G,[ACTive]|INACtive|MINimum

Application Switch And Window Status

Function

This command selects the window status of this application.

Command

`:INSTrument:SYSTem BASE5G,<window>`

Parameter

`<window>`	Window status
`ACTive`	Active
`INACtive`	Inactive
`MINimum`	Minimized

When omitted Active

Example of Use

To set the window status of this application to be active.

```
INST:SYST BASE5G,ACT
```

:INSTrument:SYSTem? BASE5G

Application Switch And Window Status Query

Function

This command queries the window status of this application.

Query

`:INSTrument:SYSTem? BASE5G`

Response

`<status>,<window>`

Parameter

`<status>`	Application status
`CURR`	Activated and controlled
`RUN`	Activated but not controlled
`IDLE`	Loaded but not activated
`UNL`	Unloaded

`<window>`	Window status
`ACTive`	Active
`INACtive`	Inactive
`MINimum`	Minimized
`NON`	Not displayed

Example of Use

To query the window status of this application.

```
INST:SYST? BASE5G
> 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`

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.

See the description of `:INSTrument:DEFault`.

Example of Use

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

`SYST:PRES`

2.2 Setting Basic Parameters

Table 2.2-1 lists the device messages used for setting the basic parameters applied in common to this application, such as frequency and level.

Table 2.2-1 Device Messages for Setting Basic Parameters

Parameter	Device Message
Center Frequency	`[:SENSe]:FREQuency:CENTer <freq>`
	`[:SENSe]:FREQuency:CENTer?`
RF Spectrum	`[:SENSe]:SPECtrum NORMal|REVerse`
	`[:SENSe]:SPECtrum?`
Input Level	`[:SENSe]:POWer[:RF]:RANGe:ILEVel <real>`
	`[:SENSe]:POWer[:RF]:RANGe:ILEVel?`
Auto Range	`[:SENSe]:POWer[:RF]:RANGe:AUTO ONCE`
Attenuator	`[:SENSe]:POWer[:RF]:ATTenuation:AUTO ON|OFF|1|0`
	`[:SENSe]:POWer[:RF]:ATTenuation:AUTO?`
Attenuator Value	`[:SENSe]:POWer[:RF]:ATTenuation <rel_ampl>`
	`[:SENSe]:POWer[:RF]:ATTenuation?`
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]?`
Standard	`[:SENSe]:RADio:STANdard NR_TDD_SUB6GHZ_DL|NR_TDD_MMWAVE_DL |NR_TDD_SUB6GHZ_UL|NR_TDD_MMWAVE_UL`
	`[:SENSe]:RADio:STANdard?`

2.2.1 Center Frequency

[:SENSe]:FREQuency:CENTer <freq>

Center Frequency

Function

This command sets the center frequency for the signal to be measured.

Command

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

Parameter

`<freq>` Center frequency

Range

MS2850A 100 MHz to the upper limit of the main unit

MS269xA See the following table.

Option	077/177	078/178	067/167	Setting frequency range
MS2690A	✓/X	✓/X		100 MHz to 6 GHz
MS2691A	X	X		100 MHz to 13.5 GHz
	✓	✓/X		100 MHz to 6 GHz
MS2692A	X	X	✓/X	100 MHz to 26.5 GHz
	✓	✓/X	✓	100 MHz to 26.5 GHz
	✓	✓/X	X	100 MHz to 6 GHz

✓ : Installed

X : Not installed

✓/X : Installed or Not installed

Resolution	1 Hz
Suffix code	`HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ` Hz is used when omitted.
Default	28 GHz (MS2850A) / 3.75 GHz (MS269xA)

Details

This command is not available when the Replay function is executed.

Example of Use

To set the center frequency to 28.000 GHz.

```
FREQ:CENT 28.000GHZ
```

[:SENSe]:FREQuency:CENTer?

Center Frequency Query

Function

This command queries the center frequency of the measured signal.

Query

`[:SENSe]:FREQuency:CENTer?`

Response

`<freq>`

Parameter

`<freq>` Center frequency

Range

MS2850A 100 MHz to the upper limit of the main unit

MS269xA See the following table.

Option	077/177	078/178	067/167	Setting frequency range
MS2690A	✓/X	✓/X		100 MHz to 6 GHz
MS2691A	X	X		100 MHz to 13.5 GHz
	✓	✓/X		100 MHz to 6 GHz
MS2692A	X	X	✓/X	100 MHz to 26.5 GHz
	✓	✓/X	✓	100 MHz to 26.5 GHz
	✓	✓/X	X	100 MHz to 6 GHz

✓ : Installed

X : Not installed

✓/X : Installed or Not installed

Resolution 1 Hz

Value is returned in Hz units.

Example of Use

To query the center frequency.

```
FREQ:CENT?
> 28000000000
```

2.2.2 RF Spectrum

[:SENSe]:SPECtrum NORMal|REVerse

RF Spectrum

Function

This command sets whether to perform Spectrum Reverse.

Command

`[:SENSe]:SPECtrum <mode>`

Parameter

`<mode>`	Spectrum reverse
`NORMal`	Measures without IQ spectrum reverse. (Default)
`REVerse`	Measures with IQ spectrum reverse.

Example of Use

To enable the Spectrum Reverse function.

```
SPEC NORM
```

[:SENSe]:SPECtrum?

RF Spectrum Query

Function

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

Query

`[:SENSe]:SPECtrum?`

Response

`<mode>`

Parameter

`<mode>`	Spectrum reverse
`NORM`	Measures without IQ spectrum reverse.
`REV`	Measures with IQ spectrum reverse.

Example of Use

To query the spectrum reverse function setting.

```
SPEC?
> NORM
```

2.2.3 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
Unit	1 dBm
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 MS2850A-068/168 Microwave Preamplifier is not installed.

The setting range when Pre Amp is Off is applied if the MS269xA-008/108 Preamplifier is not installed.

This command is not available when the Replay function is executed.

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
```

[:SENSe]:POWer[:RF]:RANGe:AUTO ONCE

Auto Range

Function

This command automatically sets the optimum input level and attenuator according to the input signal.

Command

```
[:SENSe]:POWer[:RF]:RANGe:AUTO ONCE
```

Details

This command is not available when the Replay function is executed.

Example of Use

To adjust the input level and attenuator automatically.

```
POW:RANG:AUTO ONCE
```

2.2.4 Attenuator

[:SENSe]:POWer[:RF]:ATTenuation:AUTO ON|OFF|1|0

RF Attenuator Auto/Manual

Function

This command enables/disables the automatic attenuation setting function.

Command

```
[:SENSe]:POWer[:RF]ATTenuation:AUTO <switch>
```

Parameter

`<switch>`	Automatic attenuation setting function On/Off
`0|OFF`	Disables the automatic attenuation setting function.
`1|ON`	Enables the automatic attenuation setting function (Default).

Details

This command is not available while the Replay function is being executed.

Example of Use

To enable the automatic attenuation setting function.

```
POW:ATT:AUTO ON
```

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

RF Attenuator Auto/Manual Query

Function

This command queries the On/Off state of the automatic attenuation setting function.

Query

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

Response

```
<switch>
```

Parameter

`<switch>`	Automatic mode On/Off
`0`	On
`1`	Off

Example of Use

To query the On/Off state of the automatic attenuation setting function.

```
POW:ATT:AUTO?
> 1
```

2.2.5 Attenuator Value

[:SENSe]:POWer[:RF]:ATTenuation <rel_ampl>

RF Attenuator

Function

This command sets the attenuator.

Command

```
[:SENSe]:POWer[:RF]:ATTenuation <rel_ampl>
```

Parameter

`<rel_ampl>`	Attenuator value
Range	0 to 60 dB
Resolution	2 dB
Suffix code	DB, dB is used when omitted.
Default value	4 dB

Details

This command is not available while the Replay function is being executed.

Example of Use

To set the attenuator to 10 dB.

```
POW:ATT 10
```

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

RF Attenuator Query

Function

This command queries the attenuator value.

Query

```
[:SENSe]:POWer[:RF]:ATTenuation?
```

Response

```
<rel_ampl>
```

Parameter

`<rel_ampl>`	Attenuator value
Range	0 to 60 dB
Resolution	2 dB
Suffix code	None. Value is returned in dB units.

Example of Use

To query the attenuator value.

```
POW:ATT?
> 10
```

2.2.6 Level Offset

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

Level Offset Value

Function

This command sets the offset value for the input level.

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 offset value for the input level 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 queries the offset value of the input level.

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 offset value of the input level.

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

2.2.7 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 input level offset function.

Command

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

Parameter

`<switch>`	Enables/disables input level offset function
`OFF|0`	Disables the input level offset function (Default).
`ON|1`	Enables the input level offset function.

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 setting whether the input level offset function is enabled.

Query

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

Response

```
<switch>
```

Parameter

`<switch>`	Enables/disables input level offset function
`0`	The input level offset function is disabled.
`1`	The input level offset function is enabled.

Example of Use

To query the setting whether the input level offset function is enabled.

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

2.2.8 Pre Amp

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

Pre Amp

Function

This command sets Pre-amp 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 not available in the following situations:

MX269051A: When MS269xA-008/108 is not installed.
MX285051A: When MS2850A-068/168 is not installed.

This command is not available when the Replay function is executed.

Example of Use

To set Pre-amp On.

```
POW:GAIN ON
```

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

Pre Amp Query

Function

This command queries the Pre-amp On/Off state.

Query

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

Response

`<switch>`

Parameter

`<switch>`	Pre-amp On/Off
`0`	Off
`1`	On

Details

MX269051A: When MS269xA-008/108 is not installed, `0` (Pre-amp Off) is returned.
MX285051A: When MS2850A-068/168 is not installed, `0` (Pre-amp Off) is returned.

Example of Use

To query the Pre-amp On/Off state.

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

2.2.9 Standard

[:SENSe]:RADio:STANdard NR_TDD_SUB6GHZ_DL|NR_TDD_MMWAVE_DL|NR_TDD_SUB6GHZ_UL |NR_TDD_MMWAVE_UL

Standard

Function

This command sets the 5G Standard.

Command

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

Parameter

`<mode>`	5G Standard
`NR_TDD_SUB6GHZ_DL`	NR TDD sub-6GHz Downlink
`NR_TDD_MMWAVE_DL`	NR TDD mmWave Downlink
`NR_TDD_SUB6GHZ_UL`	NR TDD sub-6GHz Uplink
`NR_TDD_MMWAVE_UL`	NR TDD mmWave Uplink

Details

NR TDD sub-6GHz Downlink is available only when MX285051A-011 or MX269051A-011 is installed.

NR TDD mmWave Downlink is available only when MX285051A-021 is installed.

NR TDD sub-6GHz Uplink is available only when MX285051A-061 or MX269051A-061 is installed.

NR TDD mmWave Uplink is available only when MX285051A-071 is installed.

Example of Use

To set the 5G Standard to NR TDD sub-6GHz Downlink.

```
RAD:STAN NR_TDD_SUB6GHZ_DL
```

[:SENSe]:RADio:STANdard?

Standard Query

Function

This command queries the 5G Standard setting.

Query

```
[:SENSe]:RADio:STANdard?
```

Response

```
<mode>
```

Parameter

`<mode>`	5G Standard
`NR_TDD_SUB6GHZ_DL`	NR TDD sub-6GHz Downlink
`NR_TDD_MMWAVE_DL`	NR TDD mmWave Downlink
`NR_TDD_SUB6GHZ_UL`	NR TDD sub-6GHz Uplink
`NR_TDD_MMWAVE_UL`	NR TDD mmWave Uplink

Example of Use

To query the 5G Standard setting.

```
RAD:STAN?
> NR_TDD_SUB6GHZ_DL
```

2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

Table 2.3-1 lists the device messages used for the communication system targeted for measurement.

Table 2.3-1　Device Messages for Setting System Parameters

Parameter	Device Message
Test Model	`[:SENSe]:RADio:TMODel <model>`
	`[:SENSe]:RADio:TMODel?`
Test Model Version	`[:SENSe]:RADio:TMODel:VERSion AUTO|201903|201906`
	`[:SENSe]:RADio:TMODel:VERSion?`
Subcarrier Spacing	`[:SENSe]:RADio:SUBCarrier:SPACing 15|30|60|120`
	`[:SENSe]:RADio:SUBCarrier:SPACing?`
Number of RBs	`[:SENSe]:RADio:RBLock:NUMBer <mode>`
	`[:SENSe]:RADio:RBLock:NUMBer?`
Cell ID	`:CALCulate:EVM:CELLid <integer>`
	`:CALCulate:EVM:CELLid?`
Synchronization Mode	`[:SENSe]:RADio:SYNChronization:MODE SS|RS`
	`[:SENSe]:RADio:SYNChronization:MODE?`
Phase Compensation	`[:SENSe]:RADio:PCOMpensation[:STATe] 0|1|ON|OFF`
	`[:SENSe]:RADio:PCOMpensation[:STATe]?`
SS-Block On/Off	`:CALCulate:EVM:SSBLock[:STATe] 0|1|ON|OFF`
	`:CALCulate:EVM:SSBLock[:STATe]?`
SS-Block Candidate	`:CALCulate:EVM:SSBLock:CANDidate A4|A8|B4|B8|C4|C8|D64`
	`:CALCulate:EVM:SSBLock:CANDidate?`
SS-Block Subcarrier Offset	`:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet <integer>`
	`:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet?`
SS-Block RB Offset	`:CALCulate:EVM:SSBLock:RBLock:OFFSet <integer>`
	`:CALCulate:EVM:SSBLock:RBLock:OFFSet?`
SS-Block Periodicity	`:CALCulate:EVM:SSBLock:PERiodicity 10|20`
	`:CALCulate:EVM:SSBLock:PERiodicity?`
SS-Block Analysis Frame Number	`:CALCulate:EVM:SSBLock:ANALysis:FRAMe:NUMBer <integer>`
	`:CALCulate:EVM:SSBLock:ANALysis:FRAMe:NUMBer?`

Table 2.3-1 Device Messages for Setting System Parameters (Cont'd)

Parameter	Device Message
SS-Block Transmission	:CALCulate:EVM:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] <switch>
	:CALCulate:EVM:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe]?
	:CALCulate:EVM:SSBLock:TRANsmission[:STATe] OFF|ON|0|1
PDCCH/DM-RS On/Off	:CALCulate:EVM:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1
	:CALCulate:EVM:SLOT[0]|1|…|79:PDCCh[:STATe]?
	:CALCulate:EVM:PDCCh[:STATe] OFF|ON|0|1
PDSCH/DM-RS On/Off	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1
	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe]?
	:CALCulate:EVM:PDSCh[:STATe] OFF|ON|0|1
PDSCH/DM-RS Antenna Port	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003
	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:APORt?
	:CALCulate:EVM:PDSCh:APORt 1000|1001|1002|1003
PDSCH Modulation Scheme	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO
	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MODulation?
	:CALCulate:EVM:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO
PDSCH Mapping Type	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B
	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE?
	:CALCulate:EVM:PDSCh:MAPPing:TYPE A|B
PDSCH Start Symbol	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer>
	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:STARt?
	:CALCulate:EVM:PDSCh:SYMBol:STARt <integer>
PDSCH Number of Symbols	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer>
	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth?
	:CALCulate:EVM:PDSCh:SYMBol:LENGth <integer>
PDSCH Power Boosting (Auto/Manual)	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1
	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO?
	:CALCulate:EVM:PDSCh:POWer:AUTO OFF|ON|0|1
PDSCH Power Boosting	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting <rel_power>
	:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting?
	:CALCulate:EVM:PDSCh:POWer:BOOSting <rel_power>
PDSCH DM-RS typeA-pos	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>
	:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition?
	:CALCulate:EVM:PDSCh:MAPPing:DMRS:APOSition <integer>

Table 2.3-1 Device Messages for Setting System Parameters (Cont'd)

<table>
<tr><th>Parameter</th><th>Device Message</th></tr>
<tr><td rowspan="3">PDSCH DM-RS type A-pos</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:MAPPing:DMRS:APOSition <integer></td></tr>
<tr><td rowspan="3">PDSCH DM-RS add-pos</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:DMRS:APOSition <integer></td></tr>
<tr><td rowspan="3">PDSCH DM-RS CDM Group Without Data</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:CDM 1|2</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:CDM?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:DMRS:CDM 1|2</td></tr>
<tr><td rowspan="3">PDSCH PTRS</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td rowspan="3">PDSCH PTRS Time Density</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td rowspan="3">PDSCH PTRS Freq. Density</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency 2|4</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:PTRS:DENSity:FREQuency 2|4</td></tr>
<tr><td rowspan="3">PDSCH PTRS RE Offset</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet 00|01|10|11</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:PTRS:OFFSet 00|01|10|11</td></tr>
<tr><td rowspan="3">PDSCH RBs Allocation Auto Detect</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:RBLock:AUTO 0|1|ON|OFF</td></tr>
<tr><td rowspan="3">PDSCH RBs Allocation Start RB</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:STARt?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:RBLock:STARt <integer></td></tr>
<tr><td rowspan="3">PDSCH RBs Allocation Number of RBs</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth?</td></tr>
<tr><td>:CALCulate:EVM:PDSCh:RBLock:LENGth <integer></td></tr>
</table>

Table 2.3-1 Device Messages for Setting System Parameters (Cont'd)

<table>
<tr><th>Parameter</th><th>Device Message</th></tr>
<tr><td rowspan="2">Test Model TDD Configuration</td><td>:CALCulate:EVM:TMODel:TDDConfig:AUTO OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:TMODel:TDDConfig:AUTO?</td></tr>
<tr><td rowspan="2">DL Slot No. for Synchronization</td><td>:CALCulate:EVM:TMODel:TDDConfig:SYNC:SLOT <integer></td></tr>
<tr><td>:CALCulate:EVM:TMODel:TDDConfig:SYNC:SLOT?</td></tr>
<tr><td rowspan="2">Number of DL Symbols in Special Slots</td><td>:CALCulate:EVM:TMODel:TDDConfig:SSLot:SYMBol:LENGth <integer></td></tr>
<tr><td>:CALCulate:EVM:TMODel:TDDConfig:SSLot:SYMBol:LENGth?</td></tr>
<tr><td rowspan="3">Test Model TDD Configuration Slot Types</td><td>:CALCulate:EVM:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE D|U|S</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE ?</td></tr>
<tr><td>:CALCulate:EVM:TMODel:TDDConfig:SLOT:TYPE D|U|S</td></tr>
<tr><td rowspan="2">Equalizer Use Data</td><td>[:SENSe]:EVM:RADio:EQUalizer:DATA 0|1|ON|OFF</td></tr>
<tr><td>[:SENSe]:EVM:RADio:EQUalizer:DATA?</td></tr>
<tr><td rowspan="2">Amplitude Tracking</td><td>:CALCulate:EVM:TRACK:AMPLitude[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:TRACK:AMPLitude[:STATe]?</td></tr>
<tr><td rowspan="2">Phase Tracking</td><td>:CALCulate:EVM:TRACK:PHASe[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:TRACK:PHASe[:STATe]?</td></tr>
<tr><td rowspan="2">Timing Tracking</td><td>:CALCulate:EVM:TRACK:TIMing[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:TRACK:TIMing[:STATe]?</td></tr>
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<tr><td>[:SENSe]:EVM:RADio:NCARrier?</td></tr>
<tr><td rowspan="2">Reference Carrier</td><td>[:SENSe]:EVM:RADio:CARRier <integer></td></tr>
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<tr><td rowspan="2">Frequency Offset</td><td>:CALCulate:EVM:FREQuency:OFFSet <rel_frequency_offset_Hz></td></tr>
<tr><td>:CALCulate:EVM:FREQuency:OFFSet?</td></tr>
<tr><td rowspan="2">Multicarrier Filter</td><td>:CALCulate:EVM:MCARrier:FILTer[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:MCARrier:FILTer[:STATe]?</td></tr>
<tr><td rowspan="2">EVM Window</td><td>:CALCulate:EVM:EWINdow[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:EWINdow[:STATe]?</td></tr>
<tr><td rowspan="2">DC Cancellation</td><td>:CALCulate:EVM:DC:CANCel[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:DC:CANCel[:STATe]?</td></tr>
</table>

2.3.1 Test Model

[:SENSe]:RADio:TMODel <model>

Test Model

Function

This command sets the Test Model.

Command

```
[:SENSe]:RADio:TMODel <model>
```

Parameter

`<model>`	Test Model
Standard: NR TDD sub-6GHz Downlink	
`OFF`	OFF (Default)
`FR1_TM1_1`	NR-FR1-TM1.1
`FR1_TM1_2`	NR-FR1-TM1.2
`FR1_TM2`	NR-FR1-TM2
`FR1_TM2A`	NR-FR1-TM2a
`FR1_TM3_1`	NR-FR1-TM3.1
`FR1_TM3_1A`	NR-FR1-TM3.1a
`FR1_TM3_2`	NR-FR1-TM3.2
`FR1_TM3_3`	NR-FR1-TM3.3
Standard: NR TDD mmWave Downlink	
`OFF`	OFF (Default)
`FR2_TM1_1`	NR-FR2-TM1.1
`FR2_TM2`	NR-FR2-TM2
`FR2_TM3_1`	NR-FR2-TM3.1

Details

The selectable Test Model varies depending on the Standard.

Example of Use

To set the Test Model to FR1_TM3_1.

```
RAD:TMOD FR1_TM3_1
```

[:SENSe]:RADio:TMODel?

Test Model Query

Function

This command queries the setting of Test Model.

Query

`[:SENSe]:RADio:TMODel?`

Response

`<model>`

Parameter

`<model>`	Test Model
Standard: NR TDD sub-6GHz Downlink	
`OFF`	OFF (Default)
`FR1_TM1_1`	NR-FR1-TM1.1
`FR1_TM1_2`	NR-FR1-TM1.2
`FR1_TM2`	NR-FR1-TM2
`FR1_TM2A`	NR-FR1-TM2a
`FR1_TM3_1`	NR-FR1-TM3.1
`FR1_TM3_1A`	NR-FR1-TM3.1a
`FR1_TM3_2`	NR-FR1-TM3.2
`FR1_TM3_3`	NR-FR1-TM3.3
Standard: NR TDD mmWave Downlink	
`OFF`	OFF (Default)
`FR2_TM1_1`	NR-FR2-TM1.1
`FR2_TM2`	NR-FR2-TM2
`FR2_TM3_1`	NR-FR2-TM3.1

Example of Use

To query the setting of Test Model.

```
RAD:TMOD?
> FR1_TM3_1
```

2.3.2 Test Model Version

[:SENSe]:RADio:TMODel:VERSion AUTO|201903|201906

Test Model version

Function

This command specifies the version of 3GPP TS 38.141 when the input signal is the test model compliant to the 3GPP TS 38.141.

Command

```
[:SENSe]:RADio:TMODel:VERSion <model>
```

Parameter

`<model>`	Test Model Version
`AUTO`	Automatic detection of the input signal test model version (Default)
`201903`	TS 38.141 V15.1.0 (2019-03)
`201906`	TS 38.141 V15.2.0 (2019-06)

Example of Use

To set the Test Model Version to TS 38.141 V15.2.0 (2019-06).

```
RAD:TMOD:VERS 201906
```

[:SENSe]:RADio:TMODel:VERSion?

Test Model Version Query

Function

This command queries the test model version.

Query

```
[:SENSe]:RADio:TMODel:VERSion?
```

Response

```
<model>
```

Parameter

`<model>`	Test Model Version
`AUTO`	Automatic detection of the input signal test model version (Default)
`201903`	TS 38.141 V15.1.0 (2019-03)
`201906`	TS 38.141 V15.2.0 (2019-06)

Example of Use

To query the setting of Test Model Version.

```
RAD:TMOD:VERS?
> 201906
```

2.3.3 Subcarrier Spacing

[:SENSe]:RADio:SUBCarrier:SPACing 15|30|60|120

Subcarrier Spacing

Function

This command sets the subcarrier spacing.

Command

```
[:SENSe]:RADio:SUBCarrier:SPACing <mode>
```

Parameter

`<mode>`	Subcarrier spacing
Standard: NR TDD sub-6GHz Downlink	
`15`	15 kHz
`30`	30 kHz (Default)
`60`	60 kHz
Standard: NR TDD mmWave Downlink	
`60`	60 kHz
`120`	120 kHz (Default)

Details

The selectable subcarrier spacing varies depending on the Standard.

Example of Use

To set the subcarrier spacing to 30 kHz.

```
RAD:SUBC:SPAC 30
```

[:SENSe]:RADio:SUBCarrier:SPACing?

Subcarrier Spacing Query

Function

This command queries the setting of subcarrier spacing.

Query

```
[:SENSe]:RADio:SUBCarrier:SPACing?
```

Response

```
<mode>
```

Parameter

`<mode>`	Subcarrier spacing
Standard: NR TDD sub-6GHz Downlink	
`15`	15 kHz
`30`	30 kHz
`60`	60 kHz
Standard: NR TDD mmWave Downlink	
`60`	60 kHz
`120`	120 kHz

Example of Use

To query the setting of subcarrier spacing.

```
RAD:SUBC:SPAC?
> 30
```

2.3.4 Number of RBs

[:SENSe]:RADio:RBLock:NUMBer <mode>

Number of RBs

Function

This command sets the number of resource blocks for the measurement target signal.

Command

```
[:SENSe]:RADio:RBLock:NUMBer <mode>
```

Parameter

`<mode>`	Number of resource blocks	`<mode>`	Number of resource blocks
`11`	11	`107`	107
`18`	18	`121`	121
`24`	24	`132`	132
`25`	25	`133`	133
`31`	31	`135`	135
`32`	32	`160`	160
`38`	38	`162`	162
`51`	51	`189`	189
`52`	52	`216`	216
`65`	65	`217`	217
`66`	66	`245`	245
`78`	78	`264`	264
`79`	79	`270`	270
`93`	93	`273`	273
`106`	106		

Details

The numbers of resource blocks that can be set at each subcarrier spacing are listed below.

Subcarrier Spacing	Number of Resource Blocks That Can be Set
15 kHz	25, 52, 79, 106, 133, 160*1, 216*1, 270*1 (Default)
30 kHz	11, 24, 38, 51, 65, 78*1, 106*1, 133*1, 162*2, 189*2, 217*2, 245*2, 273*2 (Default)
60 kHz MX285051A-011 /MX269051A-011	11, 18, 24, 31, 38*1, 51*1, 65*1, 79*2, 93*2, 107*2, 121*2, 135*2 (Default)
60 kHz MX285051A-021	66, 132, 264 (Default)
120 kHz	32, 66, 132 (Default), 264*3

*1: For MS269xA, this can be selected when MS269xA-077/177 is installed.

*2: For MS269xA, this can be selected when MS269xA-078/178 is installed.

*3: For MS2850A, this can be selected when MS2850A-033/133 is installed.

Example of Use

To set the number of resource blocks for the measurement target signal to 273.

```
RAD:RBL:NUMB 273
```

[:SENSe]:RADio:RBLock:NUMBer?

Number of RBs Query

Function

This command queries the number of resource blocks for the measurement target signal.

Query

```
[:SENSe]:RADio:RBLock:NUMBer?
```

Response

```
<mode>
```

Parameter

`<mode>`	Number of resource blocks	`<mode>`	Number of resource blocks
11	11	107	107
18	18	121	121
24	24	132	132
25	25	133	133
31	31	135	135
32	32	160	160
38	38	162	162
51	51	189	189
52	52	216	216
65	65	217	217
66	66	245	245
78	78	264	264
79	79	270	270
93	93	273	273
106	106		

Example of Use

To query the number of resource blocks for the measurement target signal.

```
RAD:RBL:NUMB?
> 273
```

2.3.5 Cell ID

CALCulate:EVM:CELLid <integer>

Cell ID

Function

This command sets the Cell ID for Modulation Analysis.

Command

```
CALCulate:EVM:CELLid <integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1
Suffix code	None
Default	0

Details

This command is not available when the Synchronization Mode is Synchronization Signal.

Example of Use

To set the Cell ID to 1.

```
CALC:EVM:CELL 1
```

CALCulate:EVM:CELLid?

Cell ID Query

Function

This command queries the Cell ID for Modulation Analysis.

Query

```
CALCulate:EVM:CELLid?
```

Response

```
<integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1

Example of Use

To query the Cell ID.

```
CALC:EVM:CELL?
> 1
```

2.3.6 Synchronization Mode

[:SENSe]:RADio:SYNChronization:MODE SS|RS

Synchronization Mode

Function

This command sets the Synchronization Mode for Modulation Analysis.

Command

```
[:SENSe]:RADio:SYNChronization:MODE <mode>
```

Parameter

`<mode>`	Synchronization Mode
`SS`	Synchronization Signal (Default)
`RS`	Reference Signal

Example of Use

To set the Synchronization Mode to SS.

```
RAD:SYNC:MODE SS
```

[:SENSe]:RADio:SYNChronization:MODE?

Synchronization Mode Query

Function

This command queries the Synchronization Mode for Modulation Analysis.

Query

```
[:SENSe]:RADio:SYNChronization:MODE?
```

Response

```
<mode>
```

Parameter

`<mode>`	Synchronization Mode
`SS`	Synchronization Signal
`RS`	Reference Signal

Example of Use

To query the Synchronization Mode.

```
RAD:SYNC:MODE?
> SS
```

2.3.7 Phase Compensation

[:SENSe]:RADio:PCOMpensation[:STATe] 0|1|ON|OFF

Phase Compensation

Function

This command enables (On) or disables (Off) Phase Compensation for Modulation Analysis.

Command

```
[:SENSe]:RADio:PCOMpensation[:STATe] <switch>
```

Parameter

`<switch>`	Enables (On) or disables (Off)
`OFF|0`	Disable
`ON|1`	Enable (Default)

Example of Use

To enable Phase Compensation.

```
RAD:PCOM ON
```

[:SENSe]:RADio:PCOMpensation[:STATe]?

Phase Compensation Query

Function

This command queries the On/Off status of Phase Compensation for Modulation Analysis.

Query

```
[:SENSe]:RADio:PCOMpensation[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Enables (On) or disables (Off)
`0`	Disable
`1`	Enable

Example of Use

To query the On/Off status of Phase Compensation.

```
RAD:PCOM?
> 1
```

2.3.8 SS-Block On/Off

:CALCulate:EVM:SSBLock[:STATe] 0|1|ON|OFF

SS-Block On/Off

Function

This command sets whether to include SS-Block in the measurement target (On/Off).

Command

```
:CALCulate:EVM:SSBLock[:STATe] <switch>
```

Parameter

`<switch>`	SS-Block is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set SS-Block to Included.

```
CALC:EVM:SSBL ON
```

:CALCulate:EVM:SSBLock[:STATe]?

SS-Block On/Off Query

Function

This command queries the setting (On/Off) whether to include SS-Block in the measurement target.

Query

```
:CALCulate:EVM:SSBLock[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	SS-Block is included (On), not included (Off)
`0`	Not included
`1`	Included

Example of Use

To query the setting for SS-Block.

```
CALC:EVM:SSBL?
> 1
```

2.3.9 SS-Block Candidate

:CALCulate:EVM:SSBLock:CANDidate A4|A8|B4|B8|C4|C8|D64

SS-Block Candidate

Function

This command sets the SS-Block mapping.

Command

```
:CALCulate:EVM:SSBLock:CANDidate <mode>
```

Parameter

`<mode>`	SS-Block Candidate
`A4`	Maps SS-Block to four positions in Case A.
`A8`	Maps SS-Block to eight positions in Case A.
`B4`	Maps SS-Block to four positions in Case B.
`B8`	Maps SS-Block to eight positions in Case B.
`C4`	Maps SS-Block to four positions in Case C.
`C8`	Maps SS-Block to eight positions in Case C.
`D64`	Maps SS-Block to 64 positions in Case D.

Details

The SS-Block Candidates that can be set at each subcarrier spacing are listed below.

Subcarrier Spacing	SS-Block Candidate That Can be Set
15 kHz	A4, A8 (Default)
30 kHz	B4, B8 (Default), C4, C8
120 kHz	D64 (Default)

Example of Use

To set the SS-Block Candidate to B4.

```
CALC:EVM:SSBL:CAND B4
```

:CALCulate:EVM:SSBLock:CANDidate?

SS-Block Candidate Query

Function

This command queries the setting of SS-Block mapping.

Query

```
:CALCulate:EVM:SSBLock:CANDidate?
```

Response

```
<mode>
```

Parameter

`<mode>`	SS-Block Candidate
`A4`	Maps SS-Block to four positions in Case A.
`A8`	Maps SS-Block to eight positions in Case A.
`B4`	Maps SS-Block to four positions in Case B.
`B8`	Maps SS-Block to eight positions in Case B.
`C4`	Maps SS-Block to four positions in Case C.
`C8`	Maps SS-Block to eight positions in Case C.
`D64`	Maps SS-Block to 64 positions in Case D.

Example of Use

To query the setting of SS-Block Candidate.

```
CALC:EVM:SSBL:CAND?
> B4
```

2.3.10 SS-Block Subcarrier Offset

:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet <integer>

SS-Block Subcarrier Offset

Function

This command sets the Subcarrier Offset in RB to map the SS-Block.

Command

```
:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet <integer>
```

Parameter

`<integer>`	SS-Block Subcarrier Offset
Range	0 to 11
Default	Standard: NR TDD sub-6GHz Downlink 6 Standard: NR TDD mmWave Downlink 0

Example of Use

To set the SS-Block Subcarrier Offset to 0.

```
CALC:EVM:SSBL:SUBC:OFFS 0
```

:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet?

SS-Block Subcarrier Offset Query

Function

This command queries the setting of Subcarrier Offset in RB to map the SS-Block.

Query

```
:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet?
```

Response

```
<integer>
```

Parameter

`<integer>`	SS-Block Subcarrier Offset
Range	0 to 11

Example of Use

To query the setting of SS-Block Subcarrier Offset.

```
CALC:EVM:SSBL:SUBC:OFFS?
> 0
```

2.3.11 SS-Block RB Offset

:CALCulate:EVM:SSBLock:RBLock:OFFSet <integer>

SS-Block RB Offset

Function

This command sets the RB Offset to map the SS-Block.

Command

```
:CALCulate:EVM:SSBLock:RBLock:OFFSet <integer>
```

Parameter

`<integer>`	SS-Block RB Offset
Range	0 to Number of RBs – 20 (SSB Subcarrier Offset = 0) 0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)
Default	Standard: NR TDD sub-6GHz Downlink 126 Standard: NR TDD mmWave Downlink 56

Example of Use

To set the SS-Block RB Offset to 0.

```
CALC:EVM:SSBL:RBL:OFFS 0
```

:CALCulate:EVM:SSBLock:RBLock:OFFSet?

SS-Block RB Offset Query

Function

This command queries the setting of RB Offset to map the SS-Block.

Query

```
:CALCulate:EVM:SSBLock:RBLock:OFFSet?
```

Response

```
<integer>
```

Parameter

`<integer>`	SS-Block RB Offset
Range	0 to Number of RBs – 20 (SSB Subcarrier Offset = 0) 0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)

Example of Use

To query the setting of SS-Block RB Offset.

```
CALC:EVM:SSBL:RBL:OFFS?
> 0
```

2.3.12 SS-Block Periodicity

:CALCulate:EVM:SSBLock:PERiodicity 10|20

SS-Block Periodicity

Function

This command sets the SS-Block Periodicity.

Command

```
:CALCulate:EVM:SSBLock:PERiodicity 10|20
```

Parameter

`<period>`	SS-Block Periodicity
`10`	10 ms (Default)
`20`	20 ms

Example of Use

To set the SS-Block Periodicity to 20.

```
CALC:EVM:SSBL:PER 20
```

:CALCulate:EVM:SSBLock:PERiodicity?

SS-Block Periodicity Query

Function

This command queries the setting of SS-Block Periodicity.

Query

```
:CALCulate:EVM:SSBLock:PERiodicity?
```

Response

```
<period>
```

Parameter

`<period>`	SS-Block Periodicity
`10`	10 ms
`20`	20 ms

Example of Use

To query the setting of SS-Block Periodicity.

```
CALC:EVM:SSBL:PER?
> 20
```

2.3.13 SS-Block Analysis Frame Number

:CALCulate:EVM:SSBLock:ANALysis:FRAMe:NUMBer <integer>

SS-Block Analysis Frame Number

Function

This command sets the analysis target frame number in SS synchronization.

Command

```
:CALCulate:EVM:SSBLock:ANALysis:FRAMe:NUMBer <integer>
```

Parameter

`<integer>`	SS-Block Analysis Frame Number
Range	0 to 1
Default	0

Example of Use

To set the SS-Block Analysis Frame Number to 1.

```
CALC:EVM:SSBL:ANAL:FRAM:NUMB 1
```

:CALCulate:EVM:SSBLock:ANALysis:FRAMe:NUMBer?

SS-Block Analysis Frame Number Query

Function

This command queries the setting of analysis target frame number in SS synchronization.

Query

```
:CALCulate:EVM:SSBLock:ANALysis:FRAMe:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	SS-Block Analysis Frame Number
Range	0 to 1

Example of Use

To query the setting of SS-Block Analysis Frame Number.

```
CALC:EVM:SSBL:ANAL:FRAM:NUMB?
> 1
```

2.3.14 SS-Block Transmission

:CALCulate:EVM:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

This command enables or disables the SS-Block in each index.

Command

```
:CALCulate:EVM:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe
] <switch>
```

Parameter

`<switch>`	SS-Block Transmission
`OFF|0`	Disable
`ON|1`	Enable (Default)

Example of Use

To set the SS-Block in Index 1 to Disable.

```
CALC:EVM:SSBL:IND1:TRAN OFF
```

:CALCulate:EVM:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe]?

SS-Block Transmission Query

Function

This command queries whether SS-Block is enabled or disabled in each index.

Query

```
:CALCulate:EVM:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe
]?
```

Response

```
<switch>
```

Parameter

`<switch>`	SS-Block Transmission
`0`	Disable
`1`	Enable

Example of Use

To query the setting of SS-Block in Index 1.

```
CALC:EVM:SSBL:IND1:TRAN?
> 0
```

:CALCulate:EVM:SSBLock:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

This command enables or disables the SS-Block in all indexes.

Command

```
:CALCulate:EVM:SSBLock:TRANsmission[:STATe] <switch>
```

Parameter

`<switch>`	SS-Block Transmission
`OFF|0`	Disable
`ON|1`	Enable (Default)

Example of Use

To disable the SS-Block in all indexes.

```
CALC:EVM:SSBL:TRAN OFF
```

2.3.15 PDCCH/DM-RS On/Off

:CALCulate:EVM:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDCCH/DM-RS in the measurement target in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDCCh[:STATe] <switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	**Range of Slot Number That Can be Specified**
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set PDCCH/DM-RS in Slot 1 to Included.

```
CALC:EVM:SLOT1:PDCC ON
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDCCh[:STATe]?

PDCCH/DM-RS On/Off Query

Function

This command queries the setting (On/Off) whether to include PDCCH/DM-RS in the measurement target in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDCCh[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`0`	Not included
`1`	Included

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PDCCH/DM-RS in Slot 1.

```
CALC:EVM:SLOT1:PDCC?
> 1
```

:CALCulate:EVM:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets whether to include PDCCH/DM-RS in the measurement target (On/Off) in all slots.

Command

```
:CALCulate:EVM:PDCCh[:STATe] <switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

The PDCCH/DM-RS settings in all slots are performed collectively.

Example of Use

To set PDCCH/DM-RS in all slots to Included.

```
CALC:EVM:PDCC ON
```

2.3.16 PDSCH/DM-RS On/Off

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1

PDSCH/DM-RS On/Off

Function

This command sets whether to include PDSCH/DM-RS in the measurement target (On/Off) in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe] <switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set PDSCH/DM-RS in Slot 1 to Included.

```
CALC:EVM:SLOT1:PDSC ON
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe]?

PDSCH/DM-RS On/Off Query

Function

This command queries the setting (On/Off) whether to include PDSCH/DM-RS in the measurement target in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`0`	Not included
`1`	Included

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PDSCH/DM-RS in Slot 1.

```
CALC:EVM:SLOT1:PDSC?
> 1
```

:CALCulate:EVM:PDSCh[:STATe] OFF|ON|0|1

PDSCH/DM-RS On/Off

Function

This command sets whether to include PDSCH/DM-RS in the measurement target (ON/Off) in all slots.

Command

```
:CALCulate:EVM:PDSCh[:STATe] <switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

The PDSCH/DM-RS settings in all slots are performed collectively.

Example of Use

To set PDSCH/DM-RS in all slots to Included.

```
CALC:EVM:PDSC ON
```

2.3.17 PDSCH/DM-RS Antenna Port

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:APORt <mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Details

Assign the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH/DM-RS antenna port in Slot 1 to 1001.

```
CALC:EVM:SLOT1:PDSC:APOR 1001
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:APORt?

PDSCH/DM-RS Antenna Port Query

Function

This command queries the PDSCH/DM-RS antenna port in each slot.

Query

`:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:APORt?`

Response

`<mode>`

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000
`1001`	1001
`1002`	1002
`1003`	1003

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PDSCH/DM-RS antenna port in Slot 1.

```
CALC:EVM:SLOT1:PDSC:APOR?
> 1001
```

:CALCulate:EVM:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in all slots.

Command

```
:CALCulate:EVM:PDSCh:APORt <mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Details

The PDSCH/DM-RS settings in all slots are performed collectively.

Example of Use

To set the PDSCH/DM-RS antenna port in all slots to 1001.

```
CALC:EVM:PDSC:APOR 1001
```

2.3.18 PDSCH Modulation Scheme

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH modulation scheme in Slot 1 to 256QAM.

```
CALC:EVM:SLOT1:PDSC:MOD 256Q
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MODulation?

PDSCH Modulation Scheme Query

Function

This command queries the modulation scheme to analyze PDSCH in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MODulation?
```

Response

```
<mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH modulation scheme in Slot 1.

```
CALC:EVM:SLOT1:PDSC:MOD?
> 256Q
```

:CALCulate:EVM:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in all slots.

Command

```
:CALCulate:EVM:PDSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH modulation scheme in all slots to 256QAM.

```
CALC:EVM:PDSC:MOD 256Q
```

2.3.19 PDSCH Mapping Type

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A (Default)
`B`	B

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH Mapping Type in Slot 1 to A.

```
CALC:EVM:SLOT1:PDSC:MAPP:TYPE A
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE?

PDSCH Mapping Type Query

Function

This command queries the setting of PDSCH Mapping Type in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A
`B`	B

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH Mapping Type in Slot 1.

```
CALC:EVM:SLOT1:PDSC:MAPP:TYPE?
> A
```

:CALCulate:EVM:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in all slots.

Command

```
:CALCulate:EVM:PDSCh:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A (Default)
`B`	B

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH Mapping Type in all slots to A.

```
CALC:EVM:PDSC:MAPP:TYPE A
```

2.3.20 PDSCH Start Symbol

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

Function

This command sets the PDSCH start symbol in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH start symbol in Slot 1 to 1.

```
CALC:EVM:SLOT1:PDSC:SYMB:STAR 1
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:STARt?

PDSCH Start Symbol Query

Function

This command queries the setting of PDSCH start symbol in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:STARt?
```

Response

`<integer>`

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH start symbol in Slot 1.

```
CALC:EVM:SLOT1:PDSC:SYMB:STAR?
> 1
```

:CALCulate:EVM:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

Function

This command sets the PDSCH start symbol in all slots.

Command

```
:CALCulate:EVM:PDSCh:SYMBol:STARt <integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12
Default	2

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH start symbol in all slots to 1.

```
CALC:EVM:PDSC:SYMB:STAR 1
```

2.3.21 PDSCH Number of Symbols

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer>

PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth
<integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol
Default	12

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the number of PDSCH mapping symbols in Slot 1 to 3.

```
CALC:EVM:SLOT1:PDSC:SYMB:LENG 3
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth?

PDSCH Number of Symbols Query

Function

This command queries the number of PDSCH mapping symbols in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the number of PDSCH mapping symbols in Slot 1.

```
CALC:EVM:SLOT1:PDSC:SYMB:LENG?
> 3
```

:CALCulate:EVM:PDSCh:SYMBol:LENGth <integer>

PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in all slots.

Command

```
:CALCulate:EVM:PDSCh:SYMBol:LENGth <integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol
Default	12

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the number of PDSCH mapping symbols in all slots to 3.

```
CALC:EVM:PDSC:SYMB:LENG 3
```

2.3.22 PDSCH Power Boosting (Auto/Manual)

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting(Auto/Manual)

Function

This command sets the PDSCH boosting level to automatic (On) or manual (Off) in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH boosting level in Slot 1 to Manual.

```
CALC:EVM:SLOT1:PDSC:POW:AUTO OFF
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO?

PDSCH Power Boosting(Auto/Manual) Query

Function

This command queries whether the PDSCH boosting level is automatic or manual in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`0`	Manual
`1`	Auto

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query whether the PDSCH boosting level is automatic in Slot 1.

```
CALC:EVM:SLOT1:PDSC:POW:AUTO?
> 0
```

:CALCulate:EVM:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting(Auto/Manual)

Function

This command sets the PDSCH boosting level to automatic or manual in all slots.

Command

```
:CALCulate:EVM:PDSCh:POWer:AUTO OFF|ON|0|1
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Example of Use

To set the PDSCH boosting level in all slots to Manual.

```
CALC:EVM:PDSC:POW:AUTO OFF
```

2.3.23 PDSCH Power Boosting

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting
<rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	`DB`, dB is used when omitted.
Default	–3.000 dB

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH boosting level in Slot 1 to 3.00 dB.

```
CALC:EVM:SLOT1:PDSC:POW:BOOS 3.00DB
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting?

PDSCH Power Boosting Query

Function

This command queries the setting of PDSCH boosting level in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting?
```

Response

```
<rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	Non, Value is returned in dB unit.

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH boosting level in Slot 1.

```
CALC:EVM:SLOT1:PDSC:POW:BOOS?
> 3.00
```

:CALCulate:EVM:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in all slots.

Command

```
:CALCulate:EVM:PDSCh:POWer:BOOSting <rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	DB, dB is used when omitted.
Default	–3.000 dB

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH boosting level in all slots to 3.00 dB.

```
CALC:EVM:PDSC:POW:BOOS 3.00DB
```

2.3.24 PDSCH DM-RS typeA-pos

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

This command sets the PDSCH DM-RS typeA-pos in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSitio
n <integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 to 3.

```
CALC:EVM:SLOT1:PDSC:MAPP:DMRS:APOS 3
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition?

PDSCH DM-RS typeA-pos Query

Function

This command queries the setting of PDSCH DM-RS typeA-pos in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSitio
n?
```

Response

```
<integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH DM-RS typeA-pos in Slot 1.

```
CALC:EVM:SLOT1:PDSC:MAPP:DMRS:APOS?
> 3
```

:CALCulate:EVM:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

This command sets the PDSCH DM-RS typeA-pos in all slots.

Command

```
:CALCulate:EVM:PDSCh:MAPPing:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3
Default	2

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH DM-RS typeA-pos in all slots to 3.

```
CALC:EVM:PDSC:MAPP:DMRS:APOS 3
```

2.3.25 PDSCH DM-RS add-pos

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

This command sets the PDSCH DM-RS add-pos in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition
<integer>
```

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH DM-RS add-pos in Slot 1 to 3.

```
CALC:EVM:SLOT1:PDSC:DMRS:APOS 3
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition?

PDSCH DM-RS add-pos Query

Function

This command queries the setting of PDSCH DM-RS add-pos in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition?
```

Response

```
<integer>
```

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH DM-RS add-pos in Slot 1.

```
CALC:EVM:SLOT1:PDSC:DMRS:APOS?
> 3
```

:CALCulate:EVM:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

This command sets the PDSCH DM-RS add-pos in all slots.

Command

```
:CALCulate:EVM:PDSCh:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH DM-RS add-pos in all slots to 3.

```
CALC:EVM:PDSC:DMRS:APOS 3
```

2.3.26 PDSCH DM-RS CDM Group Without Data

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:CDM 1|2

PDSCH DM-RS CDM Group Without Data

Function

This command sets the PDSCH DM-RS CDM Group Without Data in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:CDM <mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH DM-RS CDM Group Without Data in Slot 1 to 2.

```
CALC:EVM:SLOT1:PDSC:DMRS:CDM 2
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:CDM?

PDSCH DM-RS CDM Group Without Data Query

Function

This command queries the setting of PDSCH DM-RS CDM Group Without Data in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:CDM?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	**Range of Slot Number That Can be Specified**
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH DM-RS CDM Group Without Data in Slot 1.

```
CALC:EVM:SLOT1:PDSC:DMRS:CDM?
> 2
```

:CALCulate:EVM:PDSCh:DMRS:CDM 1|2

PDSCH DM-RS CDM Group Without Data

Function

This command sets the PDSCH DM-RS CDM Group Without Data in all slots.

Command

```
:CALCulate:EVM:PDSCh:DMRS:CDM <mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH DM-RS CDM Group Without Data in all slots to 2.

```
CALC:EVM:PDSC:DMRS:CDM 2
```

2.3.27 PDSCH PTRS

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables or disables the PDSCH PT-RS in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe] <switch>
```

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH PT-RS in Slot 1 to Enabled.

```
CALC:EVM:SLOT1:PDSC:PTRS ON
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?

PDSCH PTRS Query

Function

This command queries whether PDSCH PT-RS is enabled or disabled in each slot.

Query

`:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?`

Response

`<switch>`

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`0`	Disabled
`1`	Enabled

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PDSCH PT-RS in Slot 1.

```
CALC:EVM:SLOT1:PDSC:PTRS?
> 1
```

:CALCulate:EVM:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables or disables the PDSCH PT-RS in all slots.

Command

`:CALCulate:EVM:PDSCh:PTRS[:STATe] <switch>`

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Details

The PDSCH PT-RS settings in all slots are performed collectively.

Example of Use

To set the PDSCH PT-RS in all slots to Enabled.

```
CALC:EVM:PDSC:PTRS ON
```

2.3.28 PDSCH PTRS Time Density

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME 1|2|4

PDSCH PTRS Time Density

Function

This command sets the PDSCH PTRS Time Density in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME
<mode>
```

Parameter

`<mode>`	PDSCH PTRS Time Density
Range	1, 2, 4
Default	1

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH PTRS Time Density in Slot 1 to 2.

```
CALC:EVM:SLOT1:PDSC:PTRS:DENS:TIME 2
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME?

PDSCH PTRS Time Density Query

Function

This command queries the setting of PDSCH PTRS Time Density in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH PTRS Time Density
Range	1, 2, 4

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH PTRS Time Density in Slot 1.

```
CALC:EVM:SLOT1:PDSC:PTRS:DENS:TIME?
> 2
```

:CALCulate:EVM:PDSCh:PTRS:DENSity:TIME 1|2|4

PDSCH PTRS Time Density

Function

This command sets the PDSCH PTRS Time Density in all slots.

Command

```
:CALCulate:EVM:PDSCh:PTRS:DENSity:TIME <mode>
```

Parameter

`<mode>`	PDSCH PTRS Time Density
Range	1, 2, 4
Default	1

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH PTRS Time Density in all slots to 2.

```
CALC:EVM:PDSC:PTRS:DENS:TIME 2
```

2.3.29 PDSCH PTRS Freq. Density

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency 2|4

PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuenc
y <mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH PTRS Freq. Density in Slot 1 to 2.

```
CALC:EVM:SLOT1:PDSC:PTRS:DENS:FREQ 2
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency?

PDSCH PTRS Freq. Density Query

Function

This command queries the setting of PDSCH PTRS Freq. Density in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH PTRS Freq. Density in Slot 1.

```
CALC:EVM:SLOT1:PDSC:PTRS:DENS:FREQ?
> 2
```

:CALCulate:EVM:PDSCh:PTRS:DENSity:FREQuency 2|4

PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in all slots.

Command

```
:CALCulate:EVM:PDSCh:PTRS:DENSity:FREQuency <mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4
Default	2

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH PTRS Freq. Density in all slots to 2.

```
CALC:EVM:PDSC:PTRS:DENS:FREQ 2
```

2.3.30 PDSCH PTRS RE Offset

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet 00|01|10|11

PDSCH PTRS RE Offset

Function

This command sets the PDSCH PTRS RE Offset in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PDSCH PTRS RE Offset in Slot 1 to 01.

```
CALC:EVM:SLOT1:PDSC:PTRS:OFFS 01
```

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet?

PDSCH PTRS RE Offset Query

Function

This command queries the setting of PDSCH PTRS RE Offset in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PDSCH PTRS RE Offset in Slot 1.

```
CALC:EVM:SLOT1:PDSC:PTRS:OFFS?
> 01
```

:CALCulate:EVM:PDSCh:PTRS:OFFSet 00|01|10|11

PDSCH PTRS RE Offset

Function

This command sets the PDSCH PTRS RE Offset in all slots.

Command

```
:CALCulate:EVM:PDSCh:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH PTRS RE Offset in all slots to 01.

```
CALC:EVM:PDSC:PTRS:OFFS 01
```

2.3.31 PDSCH RBs Allocation Auto Detect

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) by slot the auto detection of the RBs that are allocated to PDSCH.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH in slot 1.

```
CALC:EVM:SLOT1:PDSC:RBL:AUTO OFF
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO?

PDSCH RBs Allocation Auto Detect Query

Function

This command queries by slot whether the auto detection is enabled (On) or disabled (Off) for the RBs that are allocated to PDSCH.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO?
```

Response

`<switch>`

Parameter

`<switch>`	Enabled (On) or disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	**Range of Slot Number That Can be Specified**
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query whether the auto detection is enabled or disabled for the RBs that are allocated to PDSCH in slot 1.

```
CALC:EVM:SLOT1:PDSC:RBL:AUTO?
> 0
```

:CALCulate:EVM:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PDSCH in all slots.

Command

```
:CALCulate:EVM:PDSCh:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Details

The settings of auto detection are performed collectively in all slots.

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH in all slots.

```
CALC:EVM:PDSC:RBL:AUTO OFF
```

2.3.32 PDSCH RBs Allocation Start RB

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer>

PDSCH RBs Allocation Start RB

Function

This command sets by slot the Start RB of the RBs that are allocated to PDSCH.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:STARt
<integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1
Default	0

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the Start RB of the RBs that are allocated to PDSCH in slot 1 to 1.

```
CALC:EVM:SLOT1:PDSC:RBL:STAR 1
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:STARt?

PDSCH RBs Allocation Start RB Query

Function

This command queries by slot the Start RB of the RBs that are allocated to PDSCH.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:STARt?
```

Response

```
<integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the Start RB of the RBs that are allocated to PDSCH in slot 1.

```
CALC:EVM:SLOT1:PDSC:RBL:STAR?
> 1
```

:CALCulate:EVM:PDSCh:RBLock:STARt <integer>

PDSCH RBs Allocation Start RB

Function

This command sets the Start RB of the RBs that are allocated to PDSCH in all slots.

Command

```
:CALCulate:EVM:PDSCh:RBLock:STARt <integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1
Default	0

Details

The settings are performed collectively in all slots.

Example of Use

To set the Start RB of the RBs that are allocated to PDSCH to 1 in all slots.

```
CALC:EVM:PDSC:RBL:STAR 1
```

2.3.33 PDSCH RBs Allocation Number of RBs

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

This command sets by slot the number of RBs that are allocated to PDSCH.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RBs – PDSCH Start RB
Default	Number Of RBs

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the number of RBs that are allocated to PDSCH in slot 1 to 1.

```
CALC:EVM:SLOT1:PDSC:RBL:LENG 1
```

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth?

PDSCH RBs Allocation Number of RBs Query

Function

This command queries by slot the number of RBs that are allocated to PDSCH.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RBs – PDSCH Start RB

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the number of RBs that are allocated to PDSCH in slot 1.

```
CALC:EVM:SLOT1:PDSC:RBL:LENG?
> 1
```

:CALCulate:EVM:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

This command sets the number of RBs that are allocated to PDSCH in all slots.

Command

```
:CALCulate:EVM:PDSCh:RBLock:LENGth <integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RBs – PDSCH Start RB
Default	Number Of RBs

Details

The settings are performed collectively in all slots.

Example of Use

To set the number of RBs that are allocated to PDSCH to 1 in all slots.

```
CALC:EVM:PDSC:RBL:LENG 1
```

2.3.34 Test Model TDD Configuration

:CALCulate:EVM:TMODel:TDDConfig:AUTO OFF|ON|0|1

Test Model TDD Configuration

Function

This command enables (On) or disables (Off) the automatic detection of TDD Configuration of the test model.

Command

```
:CALCulate:EVM:TMODel:TDDConfig:AUTO <switch>
```

Parameter

`<switch>`	Automatic detection Enabled (On) or Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To disable (Off) the automatic detection of TDD Configuration of the test model.

```
CALC:EVM:TMOD:TDDC:AUTO OFF
```

:CALCulate:EVM:TMODel:TDDConfig:AUTO?

Test Model TDD Configuration Query

Function

This command queries whether the automatic detection of TDD Configuration of the test model is enabled or disabled.

Query

```
:CALCulate:EVM:TMODel:TDDConfig:AUTO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Automatic detection Enabled or Disabled
`0`	Disable
`1`	Enable

Example of Use

To query the setting of automatic detection of TDD Configuration of the test model.

```
CALC:EVM:TMOD:TDDC:AUTO?
> 0
```

2.3.35 DL Slot No. for Synchronization

:CALCulate:EVM:TMODel:TDDConfig:SYNC:SLOT <integer>

DL Slot No. for Synchronization

Function

This command sets the downlink slot number for frame synchronization, when the automatic detection of TDD Configuration of the test model is enabled.

Command

```
:CALCulate:EVM:TMODel:TDDConfig:SYNC:SLOT <integer>
```

Parameter

`<integer>`	Slot number for Frame synchronization
Range:	Refer to Table 2.3.35-1.

Table 2.3.35-1 Range for Slot number

Subcarrier Spacing	Range for Slot number
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the downlink slot number for frame synchronization to 0 when the automatic detection of TDD Configuration of the test model is enabled.

```
CALC:EVM:TMOD:TDDC:SYNC:SLOT 0
```

:CALCulate:EVM:TMODel:TDDConfig:SYNC:SLOT?

DL Slot No. for Synchronization Query

Function

This command queries the downlink slot number for frame synchronization, when the automatic detection of TDD Configuration of the test model is enabled.

Query

```
:CALCulate:EVM:TMODel:TDDConfig:SYNC:SLOT?
```

Response

```
<integer>
```

Parameter

`<integer>`	Slot number for Frame synchronization
Range:	Refer to Table 2.3.35-1.

Example of Use

To query the downlink slot number for frame synchronization, when the automatic detection of TDD Configuration of the test model is enabled.

```
CALC:EVM:TMOD:TDDC:SYNC:SLOT?
> 0
```

2.3.36 Number of DL Symbols in Special Slots

:CALCulate:EVM:TMODel:TDDConfig:SSLot:SYMBol:LENGth <integer>

Number of DL Symbols in Special Slots

Function

This command sets the number of downlink symbols in Special Slots when TDD Configuration of the test model is set to manual.

Command

```
:CALCulate:EVM:TMODel:TDDConfig:SSLot:SYMBol:LENGth
<integer>
```

Parameter

`<integer>`	Number of downlink symbols in Special Slot
Range:	1 to 14

Example of Use

To set the number of downlink symbols in Special Slots to 6 when TDD Configuration of the test model is set to manual.

```
CALC:EVM:TMOD:TDDC:SSL:SYMB:LENG 6
```

:CALCulate:EVM:TMODel:TDDConfig:SSLot:SYMBol:LENGth?

Number of DL Symbols in Special Slots Query

Function

This command queries the number of downlink symbols in Special Slots when TDD Configuration of the test model is set to manual.

Query

```
:CALCulate:EVM:TMODel:TDDConfig:SSLot:SYMBol:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of downlink symbols in Special Slot
Range:	1 to 14

Example of Use

To query the number of downlink symbols in Special Slots when TDD Configuration of the test model is set to manual.

```
CALC:EVM:TMOD:TDDC:SSL:SYMB:LENG?
> 6
```

2.3.37 Test Model TDD Configuration Slot Types

:CALCulate:EVM:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE D|U|S

Test Model TDD Configuration Slot Types

Function

This command sets the slot type of TDD Configuration for each slot when TDD Configuration of the test model is set to manual.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE
<mode>
```

Parameter

`<mode>`	Slot Type of TDD Configuration
`D`	Downlink
`U`	Uplink
`S`	Special

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The range of slot numbers that can be specified for each subcarrier spacing is shown in Table 2.3.35-1.

Example of Use

To set the slot type of TDD Configuration for Slot 1 to Special.

```
CALC:EVM:SLOT1:TMOD:TDDC:SLOT:TYPE S
```

:CALCulate:EVM:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE?

Test Model TDD Configuration Slot Types Query

Function

This command queries the slot type of TDD Configuration for each slot when TDD Configuration of the test model is set to manual.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE?
```

Response

```
<mode>
```

Parameter

`<mode>`	Slot Type of TDD Configuration
`D`	Downlink
`U`	Uplink
`S`	Special

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The range of slot numbers that can be specified for each subcarrier spacing is shown in Table 2.3.35-1.

Example of Use

To query the slot type of TDD Configuration for Slot 1.

```
CALC:EVM:SLOT1:TMOD:TDDC:SLOT:TYPE?
> S
```

:CALCulate:EVM:TMODel:TDDConfig:SLOT:TYPE D|U|S

Test Model TDD Configuration Slot Types

Function

This command sets the slot type of TDD Configuration for all slots when TDD Configuration of the test model is set to manual.

Command

```
:CALCulate:EVM:TDDConfig:SLOT:TYPE <mode>
```

Parameter

`<mode>`	Slot Type of TDD Configuration
`D`	Downlink
`U`	Uplink
`S`	Special

Details

This command can set the slot type of TDD Configuration for all slots at once.

Example of Use

To set the slot type of TDD Configuration for all slots to S.

```
CALC:EVM:TMOD:TDDC:SLOT:TYPE S
```

2.3.38 Equalizer Use Data

[:SENSe]:EVM:RADio:EQUalizer:DATA 0|1|ON|OFF

Equalizer Use Data

Function

This command sets Equalizer Use Data that allows whether to include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

Command

```
[:SENSe]:EVM:RADio:EQUalizer:DATA <switch>
```

Parameter

`<switch>`	Data subcarriers are included (On), not included (Off)
`0|OFF`	Not included (Default)
`1|ON`	Included

Example of Use

To include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

```
EVM:RAD:EQU:DATA ON
```

[:SENSe]:EVM:RADio:EQUalizer:DATA?

Equalizer Use Data Query

Function

This command queries the setting (Equalizer Use Data) whether to include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

Query

```
[:SENSe]:EVM:RADio:EQUalizer:DATA?
```

Response

```
<switch>
```

Parameter

`<switch>`	Data subcarriers are included (On), not included (Off)
`0`	Not included
`1`	Included

Example of Use

To query the setting whether to include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

```
EVM:RAD:EQU:DATA?
> 1
```

2.3.39 Amplitude Tracking

:CALCulate:EVM:TRACK:AMPLitude[:STATe] OFF|ON|0|1

Amplitude Tracking

Function

This command sets the Amplitude Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:TRACK:AMPLitude[:STATe]  <switch>
```

Parameter

`<switch>`	Amplitude Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Amplitude Tracking to Enabled.

```
CALC:EVM:TRACK:AMPL ON
```

:CALCulate:EVM:TRACK:AMPLitude[:STATe]?

Amplitude Tracking Query

Function

This command queries whether Amplitude Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:TRACK:AMPLitude[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Amplitude Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Amplitude Tracking is Enabled (On) or Disabled (Off).

```
CALC:EVM:TRACK:AMPL?
> 1
```

2.3.40 Phase Tracking

:CALCulate:EVM:TRACK:PHASe[:STATe] OFF|ON|0|1

Phase Tracking

Function

This command sets the Phase Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:TRACK:PHASe[:STATe] <switch>
```

Parameter

`<switch>`	Phase Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Phase Tracking to Enabled.

```
CALC:EVM:TRACK:PHAS ON
```

:CALCulate:EVM:TRACK:PHASe[:STATe]?

Phase Tracking Query

Function

This command queries whether Phase Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:TRACK:PHASe[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Phase Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Phase Tracking is Enabled (On) or Disabled (Off).

```
CALC:EVM:TRACK:PHAS?
> 1
```

2.3.41 Timing Tracking

:CALCulate:EVM:TRACK:TIMing[:STATe] OFF|ON|0|1

Timing Tracking

Function

This command sets the Timing Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:TRACK:TIMing[:STATe] <switch>
```

Parameter

`<switch>`	Timing Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Timing Tracking to Enabled.

```
CALC:EVM:TRACK:TIM ON
```

:CALCulate:EVM:TRACK:TIMing[:STATe]?

Timing Tracking Query

Function

This command queries whether Timing Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:TRACK:TIMing[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Timing Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Timing Tracking is Enabled (On) or Disabled (Off).

```
CALC:EVM:TRACK:TIM?
> 1
```

2.3.42 Number Of Carriers

[:SENSe]:EVM:RADio:NCARrier <integer>

Number Of Carriers

Function

This command sets the Number Of Carriers.

Command

`[:SENSe]:EVM:RADio:NCARrier <integer>`

Parameter

`<integer>`	Number Of Carriers
Range	1 to Refer to Table 2.3.42-1.

Table 2.3.42-1 Max. Number of Carriers

Standard	Option	Channel Bandwidth	Max. Number of Carriers
NR TDD mmWave Downlink	Without MS2850A-033/133	50 MHz	5
		100 MHz	2
		200 MHz	1
	With MS2850A-033/133	50 MHz	8
		100 MHz	5
		200 MHz	2
		400 MHz	1
	With MS2850A-034/134	50 MHz	8
		100 MHz	8
		200 MHz	4
		400 MHz	2
NR TDD Sub6GHz Downlink	With MX285051A-011	–	2

Resolution	1
Suffix code	None
Default	1

Example of Use

To set the Number Of Carriers to 8.

```
EVM:RAD:NCAR 8
```

[:SENSe]:EVM:RADio:NCARrier?

Number Of Carriers Query

Function

This command queries the setting of Number Of Carriers.

Query

```
[:SENSe]:EVM:RADio:NCARrier?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number Of Carriers
Range	1 to Refer to Table 2.3.42-1.
Resolution	1

Example of Use

To query the setting of Number Of Carriers.

```
EVM:RAD:NCAR?
> 8
```

2.3.43 Reference Carrier

[:SENSe]:EVM:RADio:CARRier <integer>

Reference Carrier

Function

This command sets the Reference Carrier.

Command

```
[:SENSe]:EVM:RADio:CARRier <integer>
```

Parameter

`<integer>`	Reference Carrier
Range	0 to (Number of Carriers – 1)
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the Reference Carrier to 4.

```
EVM:RAD:CARR 4
```

[:SENSe]:EVM:RADio:CARRier?

Reference Carrier Query

Function

This command queries the setting of Reference Carrier.

Query

```
[:SENSe]:EVM:RADio:CARRier?
```

Response

```
<integer>
```

Parameter

`<integer>`	Reference Of Carrier
Range	0 to (Number of Carriers – 1)
Resolution	1

Example of Use

To query the setting of Reference Carrier.

```
EVM:RAD:CARR?
> 4
```

2.3.44 Frequency Offset

:CALCulate:EVM:FREQuency:OFFSet <rel_frequency_offset_Hz>

Frequency Offset

Function

This command sets the Frequency Offset.

Command

```
:CALCulate:EVM:FREQuency:OFFSet <rel_frequency_offset_Hz>
```

Parameter

`<rel_frequency_offset_Hz>` Frequency Offset

Range	Refer to F8 in Table 3.6.1.3-1 of the *MX285051A-011 Operation Manual (Operation).*
Resolution	1 Hz
Suffix code	`HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ` Hz is used when omitted.
Default	0

Example of Use

To set the Frequency Offset to 50 MHz.

```
CALC:EVM:FREQ:OFFS 50MHZ
```

:CALCulate:EVM:FREQuency:OFFSet?

Frequency Offset Query

Function

This command queries the setting of Frequency Offset.

Query

```
:CALCulate:EVM:FREQuency:OFFSet?
```

Response

```
<rel_frequency_offset_Hz>
```

Parameter

`<rel_frequency_offset_Hz>` Frequency Offset

Range	Refer to F8 in Table 3.6.1.3-1 of the *MX285051A-011 Operation Manual (Operation).*
Resolution	1 Hz

Example of Use

To query the setting of Frequency Offset.

```
CALC:EVM:FREQ:OFFS?
> 50000000
```

2.3.45 Multicarrier Filter

:CALCulate:EVM:MCARrier:FILTer[:STATe] OFF|ON|0|1

Multicarrier Filter

Function

This command sets the Multicarrier Filter to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:MCARrier:FILTer[:STATe] <switch>
```

Parameter

`<switch>`	Multicarrier Filter Enabled (On) or Disabled (Off)
`0|OFF`	Disabled
`1|ON`	Enabled (Default)

Example of Use

To set the Multicarrier Filter to Enabled.

```
CALC:EVM:MCAR:FILT ON
```

:CALCulate:EVM:MCARrier:FILTer[:STATe]?

Multicarrier Filter Query

Function

This command queries whether Multicarrier Filter is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:MCARrier:FILTer[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Multicarrier Filter Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Multicarrier Filter is Enabled (On) or Disabled (Off).

```
CALC:EVM:MCAR:FILT?
> 1
```

2.3.46 EVM Window

:CALCulate:EVM:EWINdow[:STATe] OFF|ON|0|1

EVM Window

Function

This command enables (On) or disables (Off) the EVM Window.

Command

```
:CALCulate:EVM:EWINdow[:STATe] <switch>
```

Parameter

`<switch>`	EVM Window Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To enable the EVM Window.

```
CALC:EVM:EWIN ON
```

:CALCulate:EVM:EWINdow[:STATe]?

EVM Window Query

Function

This command queries whether EVM Window is enabled (On) or disabled (Off).

Query

```
:CALCulate:EVM:EWINdow[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	EVM Window Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether EVM Window is Enabled (On) or Disabled (Off).

```
CALC:EVM:EWIN?
> 1
```

2.3.47 DC Cancellation

:CALCulate:EVM:DC:CANCel[:STATe] OFF|ON|0|1

DC Cancellation

Function

This command enables (On) or disables (Off) the DC Cancellation.

Command

```
:CALCulate:EVM:DC:CANCel[:STATe] <switch>
```

Parameter

`<switch>`	DC Cancellation Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To enable (On) the DC Cancellation.

```
CALC:EVM:DC:CANC ON
```

:CALCulate:EVM:DC:CANCel[:STATe]?

DC Cancellation Query

Function

This command queries whether DC Cancellation is enabled or disabled.

Query

```
:CALCulate:EVM:DC:CANCel[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	DC Cancellation Enabled or Disabled
`0`	Disabled
`1`	Enabled

Example of Use

To query whether DC Cancellation is Enabled or Disabled.

```
CALC:EVM:DC:CANC?
> 1
```

2.4 Setting System Parameters (MX285051A-011 NR TDD Sub-6GHz / MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

Table 2.4-1 lists the device messages used for the communication system targeted for measurement.

Table 2.4-1 Device Messages for Setting System Parameters

Parameter	Device Message
Number of Carriers	[:SENSe]:CAGG:RADio:NCARrier <integer>
	[:SENSe]:CAGG:RADio:NCARrier?
Reference Carrier	[:SENSe]:CAGG:RADio:CARRier <integer>
	[:SENSe]:CAGG:RADio:CARRier?
Frequency Offset	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:FREQuency:OFFSet <rel_frequency_offset_Hz>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:FREQuency:OFFSet?
Phase Compensation	[:SENSe]:CAGG:RADio:PCOMpensation[:STATe] 0|1|ON|OFF
	[:SENSe]:CAGG:RADio:PCOMpensation[:STATe]?
Test Model	[:SENSe]:CAGG:RADio:TMODel <model>
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel <model>
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel?
Test Model Version	[:SENSe]:CAGG:RADio:TMODel:VERSion AUTO|201903|201906
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel:VERSion AUTO|201903|201906
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel:VERSion?
Subcarrier Spacing	[:SENSe]:CAGG:RADio:SUBCarrier:SPACing 15|30|60|120
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing 15|30|60|120
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing?
Number of RBs	[:SENSe]:CAGG:RADio:RBLock:NUMBer <mode>
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer <mode>
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer?
Cell ID	:CALCulate:CAGG:CELLid <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid?
Synchronization Mode	[:SENSe]:CAGG:RADio:SYNChronization:MODE SS|RS
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization:MODE SS|RS
	[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization:MODE?

Table 2.4-1 Device Messages for Setting System Parameters (Cont'd)

Parameter	Device Message
SS-Block On/Off	:CALCulate:CAGG:SSBLock[:STATe] 0|1|ON|OFF
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe] 0|1|ON|OFF
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe]?
SS-Block Candidate	:CALCulate:CAGG:SSBLock:CANDidate D64
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate D64
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate?
SS-Block Subcarrier Offset	:CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:SUBCarrier:OFFSet <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:SUBCarrier:OFFSet ?
SS-Block RB Offset	:CALCulate:CAGG:SSBLock:RBLock:OFFSet <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:RBLock:OFFSet <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:RBLock:OFFSet?
SS-Block Periodicity	:CALCulate:CAGG:SSBLock:PERiodicity 10|20
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity 10|20
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity?
SS-Block Analysis Frame Number	:CALCulate:CAGG:SSBLock:ANALysis:FRAMe:NUMBer <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer?
SS-Block Transmission	:CALCulate:CAGG:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:SSBLock:TRANsmission[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1:SSBLock:TRANsmission[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe]?
PDCCH/DM-RS On/Off	:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:PDCCh[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDCCh[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDCCh[:STATe] ?

Table 2.4-1 Device Messages for Setting System Parameters (Cont'd)

<table>
<tr><th>Parameter</th><th>Device Message</th></tr>
<tr><td>PDSCH/DM-RS On/Off</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1</td></tr>
<tr><td></td><td>:CALCulate:CAGG:PDSCh[:STATe] OFF|ON|0|1</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh[:STATe] OFF|ON|0|1</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh[:STATe]?</td></tr>
<tr><td>PDSCH/DM-RS Antenna Port</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003</td></tr>
<tr><td></td><td>:CALCulate:CAGG:PDSCh:APORt 1000|1001|1002|1003</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:APORt 1000|1001|1002|1003</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt?</td></tr>
<tr><td>PDSCH Modulation Scheme</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO</td></tr>
<tr><td></td><td>:CALCulate:CAGG:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation?</td></tr>
<tr><td>PDSCH Mapping Type</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B</td></tr>
<tr><td></td><td>:CALCulate:CAGG:PDSCh:MAPPing:TYPE A|B</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:TYPE A|B</td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE?</td></tr>
<tr><td>PDSCH Start Symbol</td><td>:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer></td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer></td></tr>
<tr><td></td><td>:CALCulate:CAGG:PDSCh:SYMBol:STARt <integer></td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:STARt <integer></td></tr>
<tr><td></td><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:STARt?</td></tr>
</table>

Table 2.4-1 Device Messages for Setting System Parameters (Cont'd)

Parameter	Device Message
PDSCH Number of Symbols	:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer>
	:CALCulate:CAGG:PDSCh:SYMBol:LENGth <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:LENGth <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth?
PDSCH Power Boosting (Auto/Manual)	:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1
	:CALCulate:CAGG:PDSCh:POWer:AUTO OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:AUTO OFF|ON|0|1
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:AUTO?
PDSCH Power Boosting	:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting <rel_power>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:BOOSting <rel_power>
	:CALCulate:CAGG:PDSCh:POWer:BOOSting <rel_power>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:BOOSting <rel_power>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting?
PDSCH DM-RS typeA-pos	:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>
	:CALCulate:CAGG:PDSCh:MAPPing:DMRS:APOSition <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:DMRS:APOSition <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition?

Table 2.4-1 Device Messages for Setting System Parameters (Cont'd)

<table>
<tr><th>Parameter</th><th>Device Message</th></tr>
<tr><td rowspan="5">PDSCH DM-RS add-pos</td><td>:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOSition?</td></tr>
<tr><td rowspan="5">PDSCH DM-RS CDM Group Without Data</td><td>:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:DMRS:CDM 1|2</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:CDM 1|2</td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:DMRS:CDM 1|2</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:CDM 1|2</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:CDM?</td></tr>
<tr><td rowspan="5">PDSCH PTRS</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?</td></tr>
<tr><td rowspan="5">PDSCH PTRS Time Density</td><td>:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME?</td></tr>
<tr><td rowspan="5">PDSCH PTRS Freq. Density</td><td>:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency 2|4</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency 2|4</td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:PTRS:DENSity:FREQuency 2|4</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:FREQuency 2|4</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency?</td></tr>
</table>

Table 2.4-1 Device Messages for Setting System Parameters (Cont’d)

<table>
<tr><th>Parameter</th><th>Device Message</th></tr>
<tr><td rowspan="5">PDSCH PTRS RE Offset</td><td>:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet 00|01|10|11</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet 00|01|10|11</td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:PTRS:OFFSet 00|01|10|11</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:OFFSet 00|01|10|11</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet?</td></tr>
<tr><td rowspan="5">PDSCH RBs Allocation Auto Detect</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF</td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:RBLock:AUTO 0|1|ON|OFF</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:AUTO 0|1|ON|OFF</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO?</td></tr>
<tr><td rowspan="5">PDSCH RBs Allocation Start RB</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer></td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:RBLock:STARt <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:STARt <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STARt?</td></tr>
<tr><td rowspan="5">PDSCH RBs Allocation Number of RBs</td><td>:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth <integer></td></tr>
<tr><td>:CALCulate:CAGG:PDSCh:RBLock:LENGth <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:LENGth <integer></td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth?</td></tr>
<tr><td rowspan="3">Test Model TDD Configuration</td><td>:CALCulate:CAGG:TMODel:TDDConfig:AUTO OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:AUTO OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:AUTO?</td></tr>
</table>

Table 2.4-1 Device Messages for Setting System Parameters (Cont'd)

Parameter	Device Message
DL Slot No. for Synchronization	:CALCulate:CAGG:TMODel:TDDConfig:SYNC:SLOT <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SYNC:SLOT <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SYNC:SLOT ?
Number of DL Symbols in Special Slots	:CALCulate:CAGG:TMODel:TDDConfig:SSLot:SYMBol:LENGth <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SSLot:SYMBol:LENGth <integer>
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SSLot:SYMBol:LENGth?
Test Model TDD Configuration Slot Types	:CALCulate:CAGG:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE D|U|S
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE D|U|S
	:CALCulate:CAGG:TMODel:TDDConfig:SLOT:TYPE D|U|S
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SLOT:TYPE D|U|S
	:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE?
Equalizer Use Data	[:SENSe]:CAGG:RADio:EQUalizer:DATA 0|1|ON|OFF
	[:SENSe]:CAGG:RADio:EQUalizer:DATA?
Amplitude Tracking	:CALCulate:CAGG:TRACK:AMPLitude[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:TRACK:AMPLitude[:STATe]?
Phase Tracking	:CALCulate:CAGG:TRACK:PHASe[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:TRACK:PHASe[:STATe]?
Timing Tracking	:CALCulate:CAGG:TRACK:TIMing[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:TRACK:TIMing[:STATe]?
Multicarrier Filter	:CALCulate:CAGG:MCARrier:FILTer[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:MCARrier:FILTer[:STATe]?
EVM Window	:CALCulate:CAGG:EWINdow[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:EWINdow[:STATe]?
DC Cancellation	:CALCulate:CAGG:DC:CANCel[:STATe] OFF|ON|0|1
	:CALCulate:CAGG:DC:CANCel[:STATe]?

2.4.1 Number Of Carriers

[:SENSe]:CAGG:RADio:NCARrier <integer>

Number Of Carriers

Function

This command sets the Number Of Carriers.

Command

```
[:SENSe]:CAGG:RADio:NCARirer <integer>
```

Parameter

`<integer>`	Number Of Carriers
Range	1 to Refer to Table 2.3.42-1.
Resolution	1
Suffix code	None
Default	1

Example of Use

To set the Number Of Carriers to 8.

```
CAGG:RAD:NCAR 8
```

[:SENSe]:CAGG:RADio:NCARrier?

Number Of Carriers Query

Function

This command queries the setting of Number Of Carriers.

Query

```
[:SENSe]:CAGG:RADio:NCARrier?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number Of Carriers
Range	1 to Refer to Table 2.3.42-1.
Resolution	1

Example of Use

To query the setting of Number Of Carriers.

```
CAGG:RAD:NCAR?
> 8
```

2.4.2 Reference Carrier

[:SENSe]:CAGG:RADio:CARRier <integer>

Reference Carrier

Function

This command sets the Reference Carrier.

Command

```
[:SENSe]:CAGG:RADio:CARRier <integer>
```

Parameter

`<integer>`	Reference Carrier
Range	0 to (Number of Carriers – 1)
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the Reference Carrier to 4.

```
CAGG:RAD:CARR 4
```

[:SENSe]:CAGG:RADio:NCARRier?

Reference Carrier Query

Function

This command queries the setting of Reference Carrier.

Query

```
[:SENSe]:CAGG:RADio:CARRier?
```

Response

```
<integer>
```

Parameter

`<integer>`	Reference Of Carrier
Range	0 to (Number of Carriers – 1)
Resolution	1

Example of Use

To query the setting of Reference Carrier.

```
CAGG:RAD:CARR?
> 4
```

2.4.3 Frequency Offset

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:FREQuency:OFFSet <rel_frequency_offset_Hz>

Frequency Offset

Function

This command sets the Frequency Offset for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:FREQuency:OFFSet
<rel_frequency_offset_Hz>
```

Parameter

`<rel_frequency_offset_Hz>` Frequency Offset

Range	Refer to F8 in Table 3.6.1.3-1 of the *MX285051A-011 Operation Manual (Operation)*.
Resolution	1 kHz
Suffix code	`HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ` Hz is used when omitted.
Default	0

Example of Use

To set the Frequency Offset for Component Carrier 1 to 50 MHz.

```
CALC:CAGG:CC1:FREQ:OFFS 50MHZ
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:FREQuency:OFFSet?

Frequency Offset Query

Function

This command queries the Frequency Offset for the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:FREQuency:OFFSet?
```

Response

```
<rel_frequency_offset_Hz>
```

Parameter

`<rel_frequency_offset_Hz>` Frequency Offset

Range	Refer to F8 in Table 3.6.1.3-1 of the *MX285051A-011 Operation Manual (Operation)*.
Resolution	1 kHz

Example of Use

To query the setting of Frequency Offset for Component Carrier 1.

```
CALC:CAGG:CC1:FREQ:OFFS?
> 50000000
```

2.4.4 Phase Compensation

[:SENSe]:CAGG:RADio:PCOMpensation[:STATe] 0|1|ON|OFF

Phase Compensation

Function

This command enables (On) or disables (Off) Phase Compensation for Carrier Aggregation Analysis.

Command

```
[:SENSe]:CAGG:RADio:PCOMpensation[:STATe] <switch>
```

Parameter

`<switch>`	Enable (On) or Disable (Off)
`OFF|0`	Disable
`ON|1`	Enable (Default)

Example of Use

To enable Phase Compensation.

```
CAGG:RAD:PCOM ON
```

[:SENSe]:CAGG:RADio:PCOMpensation[:STATe]?

Phase Compensation Query

Function

This command queries the On/Off status of Phase Compensation for Carrier Aggregation Analysis.

Query

```
[:SENSe]:CAGG:RADio:PCOMpensation[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Enable (On) or Disable (Off)
`0`	Disable
`1`	Enable

Example of Use

To query the Enable/Disable status of Phase Compensation.

```
CAGG:RAD:PCOM?
> 1
```

2.4.5 Test Model

[:SENSe]:CAGG:RADio:TMODel <model>

Test Model

Function

This command sets the Test Model of all Component Carriers at once.

Command

```
[:SENSe]:CAGG:RADio:TMODel <model>
```

Parameter

`<model>`	Test Model
`OFF`	OFF (Default)
`FR2_TM1_1`	NR-FR2-TM1.1
`FR2_TM2`	NR-FR2-TM2
`FR2_TM3_1`	NR-FR2-TM3.1

Example of Use

To set the Test Model to FR2_TM3_1.

```
CAGG:RAD:TMOD FR2_TM3_1
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel <model>

Test Model

Function

This command sets the Test Model of the specified Component Carrier.

Command

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel <model>
```

Parameter

`<model>`	Test Model
`OFF`	OFF (Default)
`FR2_TM1_1`	NR-FR2-TM1.1
`FR2_TM2`	NR-FR2-TM2
`FR2_TM3_1`	NR-FR2-TM3.1

Example of Use

To set the Test Model for the Component Carrier 2 to FR2_TM3_1.

```
CAGG:CC2:RAD:TMOD FR2_TM3_1
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel?

Test Model Query

Function

This command queries the Test Model for the specified Component Carrier.

Query

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel?
```

Response

```
<model>
```

Parameter

`<model>`	Test Model
`OFF`	OFF
`FR2_TM1_1`	NR-FR2-TM1.1
`FR2_TM2`	NR-FR2-TM2
`FR2_TM3_1`	NR-FR2-TM3.1

Example of Use

To query the setting of Test Model for Component Carrier 2.

```
CAGG:CC2:RAD:TMOD?
> FR2_TM3_1
```

2.4.6 Test Model Version

[:SENSe]:CAGG:RADio:TMODel:VERSion AUTO|201903|201906

Test Model Version

Function

This command sets the version of 3GPP TS 38.141 for all Component Carriers at once when the input signal is the test model compliant to the 3GPP TS 38.141.

Command

```
[:SENSe]:CAGG:RADio:TMODel:VERSion <model>
```

Parameter

`<model>`	Test Model Version
`AUTO`	Automatic detection of the signal test model version (Default)
`201903`	TS 38.141 V15.1.0 (2019-03)
`201906`	TS 38.141 V15.2.0 (2019-06)

Example of Use

To set the Test Model Version to TS 38.141 V15.2.0 (2019-06).

```
CAGG:RAD:TMOD:VERS 201906
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel:VERSion AUTO|201903|201906

Test Model Version

Function

This command sets the version of 3GPP TS 38.141 for the specified Component Carrier when the input signal is the test model compliant to the 3GPP TS 38.141.

Command

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel:VERSion
<model>
```

Parameter

`<model>`	Test Model Version
`AUTO`	Automatic detection of the input signal test model version (Default)
`201903`	TS 38.141 V15.1.0 (2019-03)
`201906`	TS 38.141 V15.2.0 (2019-06)

Example of Use

To set the Test Model Version for Component Carrier 2 to TS 38.141 V15.2.0 (2019-06).

```
CAGG:CC2:RAD:TMOD:VERS 201906
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel:VERSion?

Test Model Version Query

Function

This command queries the Test Model Version for the specified Component Carrier.

Query

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel:VERSion?
```

Response

```
<model>
```

Parameter

`<model>`	Test Model Version
`AUTO`	Automatic detection of the signal test model version
`201903`	TS 38.141 V15.1.0 (2019-03)
`201906`	TS 38.141 V15.2.0 (2019-06)

Example of Use

To query the setting of Test Model for Component Carrier 2.

```
CAGG:CC2:RAD:TMOD:VERS?
> 201906
```

2.4.7 Subcarrier Spacing

[:SENSe]:CAGG:RADio:SUBCarrier:SPACing 15|30|60|120

Subcarrier Spacing

Function

This command sets the subcarrier spacing of all Component Carriers at once.

Command

```
[:SENSe]:CAGG:RADio:SUBCarrier:SPACing <mode>
```

Parameter

`<mode>`	Subcarrier Spacing
Standard: NR TDD sub-6GHz Downlink	
`15`	15 kHz
`30`	30 kHz (Default)
`60`	60 kHz
Standard: NR TDD mmWave Downlink	
`60`	60 kHz
`120`	120 kHz (Default)

Example of Use

To set the subcarrier spacing to 120 kHz.

```
CAGG:RAD:SUBC:SPAC 120
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing 15|30|60|120

Subcarrier Spacing

Function

This command sets the subcarrier spacing for the specified Component Carrier.

Command

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing <mode>
```

Parameter

`<mode>`	Subcarrier Spacing
Standard: NR TDD sub-6GHz Downlink	
`15`	15 kHz
`30`	30 kHz (Default)
`60`	60 kHz
Standard: NR TDD mmWave Downlink	
`60`	60 kHz
`120`	120 kHz (Default)

Example of Use

To set the subcarrier spacing for Component Carrier 2 to 120 kHz.

```
CAGG:CC2:RAD:SUBC:SPAC 120
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing?

Subcarrier Spacing Query

Function

This command queries the subcarrier spacing for the specified Component Carrier.

Query

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing?
```

Response

`<mode>`

Parameter

`<mode>`	Subcarrier Spacing
Standard: NR TDD sub-6GHz Downlink	
`15`	15 kHz
`30`	30 kHz (Defaut)
`60`	60 kHz
Standard: NR TDD mmWave Downlink	
`60`	60 kHz
`120`	120 kHz

Example of Use

To query the setting of subcarrier spacing for Component Carrier 2.

```
CAGG:CC2:RAD:SUBC:SPAC?
> 120
```

2.4.8 Number of RBs

[:SENSe]:CAGG:RADio:RBLock:NUMBer <mode>

Number of RBs

Function

This command sets the number of resource blocks of the measurement target signal for all Component Carriers at once.

Command

```
[:SENSe]:CAGG:RADio:RBLock:NUMBer <mode>
```

Parameter

`<mode>`	Number of Resource Blocks	`<mode>`	Number of Resource Blocks
`11`	11	`107`	107
`18`	18	`121`	121
`24`	24	`132`	132
`25`	25	`133`	133
`31`	31	`135`	135
`32`	32	`160`	160
`38`	38	`162`	162
`51`	51	`189`	189
`52`	52	`216`	216
`65`	65	`217`	217
`66`	66	`245`	245
`78`	78	`264`	264
`79`	79	`270`	270
`93`	93	`273`	273
`106`	106		

Details

The ranges for number of resource blocks that can be specified at each subcarrier spacing is listed at Table 2.4.8-1.

Table 2.4.8-1 Range for Number of Resource Blocks

Subcarrier Spacing	Range for Number of Resource Blocks
15 kHz	25, 52, 79, 106, 133, 160, 216, 270 (Default)
30 kHz	11, 24, 38, 51, 65, 78, 106, 133, 162, 189, 217, 245, 273 (Default)
60 kHz MX285051A-011	11, 18, 24, 31, 38, 51, 65, 79, 93, 107, 121, 135 (Default)
60 kHz MX285051A-021	66, 132, 264 (Default)
120 kHz	32, 66, 132 (Default), 264*1

*1: Selectable only when MS2850A-033/133 is installed.

Example of Use

To set the number of resource blocks for the measurement target signal to 264.

```
CAGG:RAD:RBL:NUMB 264
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer <mode>

Number of RBs

Function

This command sets the number of resource blocks of the measurement target signal for specified the Component Carrier.

Command

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer
<mode>
```

Parameter

`<mode>`	Number of Resource Blocks	`<mode>`	Number of Resource Blocks
11	11	107	107
18	18	121	121
24	24	132	132
25	25	133	133
31	31	135	135
32	32	160	160
38	38	162	162
51	51	189	189
52	52	216	216
65	65	217	217
66	66	245	245
78	78	264	264
79	79	270	270
93	93	273	273
106	106		

Details

The ranges for number of resource blocks that can be specified at each subcarrier spacing is listed at Table 2.4.8-1.

Example of Use

To set the number of resource blocks of the measurement target signal for Component Carrier 2 to 264.

```
CAGG:CC2:RAD:RBL:NUMB 264
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer?

Number of RBs Query

Function

This command queries the number of resource blocks of the measurement target signal for the specified Component Carrier.

Query

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer?
```

Response

`<mode>`

Parameter

`<mode>`	Number of Resource Blocks	`<mode>`	Number of Resource Blocks
11	11	107	107
18	18	121	121
24	24	132	132
25	25	133	133
31	31	135	135
32	32	160	160
38	38	162	162
51	51	189	189
52	52	216	216
65	65	217	217
66	66	245	245
78	78	264	264
79	79	270	270
93	93	273	273
106	106		

Example of Use

To query the number of resource blocks for the measurement target signal.

```
CAGG:CC2:RAD:RBL:NUMB?
> 264
```

2.4.9 Cell ID

CALCulate:CAGG:CELLid <integer>

Cell ID

Function

This command sets the Cell ID of all Component Carriers at once.

Command

```
CALCulate:CAGG:CELLid <integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1
Suffix code	None
Default	0

Details

This command is not available when the Synchronization Mode is Synchronization Signal.

Example of Use

To set the Cell ID of all Component Carriers in Carrier Aggregation Analysis measurement to 1.

```
CALC:CAGG:CELL 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid <integer>

Cell ID

Function

This command sets the Cell ID for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid <integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1
Suffix code	None
Default	0

Details

This command is not available when the Synchronization Mode is Synchronization Signal.

Example of Use

To set the Cell ID for Component Carrier 2 to 2.

```
CALC:CAGG:CC2:CELL 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid?

Cell ID Query

Function

This command queries the Cell ID for the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid?
```

Response

```
<integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1

Example of Use

To query the Cel ID for Component Carrier 2.

```
CALC:CAGG:CC2:CELL?
> 2
```

2.4.10 Synchronization Mode

[:SENSe]:CAGG:RADio:SYNChronization:MODE SS|RS

Synchronization Mode

Function

This command sets the Synchronization Mode of all Component Carriers at once.

Command

```
[:SENSe]:CAGG:RADio:SYNChronization:MODE <mode>
```

Parameter

`<mode>`	Synchronization Mode
`SS`	Synchronization Signal (Default)
`RS`	Reference Signal

Example of Use

To set the Synchronization Mode of all Component Carriers to SS.

```
CAGG:RAD:SYNC:MODE SS
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization:MODE SS|RS

Synchronization Mode

Function

This command sets the Synchronization Mode of the specified Component Carrier.

Command

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization
:MODE <mode>
```

Parameter

`<mode>`	Synchronization Mode
`SS`	Synchronization Signal (Default)
`RS`	Reference Signal

Example of Use

To set the Synchronization Mode for the Component Carrier 2 to SS.

```
CAGG:CC2:RAD:SYNC:MODE SS
```

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization:MODE?

Synchronization Mode Query

Function

This command queries the Synchronization Mode for the specified Component Carrier.

Query

```
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization
:MODE?
```

Response

```
<mode>
```

Parameter

`<mode>`	Synchronization
`SS`	Synchronization Signal
`RS`	Reference Signal

Example of Use

To query the Synchronization Mode for the Component Carrier 2.

```
CAGG:CC2:RAD:SYNC:MODE?
> SS
```

2.4.11 SS-Block On/Off

:CALCulate:CAGG:SSBLock[:STATe] 0|1|ON|OFF

SS-Block On/Off

Function

This command sets whether to include SS-Block in the measurement target of all Component Carriers (On/Off).

Command

```
:CALCulate:CAGG:SSBLock[:STATe] <switch>
```

Parameter

`<switch>`	SS-Block is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set SS-Block of all Component Carriers to Included.

```
CALC:CAGG:SSBL ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe] 0|1|ON|OFF

SS-Block On/Off

Function

This command sets whether to include SS-Block in the measurement target of the specified Component Carrier (On/Off).

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe]
<switch>
```

Parameter

`<switch>`	SS-Block is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set the SS-Block for Component Carrier 2 to Included.

```
CALC:CAGG:CC2:SSBL ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe]?

SS-Block On/Off Query

Function

This command queries the setting (On/Off) whether to include SS-Block in the measurement target of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	SS-Block is included (On), not included (Off)
`0`	Not included
`1`	Included

Example of Use

To query the setting of SS-Block.

```
CALC:CAGG:CC2:SSBL?
> 1
```

2.4.12 SS-Block Candidate

:CALCulate:CAGG:SSBLock:CANDidate D64

SS-Block Candidate

Function

This command sets the SS-Block mapping of all Component Carriers.

Command

```
:CALCulate:CAGG:SSBLock:CANDidate <mode>
```

Parameter

`<mode>`	SS-Block Candidate
`D64`	Maps SS-Block to 64 positions in Case D.

Example of Use

To set the SS-Block Candidate to D64.

```
CALC:CAGG:SSBL:CAND D64
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate D64

SS-Block Candidate

Function

This command sets the SS-Block mapping of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate
<mode>
```

Parameter

`<mode>`	SS-Block Candidate
`D64`	Maps SS-Block to 64 positions in Case D.

Example of Use

To set the SS-Block Candidate for Component Carrier 2 to D64.

```
CALC:CAGG:CC2:SSBL:CAND D64
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate?

SS-Block Candidate Query

Function

This command queries the setting of SS-Block mapping of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate?
```

Response

`<mode>`

Parameter

`<mode>`	SS-Block Candidate
`D64`	Maps SS-Block to 64 positions in Case D.

Example of Use

To query the SS-Block Candidate for Component Carrier 2.

```
CALC:CAGG:CC2:SSBL:CAND?
> D64
```

2.4.13 SS-Block Subcarrier Offset

:CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet <integer>

SS-Block Subcarrier Offset

Function

This command sets the Subcarrier Offset in the RBs to map the SS Block of all Component Carriers.

Command

```
:CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet <integer>
```

Parameter

`<integer>`	SS-Block Subcarrier Offset
Range	0 to 11
Default	Standard: NR TDD sub-6GHz Downlink 6 Standard: NR TDD mmWave Downlink 0

Example of Use

To set the SS-Block Subcarrier Offset of all Component Carriers to 0.

```
CALC:CAGG:SSBL:SUBC:OFFS 0
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:SUBCarrier:OFFSet <integer>

SS-Block Subcarrier Offset

Function

This command sets the Subcarrier Offset in the RBs to map the SS Block for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:SUBCarrier:
OFFSet <integer>
```

Parameter

`<integer>`	SS-Block Subcarrier Offset
Range	0 to 11
Default	Standard: NR TDD sub-6GHz Downlink 6 Standard: NR TDD mmWave Downlink 0

Example of Use

To set the SS-Block Subcarrier Offset for Component Carrier 2 to 0.

```
CALC:CAGG:CC2:SSBL:SUBC:OFFS 0
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:SUBCarrier:OFFSet?

SS-Block Subcarrier Offset Query

Function

This command queries the setting of Subcarrier Offset in the RBs to map the SS Block for the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:SUBCarrier:
OFFSet?
```

Response

```
<integer>
```

Parameter

`<integer>`	SS-Block Subcarrier Offset
Range	0 to 11

Example of Use

To query the setting of SS-Block Subcarrier Offset for Component Carrier 2.

```
CALC:CAGG:CC2:SSBL:SUBC:OFFS?
> 0
```

2.4.14 SS-Block RB Offset

:CALCulate:CAGG:SSBLock:RBLock:OFFSet <integer>

SS-Block RB Offset

Function

This command sets the RB Offset to map the SS Block of all Component Carriers.

Command

```
:CALCulate:CAGG:SSBLock:RBLock:OFFSet <integer>
```

Parameter

`<integer>`	SS-Block RB Offset
Range	0 to Number of RBs – 20 (SSB Subcarrier Offset = 0) 0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)
Default	Standard: NR TDD sub-6GHz Downlink 126 Standard: NR TDD mmWave Downlink 56

Example of Use

To set SS-Block RB Offset of all Component Carriers to 0.

```
CALC:CAGG:SSBL:RBL:OFFS 0
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:RBLock:OFFSet <integer>

SS-Block RB Offset

Function

This command sets the RB Offset to map the SS Block for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:RBLock:OFFSet <integer>
```

Parameter

`<integer>`	SS-Block RB Offset
Range	0 to Number of RBs – 20 (SSB Subcarrier Offset = 0) 0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)
Default	Standard: NR TDD sub-6GHz Downlink 126 Standard: NR TDD mmWave Downlink 56

Example of Use

To set the SS-Block RB Offset for Component Carrier 2 to 0.

```
CALC:CAGG:CC2:SSBL:RBL:OFFS 0
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:RBLock:OFFSet?

SS-Block RB Offset Query

Function

This command queries the setting of RB Offset to map the SS Block for the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:RBLock:OFFSet?
```

Response

`<integer>`

Parameter

`<integer>`	SS-Block RB Offset
Range	0 to Number of RBs – 20 (SSB Subcarrier Offset = 0) 0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)

Example of Use

To query the setting of SS-Block RB Offset for Component Carrier 2.

```
CALC:CAGG:CC2:SSBL:RBL:OFFS?
> 0
```

2.4.15 SS-Block Periodicity

:CALCulate:CAGG:SSBLock:PERiodicity 10|20

SS-Block Periodicity

Function

This command sets the SS-Block Periodicity of all Component Carriers.

Command

```
:CALCulate:CAGG:SSBLock:PERiodicity 10|20
```

Parameter

`<period>`	SS-Block Periodicity
`10`	10 ms (Default)
`20`	20 ms

Example of Use

To set the SS-Block Periodicity of all Component Carriers to 20.

```
CALC:CAGG:SSBL:PER 20
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity 10|20

SS-Block Periodicity

Function

This command sets the SS-Block Periodicity for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity
10|20
```

Parameter

`<period>`	SS-Block Periodicity
`10`	10 ms (Default)
`20`	20 ms

Example of Use

To set the SS-Block Periodicity for the specified Carrier 2 to 20.

```
CALC:CAGG:CC2:SSBL:PER 20
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity?

SS-Block Periodicity Query

Function

This command queries the setting of SS-Block Periodicity for the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity
?
```

Response

```
<period>
```

Parameter

`<period>`	SS-Block Periodicity
`10`	10 ms
`20`	20 ms

Example of Use

To query the setting of SS-Block Periodicity for Component Carrier 2.

```
CALC:CAGG:CC2:SSBL:PER?
> 20
```

2.4.16 SS-Block Analysis Frame Number

:CALCulate:CAGG:SSBLock:ANALysis:FRAMe:NUMBer <integer>

SS-Block Analysis Frame Number

Function

This command sets the analysis target frame number of all Component Carriers in SS synchronization.

Command

```
:CALCulate:CAGG:SSBLock:ANALysis:FRAMe:NUMBer <integer>
```

Parameter

`<integer>`	SS-Block Analysis Frame Number
Range	0 to 1
Default	0

Example of Use

To set the SS-Block Analysis Frame Number of all Component Carriers to 1.

```
CALC:CAGG:SSBL:ANAL:FRAM:NUMB 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer <integer>

SS-Block Analysis Frame Number

Function

This command sets the analysis target frame number for the specified Component Carriers in SS synchronization.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer <integer>
```

Parameter

`<integer>`	SS-Block Analysis Frame Number
Range	0 to 1
Default	0

Example of Use

To set the SS-Block Analysis Frame Number for Component Carrier 2 to 1.

```
CALC:CAGG:CC2:SSBL:ANAL:FRAM:NUMB 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer?

SS-Block Analysis Frame Number Query

Function

This command queries the setting of analysis target frame number for the specified Component Carriers in SS synchronization.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer?
```

Response

`<integer>`

Parameter

`<integer>`	SS-Block Analysis Frame Number
Range	0 to 1

Example of Use

To query the setting of SS-Block Analysis Frame Number for Component Carrier 2.

```
CALC:CAGG:CC2:SSBL:ANAL:FRAM:NUMB?
> 1
```

2.4.17 SS-Block Transmission

:CALCulate:CAGG:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

This command enables or disables the SS-Block in the specified index of all Component Carriers at once.

Command

```
:CALCulate:CAGG:SSBLock:INDex[0]|1…|7:TRANsmission[:STAT
e] <switch>
```

Parameter

`<switch>`	SS-Block Transmission
`OFF|0`	Disable
`ON|1`	Enable (Default)

Details

This command is available only when Standard is NR TDD sub-6GHz Downlink.

Example of Use

To set the SS-Block in Index 1 of all Component Carriers to Enable.

```
CALC:CAGG:SSBL:IND1:TRAN ON
```

:CALCulate:CAGG:CC[0]|1:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

This command enables or disables the SS-Block in the specified index of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] <switch>
```

Parameter

`<switch>`	SS-Block Transmission
`OFF|0`	Disable
`ON|1`	Enable (Default)

Details

This command is available only when Standard is NR TDD sub-6GHz Downlink.

Example of Use

To set the SS-Block in Index 1 of Component Carrier 1 to Enable.

```
CALC:CAGG:CC1:SSBL:IND1:TRAN ON
```

:CALCulate:CAGG:SSBLock:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

This command enables or disables the SS-Block in all indexes of all Component Carriers at once.

Command

```
:CALCulate:CAGG:SSBLock:TRANsmission[:STATe] <switch>
```

Parameter

`<switch>`	SS-Block Transmission
`OFF|0`	Disable
`ON|1`	Enable (Default)

Details

This command is available only when Standard is NR TDD sub-6GHz Downlink.

Example of Use

To set the SS-Block in all indexes of all Component Carriers to Enable.

```
CALC:CAGG:SSBL:TRAN ON
```

:CALCulate:CAGG:CC[0]|1:SSBLock:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

This command enables or disables the SS-Block in all indexes of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1:SSBLock:TRANsmission[:STATe]
<switch>
```

Parameter

`<switch>`	SS-Block Transmission
`OFF|0`	Disable
`ON|1`	Enable (Default)

Details

This command is available only when Standard is NR TDD sub-6GHz Downlink.

Example of Use

To set the SS-Block in all indexes of Component Carrier 1 to Enable.

```
CALC:CAGG:CC1:SSBL:TRAN ON
```

:CALCulate:CAGG:CC[0]|1:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe]?

SS-Block Transmission Query

Function

This command queries whether SS-Block is enabled or disabled in the specified index of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	SS-Block Transmission
`0`	Disable
`1`	Enable

Details

This command is available only when Standard is NR TDD sub-6GHz Downlink.

Example of Use

To query the setting of SS-Block in Index 1 of Component Carrier 1.

```
CALC:CAGG:CC1:SSBL:IND1:TRAN?
> 1
```

2.4.18 PDCCH/DM-RS On/Off

:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDCCH/DM-RS in the measurement target in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] <switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set PDCCH/DM-RS in Slot 1 of all Component Carriers to Included.

```
CALC:CAGG:SLOT1:PDCC ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDCCH/DM-RS in the measurement target in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDCC
h [:STATe] <switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set PDCCH/DM-RS in Slot 1 of Component Carriers 2 to Included.

```
CALC:CAGG:CC2:SLOT1:PDCC ON
```

:CALCulate:CAGG:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDCCH/DM-RS in the measurement target in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDCCh[:STATe] <switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

This command sets the setting of PDCCH/DM-RS in all slots of all Component Carriers at once.

Example of Use

To set the PDCCH/DM-RS in all slots of all Component Carriers to Included.

```
CALC:CAGG:PDCC ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDCCH/DM-RS in the measurement target in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDCCh[:STATe]
<switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set the PDCCH/DM-RS in all slots of Component Carrier 2 to Included.

```
CALC:CAGG:CC2:PDCC ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDCCh[:STATe]?

PDCCH/DM-RS On/Off Query

Function

This command queries the setting (On/Off) whether to include PDCCH/DM-RS in the measurement target in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDCCh[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PDCCH/DM-RS is included (On), not included (Off)
0	Not included
1	Included

Example of Use

To query the setting of PDCCH/DM-RS in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDCC?
> 1
```

2.4.19 PDSCH/DM-RS On/Off

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1

PDSCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDSCH/DM-RS in the measurement target in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] <switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set PDSCH/DM-RS in Slot 1 of all Component Carriers to Included.

```
CALC:CAGG:SLOT1:PDSC ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1 | …|79:PDSCh[:STATe] OFF|ON|0|1

PDSCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDSCH/DM-RS in the measurement target in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSC
h [:STATe] <switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set PDSCH/DM-RS in Slot 1 of Component Carriers 2 to Included.

```
CALC:CAGG:CC2:SLOT1:PDSC ON
```

:CALCulate:CAGG:PDSCh[:STATe] OFF|ON|0|1

PDSCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDSCH/DM-RS in the measurement target in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh[:STATe] <switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

This command sets the setting of PDSCH/DM-RS in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH/DM-RS in all slots of all Component Carriers to Included.

```
CALC:CAGG:PDSC ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh[:STATe] OFF|ON|0|1

PDSCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDSCH/DM-RS in the measurement target in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh[:STATe]
<switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Example of Use

To set the PDSCH/DM-RS in all slots of Component Carrier 2 to Included.

```
CALC:CAGG:CC2:PDSC ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh[:STATe]?

PDSCH/DM-RS On/Off Query

Function

This command queries the setting (On/Off) whether to include PDSCH/DM-RS in the measurement target in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PDSCH/DM-RS is included (On), not included (Off)
`0`	Not included
`1`	Included

Example of Use

To query the setting of PDSCH/DM-RS in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC?
> 1
```

2.4.20 PDSCH/DM-RS Antenna Port

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:APORt <mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Example of Use

To set the PDSCH/DM-RS antenna port in Slot 1 of all Component Carriers to 1001.

```
CALC:CAGG:SLOT1:PDSC:APOR 1001
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt <mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Example of Use

To set the PDSCH/DM-RS antenna port in Slot 1 of Component Carrier 2 to 1001.

```
CALC:CAGG:CC2:SLOT1:PDSC:APOR 1001
```

:CALCulate:CAGG:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:APORt <mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Details

This command sets the setting of PDSCH/DM-RS antenna port in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH/DM-RS antenna port in all slots of all Component Carriers to 1001.

```
CALC:CAGG:PDSC:APOR 1001
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:APORt <mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Example of Use

To set the PDSCH/DM-RS antenna port in all slots of Component Carrier 2 to 1001.

```
CALC:CAGG:CC2:PDSC:APOR 1001
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt?

PDSCH/DM-RS Antenna Port Query

Function

This command queries the PDSCH/DM-RS antenna port in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH/DM-RS antenna port
`1000`	1000
`1001`	1001
`1002`	1002
`1003`	1003

Example of Use

To query the setting of the PDSCH/DM-RS antenna port in Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:APOR?
> 1001
```

2.4.21 PDSCH Modulation Scheme

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Example of Use

To set the PDSCH modulation scheme in Slot 1 of all Component Carriers to 256QAM.

```
CALC:CAGG:SLOT1:PDSC:MOD 256Q
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Example of Use

To set the PDSCH modulation scheme in Slot 1 of Component Carrier 2 to 256QAM.

```
CALC:CAGG:CC2:SLOT1:PDSC:MOD 256Q
```

:CALCulate:CAGG:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH modulation scheme in all slots of all Component Carriers to 256QAM.

```
CALC:CAGG:PDSC:MOD 256Q
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MODulation
<mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Example of Use

To set the PDSCH modulation scheme in all slots of Component Carrier 2 to 256QAM.

```
CALC:CAGG:CC2:PDSC:MOD 256Q
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation?

PDSCH Modulation Scheme Query

Function

This command queries the modulation scheme to analyze PDSCH in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation?
```

Response

```
<mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PDSCH
`QPSK`	QPSK
`16Q`	16QAM
`64Q`	64QAM
`256Q`	256QAM
`AUTO`	Automatic judgment

Example of Use

To query the PDSCH modulation scheme in Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:MOD?
> 256Q
```

2.4.22 PDSCH Mapping Type

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A (Default)
`B`	B

Example of Use

To set the PDSCH Mapping Type in Slot 1 of all Component Carriers to A.

```
CALC:CAGG:SLOT1:PDSC:MAPP:TYPE A
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSC
h:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A (Default)
`B`	B

Example of Use

To set the PDSCH Mapping Type in Slot 1 of Component Carrier 2 to A.

```
CALC:CAGG:CC2:SLOT1:PDSC:MAPP:TYPE A
```

:CALCulate:CAGG:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A (Default)
`B`	B

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH Mapping Type in all slots of all Component Carriers to A.

```
CALC:CAGG:PDSC:MAPP:TYPE A
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:TYPE
<mode>
```

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A (Default)
`B`	B

Example of Use

To set the PDSCH Mapping Type in all slots of Component Carrier 2 to A.

```
CALC:CAGG:CC2:PDSC:MAPP:TYPE A
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE?

PDSCH Mapping Type Query

Function

This command queries the setting of PDSCH Mapping Type in the specified slot of the specified Component Carrier.

Query

```
CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh
:MAPPing:TYPE?
```

Response

`<mode>`

Parameter

`<mode>`	PDSCH Mapping Type
`A`	A
`B`	B

Example of Use

To query the PDSCH Mapping Type in Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:MAPP:TYPE?
> A
```

2.4.23 PDSCH Start Symbol

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

Function

This command sets the PDSCH start symbol in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:STARt
<integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12
Default	2

Example of Use

To set the PDSCH start symbol in Slot 1 of all Component Carriers to 1.

```
CALC:CAGG:SLOT1:PDSC:SYMB:STAR 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

Function

This command sets the PDSCH start symbol in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:SYMBol:STARt <integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12
Default	2

Example of Use

To set the PDSCH start symbol in Slot 1 of Component Carriers 2 to 1.

```
CALC:CAGG:CC2:SLOT1:PDSC:SYMB:STAR 1
```

:CALCulate:CAGG:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

Function

This command sets the PDSCH start symbol in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:SYMBol:STARt <integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12
Default	2

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH start symbol in all slots of all Component Carriers to 1.

```
CALC:CAGG:PDSC:SYMB:STAR 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

Function

This command sets the PDSCH start symbol in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:STARt
<integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12
Default	2

Example of Use

To set the PDSCH start symbol in all slots of Component Carrier 2 to 1.

```
CALC:CAGG:CC2:PDSC:SYMB:STAR 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:STARt?

PDSCH Start Symbol Query

Function

This command queries the setting of PDSCH start symbol in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:SYMBol:STARt?
```

Response

```
<integer>
```

Parameter

`<integer>`	PDSCH start symbol
Range	PDSCH Mapping Type: typeA 0 to DM-RS typeA-pos PDSCH Mapping Type: typeB 0 to 12

Example of Use

To query the PDSCH start symbol in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:SYMB:STAR?
> 1
```

2.4.24 PDSCH Number of Symbols

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer>

PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth
<integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol
Default	12

Example of Use

To set the number of PDSCH mapping symbols in Slot 1 of all Component Carriers to 3.

```
CALC:CAGG:SLOT1:PDSC:SYMB:LENG 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer>

PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:SYMBol:LENGth <integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol
Default	12

Example of Use

To set the number of PDSCH mapping symbols in Slot 1 of Component Carriers 2 to 3.

```
CALC:CAGG:CC2:SLOT1:PDSC:SYMB:LENG 3
```

:CALCulate:CAGG:PDSCh:SYMBol:LENGth <integer>

PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:SYMBol:LENGth <integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol
Default	12

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the number of PDSCH mapping symbols in all slots of all Component Carriers to 3.

```
CALC:CAGG:PDSC:SYMB:LENG 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:LENGth <integer>

PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:LENGth
<integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol
Default	12

Example of Use

To set the number of PDSCH mapping symbols in all slots of Component Carrier 2 to 3.

```
CALC:CAGG:CC2:PDSC:SYMB:LENG 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth?

PDSCH Number of Symbols Query

Function

This command queries the number of PDSCH mapping symbols in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:SYMBol:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of PDSCH mapping symbols
Range	2 to 14 – PDSCH Start Symbol

Example of Use

To query the number of PDSCH mapping symbols in Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:SYMB:LENG?
> 3
```

2.4.25 PDSCH Power Boosting (Auto/Manual)

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting (Auto/Manual)

Function

This command sets the PDSCH boosting level to automatic (On) or manual (Off) in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:POWer:Auto <switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Example of Use

To set the PDSCH boosting level in Slot 1 of all Component Carriers to Manual.

```
CALC:CAGG:SLOT1:PDSC:POW:Auto OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting (Auto/Manual)

Function

This command sets the PDSCH boosting level to automatic (On) or manual (Off) in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:Auto <switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Example of Use

To set the PDSCH boosting level in Slot 1 of Component Carrier 2 to Manual.

```
CALC:CAGG:CC2:SLOT1:PDSC:POW:AUTO OFF
```

:CALCulate:CAGG:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting(Auto/Manual)

Function

This command sets the PDSCH boosting level to automatic (On) or manual (Off) in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:POWer:Auto <switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH boosting level in all slots of all Component Carriers to Manual.

```
CALC:CAGG:PDSC:POW:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting (Auto/Manual)

Function

This command sets the PDSCH boosting level to automatic (On) or manual (Off) in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:Auto
<switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Example of Use

To set the PDSCH boosting level in all slots of Component Carrier 2 to Manual.

```
CALC:CAGG:CC2:PDSC:POW:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:AUTO?

PDSCH Power Boosting (Auto/Manual) Query

Function

This command queries whether the PDSCH boosting level is automatic (On) or manual (Off) in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:POWer:AUTO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
0	Manual
1	Auto

Example of Use

To query whether the PDSCH boosting level is automatic in Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:POW:AUTO?
> 0
```

2.4.26 PDSCH Power Boosting

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting
<rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	`DB`, dB is used when omitted.
Default	0.000 dB

Example of Use

To set the PDSCH boosting level in Slot 1 of all Component Carriers to 3.00 dB.

```
CALC:CAGG:SLOT1:PDSC:POW:BOOS 3.00DB
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting <rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	DB, dB is used when omitted.
Default	0.000 dB

Example of Use

To set the PDSCH boosting level in Slot 1 of Component Carrier 2 to 3.00 dB.

```
CALC:CAGG:CC2:SLOT1:PDSC:POW:BOOS 3.00DB
```

:CALCulate:CAGG:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:POWer:BOOSting <rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	`DB`, dB is used when omitted.
Default	0.000 dB

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH boosting level in all slots of all Component Carriers to 3.00 dB.

```
CALC:CAGG:PDSC:POW:BOOS 3.00DB
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:BOOStin
g <rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	DB, dB is used when omitted.
Default	0.000 dB

Example of Use

To set the PDSCH boosting level in all slots of Component Carrier 2 to 3.00 dB.

```
CALC:CAGG:CC2:PDSC:POW:BOOS 3.00DB
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting?

PDSCH Power Boosting Query

Function

This command queries the PDSCH boosting level in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:BOOSting?
```

Response

```
<rel_power>
```

Parameter

`<rel_power>`	PDSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	Non, Value is returned in dB unit.

Example of Use

To query the PDSCH boosting level in Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:POW:BOOS?
> 3.000
```

2.4.27 PDSCH DM-RS typeA-pos

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

This command sets the PDSCH DM-RS typeA-pos in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3
Default	2

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 of all Component Carriers to 3.

```
CALC:CAGG:SLOT1:PDSC:MAPP:DMRS:APOS 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

This command sets the PDSCH DM-RS typeA-pos in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3
Default	2

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 of Component Carriers 2 to 3.

```
CALC:CAGG:CC2:SLOT1:PDSC:MAPP:DMRS:APOS 3
```

:CALCulate:CAGG:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

This command sets the PDSCH DM-RS typeA-pos in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:MAPPing:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3
Default	2

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH DM-RS typeA-pos in all slots of all Component Carriers to 3.

```
CALC:CAGG:PDSC:MAPP:DMRS:APOS 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

This command sets the PDSCH DM-RS typeA-pos in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:DMRS:
APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3
Default	2

Example of Use

To set the PDSCH DM-RS typeA-pos in all slots of Component Carrier 2 to 3.

```
CALC:CAGG:CC2:PDSC:MAPP:DMRS:APOS 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition?

PDSCH DM-RS typeA-pos Query

Function

This command queries the setting of PDSCH DM-RS typeA-pos in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:MAPPing:DMRS:APOSition?
```

Response

```
<integer>
```

Parameter

`<integer>`	PDSCH DM-RS typeA-pos
Range	2, 3

Example of Use

To query the PDSCH DM-RS typeA-pos in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:MAPP:DMRS:APOS?
> 3
```

2.4.28 PDSCH DM-RS add-pos

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

This command sets the PDSCH DM-RS add-pos in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:DMRS:APOSition
<integer>
```

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Example of Use

To set the PDSCH DM-RS add-pos in Slot 1 of all Component Carriers to 3.

```
CALC:CAGG:SLOT1:PDSC:DMRS:APOS 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

This command sets the PDSCH DM-RS add-pos in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Example of Use

To set the PDSCH DM-RS add-pos in Slot 1 of Component Carriers 2 to 3

```
CALC:CAGG:CC2:SLOT1:PDSC:DMRS:APOS 3
```

:CALCulate:CAGG:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

This command sets the PDSCH DM-RS add-pos in all slots of all Component Carriers.

Command

`:CALCulate:CAGG:PDSCh:DMRS:APOSition <integer>`

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH DM-RS add-pos in all slots of all Component Carriers to 3.

```
CALC:CAGG:PDSC:DMRS:APOS 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

This command sets the PDSCH DM-RS add-pos in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:APOSitio
n <integer>
```

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Example of Use

To set the PDSCH DM-RS add-pos in all slots of Component Carrier 2 to 3.

```
CALC:CAGG:CC2:PDSC:DMRS:APOS 3
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOSition?

PDSCH DM-RS add-pos Query

Function

This command queries the setting of PDSCH DM-RS add-pos in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:DMRS:APOSition?
```

Response

`<integer>`

Parameter

`<integer>`	PDSCH DM-RS add-pos
Range	0, 1, 2, 3

Example of Use

To query the PDSCH DM-RS add-pos in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:DMRS:APOS?
> 3
```

2.4.29 PDSCH DM-RS CDM Group Without Data

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:DMRS:CDM 1|2

PDSCH DM-RS CDM Group Without Data

Function

This command sets the PDSCH DM-RS CDM Group Without Data in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:DMRS:CDM <mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Example of Use

To set the PDSCH DM-RS CDM Group Without Data in Slot 1 of all Component Carriers to 2.

```
CALC:CAGG:SLOT1:PDSC:DMRS:CDM 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:CDM 1|2

PDSCH DM-RS CDM Group Without Data

Function

This command sets the PDSCH DM-RS CDM Group Without Data in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:DMRS:CDM <mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Example of Use

To set the PDSCH DM-RS CDM Group Without Data in Slot 1 of Component Carriers 2 to 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:DMRS:CDM 2
```

:CALCulate:CAGG:PDSCh:DMRS:CDM 1|2

PDSCH DM-RS CDM Group Without Data

Function

This command sets the PDSCH DM-RS CDM Group Without Data in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:DMRS:CDM <mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH DM-RS CDM Group Without Data in all slots of all Component Carriers to 2.

```
CALC:CAGG:PDSC:DMRS:CDM 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:CDM 1|2

PDSCH DM-RS CDM Group Without Data

Function

This command sets the PDSCH DM-RS CDM Group Without Data in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:CDM
<mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Example of Use

To set the PDSCH DM-RS CDM Group Without Data in all slots of Component Carrier 2 to 2.

```
CALC:CAGG:CC2:PDSC:DMRS:CDM 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:CDM?

PDSCH DM-RS CDM Group Without Data Query

Function

This command queries the setting of PDSCH DM-RS CDM Group Without Data in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:DMRS:CDM?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH DM-RS CDM Group Without Data
Range	1, 2

Example of Use

To query the PDSCH DM-RS CDM Group Without Data in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:DMRS:CDM?
> 2
```

2.4.30 PDSCH PTRS

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]
<switch>
```

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Example of Use

To set the PDSCH PT-RS in Slot 1 of all Component Carriers to Enabled.

```
CALC:CAGG:SLOT1:PDSC:PTRS ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1 | …|79:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSC
h:PTRS [:STATe] <switch>
```

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Example of Use

To set the PDSCH PT-RS in Slot 1 of Component Carrier 2 to Enabled.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS ON
```

:CALCulate:CAGG:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:PTRS[:STATe] <switch>
```

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Details

This command sets the setting of PDSCH PT-RS in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH PT-RS in all slots of all Component Carriers to Enabled.

```
CALC:CAGG:PDSC:PTRS ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS[:STATe]
<switch>
```

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Example of Use

To set the PDSCH PT-RS in all slots of Component Carrier 2 to Enabled.

```
CALC:CAGG:CC2:PDSC:PTRS ON
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?

PDSCH PTRS Query

Function

This command queries whether PDSCH PT-RS is enabled (On) or disabled (Off) in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PDSCH PT-RS Enabled (On), Disabled (Off)
0	Disabled
1	Enabled

Example of Use

To query the setting of PDSCH PT-RS in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS?
> 1
```

2.4.31 PDSCH PTRS Time Density

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME 1|2|4

PDSCH PTRS Time Density

Function

This command sets the PDSCH PTRS Time Density in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME
<mode>
```

Parameter

`<mode>`	PDSCH PTRS Time Density
Range	1, 2, 4
Default	1

Example of Use

To set the PDSCH PTRS Time Density in Slot 1 of all Component Carriers to 2.

```
CALC:CAGG:SLOT1:PDSC:PTRS:DENS:TIME 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME 1|2|4

PDSCH PTRS Time Density

Function

This command sets the PDSCH PTRS Time Density in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:PTRS:DENSity:TIME <mode>
```

Parameter

`<mode>`	PDSCH PTRS Time Density
Range	1, 2, 4
Default	1

Example of Use

To set the PDSCH start symbol in Slot 1 of Component Carriers 2 to 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS:DENS:TIME 2
```

:CALCulate:CAGG:PDSCh:PTRS:DENSity:TIME 1|2|4

PDSCH PTRS Time Density

Function

This command sets the PDSCH PTRS Time Density in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:PTRS:DENSity:TIME <mode>
```

Parameter

<mode>	PDSCH PTRS Time Density
Range	1, 2, 4
Default	1

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH PTRS Time Density in all slots of all Component Carriers to 2.

```
CALC:CAGG:PDSC:PTRS:DENS:TIME 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:TIME 1|2|4

PDSCH PTRS Time Density

Function

This command sets the PDSCH PTRS Time Density in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:
TIME <mode>
```

Parameter

<mode>	PDSCH PTRS Time Density
Range	1, 2, 4
Default	1

Example of Use

To set the PDSCH PTRS Time Density in all slots of Component Carrier 2 to 2.

```
CALC:CAGG:CC2:PDSC:PTRS:DENS:TIME 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:TIME?

PDSCH PTRS Time Density Query

Function

This command queries the setting of PDSCH PTRS Time Density in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:PTRS:DENSity:TIME?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH PTRS Time Density
Range	1, 2, 4

Example of Use

To query the PDSCH PTRS Time Density in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS:DENS:TIME?
> 2
```

2.4.32 PDSCH PTRS Freq. Density

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency 2|4

PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency <mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4
Default	2

Example of Use

To set the PDSCH PTRS Freq. Density in Slot 1 of all Component Carriers to 2.

```
CALC:CAGG:SLOT1:PDSC:PTRS:DENS:FREQ 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency 2|4

PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency <mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4
Default	2

Example of Use

To set the PDSCH PTRS Freq. Density in Slot 1 of Component Carriers 2 to 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS:DENS:FREQ 2
```

:CALCulate:CAGG:PDSCh:PTRS:DENSity:FREQuency 2|4

PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:PTRS:DENSity:FREQuency <mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4
Default	2

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH PTRS Freq. Density in all slots of all Component Carriers to 2.

```
CALC:CAGG:PDSC:PTRS:DENS:FREQ 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:FREQuency 2|4

PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:
FREQuency <mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4
Default	2

Example of Use

To set the PDSCH PTRS Freq. Density in all slots of Component Carrier 2 to 2.

```
CALC:CAGG:CC2:PDSC:PTRS:DENS:FREQ 2
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSity:FREQuency?

PDSCH PTRS Freq. Density Query

Function

This command queries the setting of PDSCH PTRS Freq. Density in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:PTRS:DENSity:FREQuency?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH PTRS Freq. Density
Range	2, 4

Example of Use

To query the PDSCH PTRS Freq. Density in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS:DENS:FREQ?
> 2
```

2.4.33 PDSCH PTRS RE Offset

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet 00|01|10|11

PDSCH PTRS RE Offset

Function

This command sets the PDSCH PTRS RE Offset in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Example of Use

To set the PDSCH PTRS RE Offset in Slot 1 of all Component Carriers to 01.

```
CALC:CAGG:SLOT1:PDSC:PTRS:OFFS 01
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet 00|01|10|11

PDSCH PTRS RE Offset

Function

This command sets the PDSCH PTRS RE Offset in the specified slot of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Example of Use

To set the PDSCH PTRS RE Offset in Slot 1 of Component Carriers 2 to 01.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS:OFFS 01
```

:CALCulate:CAGG:PDSCh:PTRS:OFFSet 00|01|10|11

PDSCH PTRS RE Offset

Function

This command sets the PDSCH PTRS RE Offset in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH PTRS RE Offset in all slots of all Component Carriers to 01.

```
CALC:CAGG:PDSC:PTRS:OFFS 01
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:OFFSet 00|01|10|11

PDSCH PTRS RE Offset

Function

This command sets the PDSCH PTRS RE Offset in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:OFFSet
<mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Example of Use

To set the PDSCH PTRS RE Offset in all slots of Component Carrier 2 to 01.

```
CALC:CAGG:CC2:PDSC:PTRS:OFFS 01
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:OFFSet?

PDSCH PTRS RE Offset Query

Function

This command queries the setting of PDSCH PTRS RE Offset in the specified slots of the specified Component Carriers.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh
:PTRS:OFFSet?
```

Response

```
<mode>
```

Parameter

`<mode>`	PDSCH PTRS RE Offset
Range	00, 01, 10, 11

Example of Use

To query the PDSCH PTRS RE Offset in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:PTRS:OFFS?
> 01
```

2.4.34 PDSCH RBs Allocation Auto Detect

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PDSCH in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH in slot 1 of all Component Carriers.

```
CALC:CAGG:SLOT1:PDSC:RBL:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSC
h:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:RBL:AUTO OFF
```

:CALCulate:CAGG:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PDSCH in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Details

The settings of the auto detection are performed collectively in all slots of all Component Carriers.

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH collectively in all slots of all Component Carriers.

```
CALC:CAGG:PDSC:RBL:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PDSCH in all slots of the specified Component Carriers.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:AUTO
<switch>
```

Parameter

`<switch>`	Enabled (On) or Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH in all slots of Component Carrier 2.

```
CALC:CAGG:CC2:PDSC:RBL:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO?

PDSCH RBs Allocation Auto Detect Query

Function

This command queries whether auto detection is enabled (On) or disabled (Off) for the RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Enabled (On) or Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled

Example of Use

To query whether auto detection is enabled or disabled for the RBs that are allocated to PDSCH in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:RBL:AUTO?
> 0
```

2.4.35 PDSCH RBs Allocation Start RB

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer>

PDSCH RBs Allocation Start RB

Function

This command sets the Start RB of the RBs that are allocated to PDSCH in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:STARt
<integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1
Default	0

Example of Use

To set the Start RB of the RBs that are allocated to PDSCH in slot 1 of all Component Carriers to 1.

```
CALC:CAGG:SLOT1:PDSC:RBL:STAR 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer>

PDSCH RBs Allocation Start RB

Function

This command sets the Start of the RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSC
h:RBLock:STARt <integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1
Default	0

Example of Use

To set the Start RB of the RBs that are allocated to PDSCH in slot 1 of Component Carrier 2 to 1.

```
CALC:CAGG:CC2:SLOT1:PDSC:RBL:STAR 1
```

:CALCulate:CAGG:PDSCh:RBLock:STARt <integer>

PDSCH RBs Allocation Start RB

Function

This command sets the Start RB of the RBs that are allocated to PDSCH in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:RBLock:STARt <integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1
Default	0

Details

The settings are performed collectively in all slots of all Component Carriers.

Example of Use

To set the Start RB of the RBs that are allocated to PDSCH to 1 in all slots of all Component Carriers.

```
CALC:CAGG:PDSC:RBL:STAR 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:STARt <integer>

PDSCH RBs Allocation Start RB

Function

This command sets the Start RB of the RBs that are allocated to PDSCH in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:STARt
<integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1
Default	0

Example of Use

To set the Start RB of the RBs that are allocated to PDSCH to 1 in all slots of Component Carrier 2.

```
CALC:CAGG:CC2:PDSC:RBL:STAR 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STARt?

PDSCH RBs Allocation Start RB Query

Function

This command queries the Start RB of the RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STARt?
```

Response

```
<integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PDSCH
Range	0 to Number Of RBs – 1

Example of Use

To query the Start RB of the RBs that are allocated to PDSCH in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:RBL:STAR?
> 1
```

2.4.36 PDSCH RBs Allocation Number of RBs

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

This command sets the number of the RBs that are allocated to PDSCH in the specified slot of all Component Carriers.

Command

```
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RB – PDSCH Start RB
Default	Number Of RB

Example of Use

To set the number of the RBs that are allocated to PDSCH to 1 in slot 1 of all Component Carriers.

```
CALC:CAGG:SLOT1:PDSC:RBL:LENG 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

This command sets the number of the RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSC
h:RBLock:LENGth <integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RBs – PDSCH Start RB
Default	Number Of RBs

Example of Use

To set the number of the RBs that are allocated to PDSCH to 1 in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:RBL:LENG 1
```

:CALCulate:CAGG:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

This command sets the number of RBs that are allocated to PDSCH in all slots of all Component Carriers.

Command

```
:CALCulate:CAGG:PDSCh:RBLock:LENGth <integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RBs – PDSCH Start RB
Default	Number Of RBs

Details

The settings are performed collectively in all slots of all Component Carriers.

Example of Use

To set the number of RBs that are allocated to PDSCH to all slots of all Component Carriers to 1.

```
CALC:CAGG:PDSC:RBL:LENG 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

This command sets the number of RBs that are allocated to PDSCH in all slots of the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:LENGth
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RBs – PDSCH Start RB
Default	Number Of RBs

Example of Use

To set the number of RBs that are allocated to PDSCH in all slots of the Component Carrier 2 to 1.

```
CALC:CAGG:CC2:PDSC:RBL:LENG 1
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth?

PDSCH RBs Allocation Number of RBs Query

Function

This command queries the number of RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PDSCH
Range	1 to Number Of RB – PDSCH Start RB

Example of Use

To query the number of RBs that are allocated to PDSCH in slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:PDSC:RBL:LENG?
> 1
```

2.4.37 Test Model TDD Configuration

:CALCulate:CAGG:TMODel:TDDConfig:AUTO OFF|ON|0|1

Test Model TDD Configuration

Function

This command enables (On) or disables (Off) the automatic detection of TDD Configuration of the test model for all Component Carriers at once.

Command

```
:CALCulate:CAGG:TMODel:TDDConfig:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On), Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To disable (Off) the automatic detection of TDD Configuration of the test model for all Component Carriers.

```
CALC:CAGG:TMOD:TDDC:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:AUTO OFF|ON|0|1

Test Model TDD Configuration

Function

This command enables (On) or disables (Off) the automatic detection of TDD Configuration of the test model for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On), Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To disable the automatic detection of TDD Configuration of the test model for Component Carrier 2.

```
CALC:CAGG:CC2:TMOD:TDDC:AUTO OFF
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:AUTO?

Test Model TDD Configuration Query

Function

This command queries whether the automatic detection of TDD Configuration of the test model for the specified Component Carrier is enabled or disabled.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:AU
TO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Enabled, Disabled
0	Disabled
1	Enabled (Default)

Example of Use

To query the setting of the automatic detection of TDD Configuration of the test model for Component Carrier 2.

```
CALC:CAGG:CC2:TMOD:TDDC:AUTO?
> 0
```

2.4.38 DL Slot No. for Synchronization

:CALCulate:CAGG:TMODel:TDDConfig:SYNC:SLOT <integer>

DL Slot No. for Synchronization

Function

This command sets the downlink slot number for frame synchronization at once when the automatic detection of TDD Configuration of the test model is enabled for all Component Carriers.

Command

```
:CALCulate:CAGG:TMODel:TDDConfig:SYNC:SLOT <integer>
```

Parameter

`<integer>`	Slot number for frame synchronization
Range	Refer to Table 2.3.35-1.

Example of Use

To set the downlink slot number for frame synchronization to 0 when the automatic detection of TDD Configuration of the test model is enabled for all Component Carriers.

```
CALC:CAGG:TMOD:TDDC:SYNC:SLOT 0
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SYNC:SLOT <integer>

DL Slot No. for Synchronization

Function

This command sets the downlink slot number for frame synchronization at once when the automatic detection of TDD Configuration of the test model is enabled for the specified Component Carrier.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SY
NC:SLOT <integer>
```

Parameter

`<integer>`	Slot number for frame synchronization
Range	Refer to Table 2.3.35-1.

Example of Use

To set the downlink slot number for frame synchronization to 0 when the automatic detection of TDD Configuration of the test model for Component Carrier 2 is enabled.

```
CALC:CAGG:CC2:TMOD:TDDC:SYNC:SLOT 0
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SYNC:SLOT?

DL Slot No. for Synchronization Query

Function

This command queries the downlink slot number for frame synchronization when the automatic detection of TDD Configuration of the test model for the specified Component Carrier is enabled.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SYNC:SLOT?
```

Response

```
<integer>
```

Parameter

`<integer>`	Slot number for frame synchronization
Range	Refer to Table 2.3.35-1.

Example of Use

To query the downlink slot number for frame synchronization when the automatic detection of TDD Configuration of the test model for Component Carrier 2 is enabled.

```
CALC:CAGG:CC2:TMOD:TDDC:SYNC:SLOT?
> 0
```

2.4.39 Number of DL Symbols in Special Slots

:CALCulate:CAGG:TMODel:TDDConfig:SSLot:SYMBol:LENGth <integer>

Number of DL Symbols in Special Slots

Function

This command sets the number of downlink symbols in Special Slots at once when TDD Configuration of the test model for all Component Carriers is set to manual.

Command

```
:CALCulate:CAGG:TMODel:TDDConfig:SSLot:SYMBol:LENGth
<integer>
```

Parameter

`<integer>`	Number of downlink symbols in the special slots
Range	1 to 14

Example of Use

To set the number of downlink symbols in Special Slots to 6 when TDD Configuration of the test model for all Component Carriers is set to manual.

```
CALC:CAGG:TMOD:TDDC:SSL:SYMB:LENG 6
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SSLot:SYMBol:LENGth <integer>

Number of DL Symbols in Special Slots

Function

This command sets the number of downlink symbols in Special Slots at once when TDD Configuration of the test model for the specified Component Carriers is set to manual.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SS
Lot:SYMBol:LENGth <integer>
```

Parameter

`<integer>`	Number of downlink symbols in the special slots
Range	1 to 14

Example of Use

To set the number of downlink symbols in Special Slots to 6 when TDD Configuration of the test model for Component Carrier 2 is set to manual.

```
CALC:CAGG:CC2:TMOD:TDDC:SSL:SYMB:LENG 6
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SSLot:SYMBol:LENGth?

Number of DL Symbols in Special Slots Query

Function

This command queries the number of downlink symbols in Special Slots when TDD Configuration of the test model for the specified Component Carrier is set to manual.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SSLot:SYMBol:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of downlink symbols in the special slots
Range	1 to 14

Example of Use

To query the number of downlink symbols in Special Slots when TDD Configuration of the test model for Component Carrier 2 is set to manual.

```
CALC:CAGG:CC2:TMOD:TDDC:SSL:SYMB:LENG?
> 6
```

2.4.40 Test Model TDD Config Slot Types

:CALCulate:CAGG:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE D|U|S

Test Model TDD Configuration Slot Types

Function

This command sets the slot type of TDD Configuration for each slot when TDD Configuration of the test model for all Component Carriers is set to manual.

Command

```
:CALCulate:CAGG:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE
<mode>
```

Parameter

`<mode>`	TDD Configuration Slot Type
`D`	Downlink
`U`	Uplink
`S`	Special

Example of Use

To set the slot type of TDD Configuration of the test model for Slot 1 of all Component Carriers to Special.

```
CALC:CAGG:SLOT1:TMOD:TDDC:SLOT:TYPE S
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:TMODel:TDDConfig: SLOT:TYPE D|U|S

Test Model TDD Configuration Slot Types

Function

This command sets the slot type of TDD Configuration for each slot when TDD Configuration of the test model for the specified Component Carrier is set to manual.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:TMODe
l:TDDConfig:SLOT:TYPE <mode>
```

Parameter

`<mode>`	TDD Configuration Slot Type
`D`	Downlink
`U`	Uplink
`S`	Special

Example of Use

To set the slot type of TDD Configuration of the test model for Slot 1 of Component Carrier 2 to Special.

```
CALC:CAGG:CC2:SLOT1:TMOD:TDDC:SLOT:TYPE S
```

:CALCulate:CAGG:TMODel:TDDConfig:SLOT:TYPE D|U|S

Test Model TDD Configuration Slot Types

Function

This command sets the slot type of TDD Configuration for all slots at once when TDD Configuration of the test model for all Component Carriers is set to manual.

Command

```
:CALCulate:CAGG:TMODel:TDDConfig:SLOT:TYPE <mode>
```

Parameter

`<mode>`	TDD Configuration Slot Type
`D`	Downlink
`U`	Uplink
`S`	Special

Example of Use

To set the slot type of TDD Configuration of the test model for all slots of all Component Carriers to Special at once.

```
CALC:CAGG:TMOD:TDDC:SLOT:TYPE S
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SLOT:TYPE D|U|S

Test Model TDD Configuration Slot Types

Function

This command sets the slot type of TDD Configuration for all slots when TDD Configuration of the test model for the specified Component Carrier is set to manual.

Command

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:TMODel:TDDConfig:SL
OT:TYPE <mode>
```

Parameter

`<mode>`	TDD Configuration Slot Type
`D`	Downlink
`U`	Uplink
`S`	Special

Example of Use

To set the slot type of TDD Configuration of the test model for all slots of Component Carrier 2 to Special.

```
CALC:CAGG:CC2:TMOD:TDDC:SLOT:TYPE S
```

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:TMODel:TDDConfig:SLOT:TYPE?

Test Model TDD Configuration Slot Types Query

Function

This command queries the slot type of TDD Configuration for each slot when TDD Configuration of the test model for the specified Component Carrier is set to manual.

Query

```
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:TMODe
l:TDDConfig:SLOT:TYPE?
```

Response

```
<mode>
```

Parameter

`<mode>`	TDD Configuration Slot Type
`D`	Downlink
`U`	Uplink
`S`	Special

Example of Use

To query the slot type of TDD Configuration of the test model for Slot 1 of Component Carrier 2.

```
CALC:CAGG:CC2:SLOT1:TMOD:TDDC:SLOT:TYPE?
> S
```

2.4.41 Equalizer Use Data

[:SENSe]:CAGG:RADio:EQUalizer:DATA 0|1|ON|OFF

Equalizer Use Data

Function

This command sets Equalizer Use Data that allows whether to include data subcarriers in the calculation of Channel Estimation for Carrier Aggregation Analysis.

Command

```
[:SENSe]:CAGG:RADio:EQUalizer:DATA <switch>
```

Parameter

`<switch>`	Data subcarriers are Included (On), Not included (Off)
`0|OFF`	Not included (Default)
`1|ON`	Included

Example of Use

To include data subcarriers in the calculation of Channel Estimation for Carrier Aggregation Analysis.

```
CAGG:RAD:EQU:DATA ON
```

[:SENSe]:CAGG:RADio:EQUalizer:DATA?

Equalizer Use Data Query

Function

This command queries the setting (Equalizer Use Data) whether to include data subcarriers in the calculation of Channel Estimation for Carrier Aggregation Analysis.

Query

```
[:SENSe]:CAGG:RADio:EQUalizer:DATA?
```

Response

```
<switch>
```

Parameter

`<switch>`	Data subcarriers are Included (On), Not included (Off)
`0`	Not included
`1`	Included

Example of Use

To query the setting whether to include data subcarriers in the calculation of Channel Estimation for Carrier Aggregation Analysis.

```
CAGG:RAD:EQU:DATA?
> 1
```

2.4.42 Amplitude Tracking

:CALCulate:CAGG:TRACK:AMPLitude[:STATe] OFF|ON|0|1

Amplitude Tracking

Function

This command sets the Amplitude Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:CAGG:TRACK:AMPLitude[:STATe] <switch>
```

Parameter

`<switch>`	Amplitude Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled
`1|ON`	Enabled (Default)

Example of Use

To set the Amplitude Tracking to Enabled.

```
CALC:CAGG:TRACK:AMPL ON
```

:CALCulate:CAGG:TRACK:AMPLitude[:STATe]?

Amplitude Tracking Query

Function

This command queries whether Amplitude Tracking is Enabled (On) or Disabled (Off)

Query

```
:CALCulate:CAGG:TRACK:AMPLitude[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Amplitude Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Amplitude Tracking is Enabled (On) or Disabled (Off).

```
CALC:CAGG:TRACK:AMPL?
> 1
```

2.4.43 Phase Tracking

:CALCulate:CAGG:TRACK:PHASe[:STATe] OFF|ON|0|1

Phase Tracking

Function

This command sets the Phase Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:CAGG:TRACK:PHASe[:STATe] <switch>
```

Parameter

`<switch>`	Phase Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled
`1|ON`	Enabled (Default)

Example of Use

To set the Phase Tracking to Enabled.

```
CALC:CAGG:TRACK:PHAS ON
```

:CALCulate:CAGG:TRACK:PHASe[:STATe]?

Phase Tracking Query

Function

This command queries whether Phase Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:CAGG:TRACK:PHASe[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Phase Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Phase Tracking is Enabled (On) or Disabled (Off).

```
CALC:CAGG:TRACK:PHAS?
> 1
```

2.4.44 Timing Tracking

:CALCulate:CAGG:TRACK:TIMing[:STATe] OFF|ON|0|1

Timing Tracking

Function

This command sets the Timing Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:CAGG:TRACK:TIMing[:STATe] <switch>
```

Parameter

`<switch>`	Timing Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Timing Tracking to Enabled.

```
CALC:CAGG:TRACK:TIM ON
```

:CALCulate:CAGG:TRACK:TIMing[:STATe]?

Timing Tracking Query

Function

This command queries whether Timing Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:CAGG:TRACK:TIMing[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Timing Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Timing Tracking is Enabled (On) or Disabled (Off).

```
CALC:CAGG:TRACK:TIM?
> 1
```

2.4.45 Multicarrier Filter

:CALCulate:CAGG:MCARrier:FILTer[:STATe] OFF|ON|0|1

Multicarrier Filter

Function

This command sets the Multicarrier Filter to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:CAGG:MCARrier:FILTer[:STATe] <switch>
```

Parameter

`<switch>`	Multicarrier Filter Enabled (On) or Disabled (Off)
`0|OFF`	Disabled
`1|ON`	Enabled (Default)

Example of Use

To set the Multicarrier Filter to Enabled.

```
CALC:CAGG:MCAR:FILT ON
```

:CALCulate:CAGG:MCARrier:FILTer[:STATe]?

Multicarrier Filter Query

Function

This command queries whether Multicarrier Filter is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:CAGG:MCARrier:FILTer[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Multicarrier Filter Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Multicarrier Filter is Enabled (On) or Disabled (Off).

```
CALC:CAGG:MCAR:FILT?
> 1
```

2.4.46 EVM Window

:CALCulate:CAGG:EWINdow[:STATe] OFF|ON|0|1

EVM Window

Function

This command enables (On) or disables (Off) the EVM Window.

Command

```
:CALCulate:CAGG:EWINdow[:STATe] <switch>
```

Parameter

`<switch>`	EVM Window Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To enable the EVM Window.

```
CALC:CAGG:EWIN ON
```

:CALCulate:CAGG:EWINdow [:STATe]?

EVM Window Query

Function

This command queries if the EVM Window is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:CAGG:EWINdow[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	EVM Window Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query if the EVM Window is Enabled (On) or Disabled (Off).

```
CALC:CAGG:EWIN?
> 1
```

2.4.47 DC Cancellation

:CALCulate:CAGG:DC:CANCel[:STATe] OFF|ON|0|1

DC Cancellation

Function

This command enables (On) or disables (Off) the DC Cancellation.

Command

```
:CALCulate:CAGG:DC:CANCel[:STATe] <switch>
```

Parameter

`<switch>`	DC Cancellation Enabled (On), Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To enable (On) the DC Cancellation.

```
CALC:CAGG:DC:CANC ON
```

:CALCulate:CAGG:DC:CANCel[:STATe]?

DC Cancellation Query

Function

This command queries whether DC Cancellation is enabled or disabled.

Query

```
:CALCulate:CAGG:DC:CANCel[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	DC Cancellation Enabled, Disabled
`0`	Disabled
`1`	Enabled

Example of Use

To query the setting of DC Cancellation.

```
CALC:CAGG:DC:CANC?
> 1
```

2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

Table 2.5-1 lists the device messages used for the communication system targeted for measurement.

Table 2.5-1 Device Messages for Setting System Parameters

Parameter	Device Message
Subcarrier Spacing	[:SENSe]:RADio:SUBCarrier:SPACing 15|30|60|120
	[:SENSe]:RADio:SUBCarrier:SPACing?
Number of RBs	[:SENSe]:RADio:RBLock:NUMBer <mode>
	[:SENSe]:RADio:RBLock:NUMBer?
Cell ID	:CALCulate:EVM:CELLid <integer>
	:CALCulate:EVM:CELLid?
Phase Compensation	[:SENSe]:RADio:PCOMpensation[:STATe] 0|1|ON|OFF
	[:SENSe]:RADio:PCOMpensation[:STATe]?
PUSCH Multiplexing Scheme	:CALCulate:EVM:PUSCh:MULTiplexing CP|DFT
	:CALCulate:EVM:PUSCh:MULTiplexing?
PUSCH DM-RS Group Hopping	:CALCulate:EVM:PUSCh:DMRS:SGRoup:HOPPing OFF|ON|0|1
	:CALCulate:EVM:PUSCh:DMRS:SGRoup:HOPPing?
PUSCH DM-RS Sequence Hopping	:CALCulate:EVM:PUSCh:DMRS:BSEQuence:HOPPing OFF|ON|0|1
	:CALCulate:EVM:PUSCh:DMRS:BSEQuence:HOPPing?
PUSCH/DM-RS On/Off	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe] OFF|ON|0|1
	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe]?
	:CALCulate:EVM:PUSCh[:STATe] OFF|ON|0|1
PUSCH/DM-RS Antenna Port	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt 1000|1001|1002|1003
	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt?
	:CALCulate:EVM:PUSCh:APORt 1000|1001|1002|1003
PUSCH Modulation Scheme	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation PI2Bpsk|QPSK|16Qam|64Qam|256Qam|AUTO
	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation?
	:CALCulate:EVM:PUSCh:MODulation PI2Bpsk|QPSK|16Qam|64Qam|256Qam|AUTO

Table 2.5-1 Device Messages for Setting System Parameters (Cont'd)

<table>
<tr><th>Parameter</th><th>Device Message</th></tr>
<tr><td rowspan="3">PUSCH Mapping Type</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE A|B</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:MAPPing:TYPE A|B</td></tr>
<tr><td rowspan="3">PUSCH Start Symbol</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:STARt <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:STARt?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:SYMBol:STARt <integer></td></tr>
<tr><td rowspan="3">PUSCH Number of Symbols</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:LENGth <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:LENGth?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:SYMBol:LENGth <integer></td></tr>
<tr><td rowspan="3">PUSCH Power Boosting (Auto/Manual)</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:POWer:AUTO OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:POWer:AUTO?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:POWer:AUTO OFF|ON|0|1</td></tr>
<tr><td rowspan="3">PUSCH Power Boosting</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:POWer:BOOSting <rel_power></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:POWer:BOOSting?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:POWer:BOOSting <rel_power></td></tr>
<tr><td rowspan="3">PUSCH DM-RS typeA-pos</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:MAPPing:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:MAPPing:DMRS:APOSition?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:MAPPing:DMRS:APOSition <integer></td></tr>
<tr><td rowspan="3">PUSCH DM-RS add-pos</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition <integer></td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:DMRS:APOSition <integer></td></tr>
<tr><td rowspan="3">PUSCH DM-RS CDM Group Without Data</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:CDM 1|2</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:CDM?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:DMRS:CDM 1|2</td></tr>
<tr><td rowspan="3">PUSCH PTRS</td><td>:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATe]?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:PTRS[:STATe] OFF|ON|0|1</td></tr>
<tr><td rowspan="3">PUSCH PTRS Time Density</td><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
<tr><td>:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:TIME?</td></tr>
<tr><td>:CALCulate:EVM:PUSCh:PTRS:DENSity:TIME 1|2|4</td></tr>
</table>

Table 2.5-1 Device Messages for Setting System Parameters (Cont'd)

Parameter	Device Message
PUSCH PTRS Freq. Density	:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:FREQuency 2|4
	:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:FREQuency?
	:CALCulate:EVM:PUSCh:PTRS:DENSity:FREQuency 2|4
PUSCH PTRS RE Offset	:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:OFFSet 00|01|10|11
	:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:OFFSet?
	:CALCulate:EVM:PUSCh:PTRS:OFFSet 00|01|10|11
PUSCH RBs Allocation Auto Detect	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:AUTO 0|1|ON|OFF
	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:AUTO?
	:CALCulate:EVM:PUSCh:RBLock:AUTO 0|1|ON|OFF
PUSCH RBs Allocation Start RB	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:STARt <integer>
	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:STARt?
	:CALCulate:EVM:PUSCh:RBLock:STARt <integer>
PUSCH RBs Allocation Number of RBs	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:LENGth <integer>
	:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:LENGth?
	:CALCulate:EVM:PUSCh:RBLock:LENGth <integer>
Equalizer Use Data	[:SENSe]:EVM:RADio:EQUalizer:DATA 0|1|ON|OFF
	[:SENSe]:EVM:RADio:EQUalizer:DATA?
Amplitude Tracking	:CALCulate:EVM:TRACK:AMPLitude[:STATe] OFF|ON|0|1
	:CALCulate:EVM:TRACK:AMPLitude[:STATe]?
Phase Tracking	:CALCulate:EVM:TRACK:PHASe[:STATe] OFF|ON|0|1
	:CALCulate:EVM:TRACK:PHASe[:STATe]?
Timing Tracking	:CALCulate:EVM:TRACK:TIMing[:STATe] OFF|ON|0|1
	:CALCulate:EVM:TRACK:TIMing[:STATe]?
Multicarrier Filter	:CALCulate:EVM:MCARrier:FILTer[:STATe] OFF|ON|0|1
	:CALCulate:EVM:MCARrier:FILTer[:STATe]?
EVM Window	:CALCulate:EVM:EWINdow[:STATe] OFF|ON|0|1
	:CALCulate:EVM:EWINdow[:STATe]?
DC Cancellation	:CALCulate:EVM:DC:CANCel[:STATe] OFF|ON|0|1
	:CALCulate:EVM:DC:CANCel[:STATe]?

2.5.1 Subcarrier Spacing

[:SENSe]:RADio:SUBCarrier:SPACing 15|30|60|120

Subcarrier Spacing

Function

This command sets the subcarrier spacing.

Command

```
[:SENSe]:RADio:SUBCarrier:SPACing <mode>
```

Parameter

`<mode>`	Subcarrier spacing
Standard: NR TDD sub-6GHz Uplink	
`15`	15 kHz
`30`	30 kHz (Default)
`60`	60 kHz
Standard: NR TDD mmWave Uplink	
`60`	60 kHz
`120`	120 kHz (Default)

Details

The selectable subcarrier spacing varies depending on the Standard.

Example of Use

To set the subcarrier spacing to 30 kHz.

```
RAD:SUBC:SPAC 30
```

[:SENSe]:RADio:SUBCarrier:SPACing?

Subcarrier Spacing Query

Function

This command queries the subcarrier spacing.

Query

```
[:SENSe]:RADio:SUBCarrier:SPACing?
```

Response

```
<mode>
```

Parameter

`<mode>`	Subcarrier spacin
Standard: NR TDD sub-6GHz Uplink	
`15`	15 kHz
`30`	30 kHz
`60`	60 kHz
Standard: NR TDD mmWave Uplink	
`60`	60 kHz
`120`	120 kHz

Example of Use

To query the setting of subcarrier spacing.

```
RAD:SUBC:SPAC?
> 30
```

2.5.2 Number of RBs

[:SENSe]:RADio:RBLock:NUMBer <mode>

Number of RBs

Function

This command sets the number of resource blocks for the measurement target signal.

Command

```
[:SENSe]:RADio:RBLock:NUMBer <mode>
```

Parameter

`<mode>`	Number of resource blocks	`<mode>`	Number of resource blocks
`11`	11	`107`	107
`18`	18	`121`	121
`24`	24	`132`	132
`25`	25	`133`	133
`31`	31	`135`	135
`32`	32	`160`	160
`38`	38	`162`	162
`51`	51	`189`	189
`52`	52	`216`	216
`65`	65	`217`	217
`66`	66	`245`	245
`78`	78	`264`	264
`79`	79	`270`	270
`93`	93	`273`	273
`106`	106		

Details

The numbers of resource blocks that can be set at each subcarrier spacing are listed below.

Subcarrier Spacing	Number of Resource Blocks That Can be Set
15 kHz	25, 52, 79, 106, 133, 160*1, 216*1, 270*1 (Default)
30 kHz	11, 24, 38, 51, 65, 78*1, 106*1, 133*1, 162*2, 189*2, 217*2, 245*2, 273*2 (Default)
60 kHz MX285051A-061 /MX269051A-061	11, 18, 24, 31, 38*1, 51*1, 65*1, 79*2, 93*2, 107*2, 121*2, 135*2 (Default)
60 kHz MX285051A-071	66, 132, 264 (Default)
120 kHz	32, 66, 132 (Default), 264*3

*1: For MS269xA, this can be selected when MS269xA-077/177 is installed.

*2: For MS269xA, this can be selected when MS269xA-078/178 is installed.

*3: For MS2850A, this can be selected when MS2850A-033/133 is installed.

Example of Use

To set the number of resource blocks for the measurement target signal to 273.

```
RAD:RBL:NUMB 273
```

[:SENSe]:RADio:RBLock:NUMBer?

Number of RBs Query

Function

This command queries the number of resource blocks for the measurement target signal.

Query

```
[:SENSe]:RADio:RBLock:NUMBer?
```

Response

```
<mode>
```

Parameter

`<mode>`	Number of resource blocks	`<mode>`	Number of resource blocks
11	11	107	107
18	18	121	121
24	24	132	132
25	25	133	133
31	31	135	135
32	32	160	160
38	38	162	162
51	51	189	189
52	52	216	216
65	65	217	217
66	66	245	245
78	78	264	264
79	79	270	270
93	93	273	273
106	106		

Example of Use

To query the number of resource blocks for the measurement target signal.

```
RAD:RBL:NUMB?
> 273
```

2.5.3 Cell ID

CALCulate:EVM:CELLid <integer>

Cell ID

Function

This command sets the Cell ID for Modulation Analysis.

Command

```
CALCulate:EVM:CELLid <integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1
Suffix code	None
Default	0

Details

This command is not available when the Synchronization Mode is Synchronization Signal.

Example of Use

To set the Cell ID to 1.

```
CALC:EVM:CELL 1
```

CALCulate:EVM:CELLid?

Cell ID Query

Function

This command queries the Cell ID for Modulation Analysis.

Query

```
CALCulate:EVM:CELLid?
```

Response

```
<integer>
```

Parameter

`<integer>`	Cell ID
Range	0 to 1007
Resolution	1

Example of Use

To query the Cell ID.

```
CALC:EVM:CELL?
> 1
```

2.5.4 Phase Compensation

[:SENSe]:RADio:PCOMpensation[:STATe] 0|1|ON|OFF

Phase Compensation

Function

This command enables (On) or disables (Off) Phase Compensation for Modulation Analysis.

Command

```
[:SENSe]:RADio:PCOMpensation[:STATe] <switch>
```

Parameter

`<integer>`	Enable (On) or Disable (Off)
`OFF|0`	Disable
`ON|1`	Enable (Default)

Example of Use

To enable Phase Compensation.

```
RAD:PCOM ON
```

[:SENSe]:RADio:PCOMpensation[:STATe]?

Phase Compensation Query

Function

This command queries the On/Off status of Phase Compensation for Modulation Analysis.

Query

```
[:SENSe]:RADio:PCOMpensation[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Enable (On) or Disable (Off)
`0`	Disable
`1`	Enable

Example of Use

To query the On/Off status of Phase Compensation.

```
RAD:PCOM?
> 1
```

2.5.5 PUSCH Multiplexing Scheme

:CALCulate:EVM:PUSCh:MULTiplexing CP|DFT

PUSCH Multiplexing Scheme

Function

This command sets Multiplexing Scheme of PUSCH.

Command

```
:CALCulate:EVM:PUSCh:MULTiplexing <mode>
```

Parameter

`<mode>`	Multiplexing Scheme
`CP`	CP-OFDM (Default)
`DFT`	DFT-s-OFDM

Example of Use

To set Multiplexing Scheme of PUSCH to CP-OFDM.

```
CALC:EVM:PUSC:MULT CP
```

:CALCulate:EVM:PUSCh:MULTiplexing?

PUSCH Multiplexing Scheme Query

Function

This command queries Multiplexing Scheme of PUSCH.

Query

```
:CALCulate:EVM:PUSCh:MULTiplexing?
```

Response

```
<mode>
```

Parameter

`<mode>`	Multiplexing Scheme
`CP`	CP-OFDM
`DFT`	DFT-s-OFDM

Example of Use

To query Multiplexing Scheme of PUSCH.

```
CALC:EVM:PUSC:MULT?
> CP
```

2.5.6 PUSCH DM-RS Group Hopping

:CALCulate:EVM:PUSCh:DMRS:SGRoup:HOPPing OFF|ON|0|1

PUSCH DM-RS Group Hopping

Function

This command enables (On) or disables (Off) the Group Hopping function of DM-RS for PUSCH.

Command

```
:CALCulate:EVM:PUSCh:DMRS:SGRoup:HOPPing <switch>
```

Parameter

`<switch>`	Group Hopping Enabled (On), Disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Example of Use

To enable (On) the Group Hopping of DM-RS for PUSCH.

```
CALC:EVM:PUSC:DMRS:SGR:HOPP ON
```

:CALCulate:EVM:PUSCh:DMRS:SGRoup:HOPPing?

PUSCH DM-RS Group Hopping Query

Function

This command queries whether the Group Hopping function of DM-RS for PUSCH is enabled or disabled.

Query

```
:CALCulate:EVM:PUSCh:DMRS:SGRoup:HOPPing?
```

Response

```
<switch>
```

Parameter

`<switch>`	Group Hopping Enabled, Disabled
`0`	Disabled
`1`	Enabled

Example of Use

To query whether the Group Hopping of DM-RS for PUSCH is Enabled or Disabled.

```
CALC:EVM:PUSC:DMRS:SGR:HOPP?
> 1
```

2.5.7 PUSCH DM-RS Sequence Hopping

:CALCulate:EVM:PUSCh:DMRS:BSEQuence:HOPPing OFF|ON|0|1

PUSCH DM-RS Sequence Hopping

Function

This command enables (On) or disables (Off) the Sequence Hopping function of DM-RS for PUSCH.

Command

```
:CALCulate:EVM:PUSCh:DMRS:BSEQuence:HOPPing <switch>
```

Parameter

`<switch>`	Sequence Hopping Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Example of Use

To enable (On) the Sequence Hopping of DM-RS for PUSCH.

```
CALC:EVM:PUSC:DMRS:BSEQ:HOPP ON
```

:CALCulate:EVM:PUSCh:DMRS:BSEQuence:HOPPing?

PUSCH DM-RS Sequence Hopping Query

Function

This command queries whether the Sequence Hopping function of DM-RS for PUSCH is enabled or disabled.

Query

```
:CALCulate:EVM:PUSCh:DMRS:BSEQuence:HOPPing?
```

Response

```
<switch>
```

Parameter

`<switch>`	Sequence Hopping Enabled, Disabled
`0`	Disabled
`1`	Enabled

Example of Use

To query whether the Sequence Hopping of DM-RS for PUSCH is Enabled or Disabled.

```
CALC:EVM:PUSC:DMRS:BSEQ:HOPP?
> 1
```

2.5.8 PUSCH/DM-RS On/Off

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe] OFF|ON|0|1

PUSCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PUSCH/DM-RS in the measurement target in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe] <switch>
```

Parameter

`<switch>`	PUSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set PUSCH/DM-RS in Slot 1 to Included.

```
CALC:EVM:SLOT1:PUSC ON
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe]?

PUSCH/DM-RS On/Off Query

Function

This command queries the setting (On/Off) whether to include PUSCH/DM-RS in the measurement target in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PUSCH/DM-RS is included (On), not included (Off)
`0`	Not included
`1`	Included

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PUSCH/DM-RS in Slot 1.

```
CALC:EVM:SLOT1:PUSC?
> 1
```

:CALCulate:EVM:PUSCh[:STATe] OFF|ON|0|1

PUSCH/DM-RS On/Off

Function

This command sets whether to include PUSCH/DM-RS in the measurement target (On/Off) in all slots.

Command

```
:CALCulate:EVM:PUSCh[:STATe] <switch>
```

Parameter

`<switch>`	PUSCH/DM-RS is included (On), not included (Off)
`OFF|0`	Not included
`ON|1`	Included (Default)

Details

The PUSCH/DM-RS settings in all slots are performed collectively.

Example of Use

To set PUSCH/DM-RS in all slots to Included.

```
CALC:EVM:PUSC ON
```

2.5.9 PUSCH/DM-RS Antenna Port

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt 1000|1001|1002|1003

PUSCH/DM-RS Antenna Port

Function

This command sets the PUSCH/DM-RS antenna port in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt <mode>
```

Parameter

`<mode>`	PUSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH/DM-RS antenna port in Slot 1 to 1001.

```
CALC:EVM:SLOT1:PUSC:APOR 1001
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt?

PUSCH/DM-RS Antenna Port Query

Function

This command queries the PUSCH/DM-RS antenna port in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt?
```

Response

```
<mode>
```

Parameter

`<mode>`	PUSCH/DM-RS antenna port
`1000`	1000
`1001`	1001
`1002`	1002
`1003`	1003

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PUSCH/DM-RS antenna port in Slot 1.

```
CALC:EVM:SLOT1:PUSC:APOR?
> 1001
```

:CALCulate:EVM:PUSCh:APORt 1000|1001|1002|1003

PUSCH/DM-RS Antenna Port

Function

This command sets the PUSCH/DM-RS antenna port in all slots.

Command

```
:CALCulate:EVM:PUSCh:APORt <mode>
```

Parameter

`<mode>`	PUSCH/DM-RS antenna port
`1000`	1000 (Default)
`1001`	1001
`1002`	1002
`1003`	1003

Details

The PUSCH/DM-RS settings in all slots are performed collectively.

Example of Use

To set the PUSCH/DM-RS antenna port in all slots to 1001.

```
CALC:EVM:PUSC:APOR 1001
```

2.5.10 PUSCH Modulation Scheme

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation PI2Bpsk|QPSK|16Qam|64Qam|256Qam|AUTO

PUSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PUSCH in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PUSCH
`PI2Bpsk`	PI/2-BPSK
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Details

The modulation scheme can be set to PI/2-BPSK only when Multiplexing Scheme is DFT-s-OFDM.

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH modulation scheme in Slot 1 to 256QAM.

```
CALC:EVM:SLOT1:PUSC:MOD 256Q
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation?

PUSCH Modulation Scheme Query

Function

This command queries the modulation scheme to analyze PUSCH in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation?
```

Response

```
<mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PUSCH
`PI2Bpsk`	PI/2-BPSK
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme

Details

The modulation scheme can be set to PI/2-BPSK only when Multiplexing Scheme is DFT-s-OFDM.

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH modulation scheme in Slot 1.

```
CALC:EVM:SLOT1:PUSC:MOD?
> 256Q
```

:CALCulate:EVM:PUSCh:MODulation PI2Bpsk|QPSK|16Qam|64Qam|256Qam|AUTO

PUSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PUSCH in all slots.

Command

```
:CALCulate:EVM:PUSCh:MODulation <mode>
```

Parameter

`<mode>`	Modulation scheme to analyze PUSCH
`PI2Bpsk`	PI/2-BPSK
`QPSK`	QPSK
`16Qam`	16QAM
`64Qam`	64QAM
`256Qam`	256QAM
`AUTO`	Automatic judgment of input signal modulation scheme (Default)

Details

The PUSCH settings in all slots are performed collectively.
The modulation scheme can be set to PI/2-BPSK only when Multiplexing Scheme is DFT-s-OFDM.

Example of Use

To set the PUSCH modulation scheme in all slots to 256QAM.

```
CALC:EVM:PUSC:MOD 256Q
```

2.5.11 PUSCH Mapping Type

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE A|B

PUSCH Mapping Type

Function

This command sets the PUSCH Mapping Type in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PUSCH Mapping Type
`A`	A (Default)
`B`	B

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH Mapping Type in Slot 1 to A.

```
CALC:EVM:SLOT1:PUSC:MAPP:TYPE A
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE?

PUSCH Mapping Type Query

Function

This command queries the setting of PUSCH Mapping Type in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE?
```

Response

```
<mode>
```

Parameter

`<mode>`	PUSCH Mapping Type
`A`	A
`B`	B

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH Mapping Type in Slot 1.

```
CALC:EVM:SLOT1:PUSC:MAPP:TYPE?
> A
```

:CALCulate:EVM:PUSCh:MAPPing:TYPE A|B

PUSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in all slots.

Command

```
:CALCulate:EVM:PUSCh:MAPPing:TYPE <mode>
```

Parameter

`<mode>`	PUSCH Mapping Type
`A`	A (Default)
`B`	B

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH Mapping Type in all slots to A.

```
CALC:EVM:PUSC:MAPP:TYPE A
```

2.5.12 PUSCH Start Symbol

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:STARt <integer>

PUSCH Start Symbol

Function

This command sets the PUSCH start symbol in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:STARt <integer>
```

Parameter

`<integer>`	PUSCH start symbol
Range	PUSCH Mapping Type: typeA 0 to DM-RS typeA-pos PUSCH Mapping Type: typeB 0 to 12
Default	0

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH start symbol in Slot 1 to 1.

```
CALC:EVM:SLOT1:PUSC:SYMB:STAR 1
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:STARt?

PUSCH Start Symbol Query

Function

This command queries the setting of PUSCH start symbol in each slot.

Query

`:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:STARt?`

Response

`<integer>`

Parameter

`<integer>`	PUSCH start symbol
Range	PUSCH Mapping Type: typeA 0 to DM-RS typeA-pos PUSCH Mapping Type: typeB 0 to 12

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH start symbol in Slot 1.

```
CALC:EVM:SLOT1:PUSC:SYMB:STAR?
> 1
```

:CALCulate:EVM:PUSCh:SYMBol:STARt <integer>

PUSCH Start Symbol

Function

This command sets the PUSCH start symbol in all slot.

Command

```
:CALCulate:EVM:PUSCh:SYMBol:STARt <integer>
```

Parameter

`<integer>`	PUSCH start symbol
Range	PUSCH Mapping Type: typeA 0 to DM-RS typeA-pos PUSCH Mapping Type: typeB 0 to 12
Default	0

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH start symbol in all slots to 1.

```
CALC:EVM:PUSC:SYMB:STAR 1
```

2.5.13 PUSCH Number of Symbols

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:LENGth <integer>

PUSCH Number of Symbols

Function

This command sets the number of PUSCH mapping symbols in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:LENGth
<integer>
```

Parameter

`<integer>`	Number of PUSCH mapping symbols
Range	2 to 14 – PUSCH Start Symbol
Default	14

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the number of PUSCH mapping symbols in Slot 1 to 3.

```
CALC:EVM:SLOT1:PUSC:SYMB:LENG 3
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:LENGth?

PUSCH Number of Symbols Query

Function

This command queries the number of PUSCH mapping symbols in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:SYMBol:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of PUSCH mapping symbols
Range	2 to 14 – PUSCH Start Symbol

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the number of PUSCH mapping symbols in Slot 1.

```
CALC:EVM:SLOT1:PUSC:SYMB:LENG?
> 3
```

:CALCulate:EVM:PUSCh:SYMBol:LENGth <integer>

PUSCH Number of Symbols

Function

This command sets the number of PUSCH mapping symbols in all slots.

Command

```
:CALCulate:EVM:PUSCh:SYMBol:LENGth <integer>
```

Parameter

`<integer>`	Number of PUSCH mapping symbols
Range	2 to 14 – PUSCH Start Symbol
Default	14

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the number of PUSCH mapping symbols in all slots to 3.

```
CALC:EVM:PUSC:SYMB:LENG 3
```

2.5.14 PUSCH Power Boosting (Auto/Manual)

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:POWer:AUTO OFF|ON|0|1

PUSCH Power Boosting(Auto/Manual)

Function

This command sets the PUSCH boosting level to automatic (On) or manual (Off) in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:POWer:AUTO OFF|ON|0|1
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH boosting level in Slot 1 to Manual.

```
CALC:EVM:SLOT1:PUSC:POW:AUTO OFF
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:POWer:AUTO?

PUSCH Power Boosting(Auto/Manual) Query

Function

This command queries whether the PUSCH boosting level is automatic (On) or manual (Off) in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:POWer:AUTO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`0`	Manual
`1`	Auto

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query whether the PUSCH boosting level is automatic in Slot 1.

```
CALC:EVM:SLOT1:PUSC:POW:AUTO?
> 0
```

:CALCulate:EVM:PUSCh:POWer:AUTO OFF|ON|0|1

PUSCH Power Boosting(Auto/Manual)

Function

This command sets the PUSCH boosting level to automatic (On) or manual (Off) in all slots.

Command

```
:CALCulate:EVM:PUSCh:POWer:AUTO OFF|ON|0|1
```

Parameter

`<switch>`	Auto (On), Manual (Off)
`OFF|0`	Manual
`ON|1`	Auto (Default)

Example of Use

To set the PUSCH boosting level in all slots to Manual.

```
CALC:EVM:PUSC:POW:AUTO OFF
```

2.5.15 PUSCH Power Boosting

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:POWer:BOOSting <rel_power>

PUSCH Power Boosting

Function

This command sets the PUSCH boosting level in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:POWer:BOOSting
<rel_power>
```

Parameter

`<rel_power>`	PUSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	DB, dB is used when omitted.
Default	–3.000 dB

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH boosting level in Slot 1 to 3.00 dB.

```
CALC:EVM:SLOT1:PUSC:POW:BOOS 3.00DB
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:POWer:BOOSting?

PUSCH Power Boosting Query

Function

This command queries the setting of PUSCH boosting level in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:POWer:BOOSting?
```

Response

```
<rel_power>
```

Parameter

`<rel_power>`	PUSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	`DB`, dB is used when omitted.

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH boosting level in Slot 1.

```
CALC:EVM:SLOT1:PUSC:POW:BOOS?
> 3.00
```

:CALCulate:EVM:PUSCh:POWer:BOOSting <rel_power>

PUSCH Power Boosting

Function

This command sets the PUSCH boosting level in all slots.

Command

`:CALCulate:EVM:PUSCh:POWer:BOOSting <rel_power>`

Parameter

`<rel_power>`	PUSCH boosting level
Range	–20.000 to +20.000 dB
Resolution	0.001 dB
Suffix code	DB, dB is used when omitted.
Default	–3.000 dB

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH boosting level in all slots to 3.00 dB.

```
CALC:EVM:PUSC:POW:BOOS 3.00DB
```

2.5.16 PUSCH DM-RS typeA-pos

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:MAPPing:DMRS:APOSition <integer>

PUSCH DM-RS typeA-pos

Function

This command sets the PUSCH DM-RS typeA-pos in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:MAPPing:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PUSCH DM-RS typeA-pos
Range	2, 3
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH DM-RS typeA-pos in Slot 1 to 3.

```
CALC:EVM:SLOT1:PUSC:MAPP:DMRS:APOS 3
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:MAPPing:DMRS:APOSition?

PUSCH DM-RS typeA-pos Query

Function

This command queries the setting of PUSCH DM-RS typeA-pos in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:MAPPing:DMRS:APOSitio
n?
```

Response

```
<integer>
```

Parameter

`<integer>`	PUSCH DM-RS typeA-pos
Range	2, 3

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH DM-RS typeA-pos in Slot 1.

```
CALC:EVM:SLOT1:PUSC:MAPP:DMRS:APOS?
> 3
```

:CALCulate:EVM:PUSCh:MAPPing:DMRS:APOSition <integer>

PUSCH DM-RS typeA-pos

Function

This command sets the PUSCH DM-RS typeA-pos in all slot.

Command

```
:CALCulate:EVM:PUSCh:MAPPing:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PUSCH DM-RS typeA-pos
Range	2, 3
Default	2

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH DM-RS typeA-pos in all slots to 3.

```
CALC:EVM:PUSC:MAPP:DMRS:APOS 3
```

2.5.17 PUSCH DM-RS add-pos

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition <integer>

PUSCH DM-RS add-pos

Function

This command sets the PUSCH DM-RS add-pos in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition
<integer>
```

Parameter

`<integer>`	PUSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH DM-RS add-pos in Slot 1 to 3.

```
CALC:EVM:SLOT1:PUSC:DMRS:APOS 3
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition?

PUSCH DM-RS add-pos Query

Function

This command queries the PUSCH DM-RS add-pos in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition?
```

Response

```
<integer>
```

Parameter

`<integer>`	PUSCH DM-RS add-pos
Range	0, 1, 2, 3

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH DM-RS add-pos in Slot 1.

```
CALC:EVM:SLOT1:PUSC:DMRS:APOS?
> 3
```

:CALCulate:EVM:PUSCh:DMRS:APOSition <integer>

PUSCH DM-RS add-pos

Function

This command sets the PUSCH DM-RS add-pos in all slots.

Command

```
:CALCulate:EVM:PUSCh:DMRS:APOSition <integer>
```

Parameter

`<integer>`	PUSCH DM-RS add-pos
Range	0, 1, 2, 3
Default	0

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH DM-RS add-pos in all slots to 3.

```
CALC:EVM:PUSC:DMRS:APOS 3
```

2.5.18 PUSCH DM-RS CDM Group Without Data

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:CDM 1|2

PUSCH DM-RS CDM Group Without Data

Function

This command sets the PUSCH DM-RS CDM Group Without Data in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:CDM <mode>
```

Parameter

`<mode>`	PUSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH DM-RS CDM Group Without Data in Slot 1 to 2.

```
CALC:EVM:SLOT1:PUSC:DMRS:CDM 2
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:CDM?

PUSCH DM-RS CDM Group Without Data Query

Function

This command queries the setting of PUSCH DM-RS CDM Group Without Data in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:CDM?
```

Response

```
<mode>
```

Parameter

`<mode>`	PUSCH DM-RS CDM Group Without Data
Range	1, 2

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH DM-RS CDM Group Without Data in Slot 1.

```
CALC:EVM:SLOT1:PUSC:DMRS:CDM?
> 2
```

:CALCulate:EVM:PUSCh:DMRS:CDM 1|2

PUSCH DM-RS CDM Group Without Data

Function

This command sets the PUSCH DM-RS CDM Group Without Data in all slots.

Command

```
:CALCulate:EVM:PUSCh:DMRS:CDM <mode>
```

Parameter

`<mode>`	PUSCH DM-RS CDM Group Without Data
Range	1, 2
Default	2

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH DM-RS CDM Group Without Data in all slots to 2.

```
CALC:EVM:PUSC:DMRS:CDM 2
```

2.5.19 PUSCH PTRS

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATe] OFF|ON|0|1

PUSCH PTRS

Function

This command enables or disables the PUSCH PT-RS in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATe] <switch>
```

Parameter

`<switch>`	PUSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH PT-RS in Slot 1 to Enabled.

```
CALC:EVM:SLOT1:PUSC:PTRS ON
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATe]?

PUSCH PTRS Query

Function

This command queries whether the PUSCH PT-RS is enabled or disabled in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	PUSCH PT-RS Enabled (On), Disabled (Off)
`0`	Disabled
`1`	Enabled

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the setting of PUSCH PT-RS in Slot 1.

```
CALC:EVM:SLOT1:PUSC:PTRS?
> 1
```

:CALCulate:EVM:PUSCh:PTRS[:STATe] OFF|ON|0|1

PUSCH PTRS

Function

This command enables or disables the PUSCH PT-RS in all slots.

Command

```
:CALCulate:EVM:PUSCh:PTRS[:STATe] <switch>
```

Parameter

`<switch>`	PUSCH PT-RS Enabled (On), Disabled (Off)
`OFF|0`	Disabled (Default)
`ON|1`	Enabled

Details

The PUSCH PT-RS settings in all slots are performed collectively.

Example of Use

To set the PUSCH PT-RS in all slots to Enabled.

```
CALC:EVM:PUSC:PTRS ON
```

2.5.20 PUSCH PTRS Time Density

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:TIME 1|2|4

PUSCH PTRS Time Density

Function

This command sets the PUSCH PTRS Time Density in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:TIME
<mode>
```

Parameter

`<mode>`	PUSCH PTRS Time Density
Range	1, 2, 4
Default	1

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH PTRS Time Density in Slot 1 to 2.

```
CALC:EVM:SLOT1:PUSC:PTRS:DENS:TIME 2
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:TIME?

PUSCH PTRS Time Density Query

Function

This command queries the setting of PUSCH PTRS Time Density in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:TIME?
```

Response

```
<mode>
```

Parameter

`<mode>`	PUSCH PTRS Time Density
Range	1, 2, 4

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH PTRS Time Density in Slot 1.

```
CALC:EVM:SLOT1:PUSC:PTRS:DENS:TIME?
> 2
```

:CALCulate:EVM:PUSCh:PTRS:DENSity:TIME 1|2|4

PUSCH PTRS Time Density

Function

This command sets the PUSCH PTRS Time Density in all slots.

Command

```
:CALCulate:EVM:PUSCh:PTRS:DENSity:TIME <mode>
```

Parameter

`<mode>`	PUSCH PTRS Time Density
Range	1, 2, 4
Default	1

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH PTRS Time Density in all slots to 2.

```
CALC:EVM:PUSC:PTRS:DENS:TIME 2
```

2.5.21 PUSCH PTRS Freq. Density

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:FREQuency 2|4

PUSCH PTRS Freq. Density

Function

This command sets the PUSCH PTRS Freq. Density in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:FREQuenc
y <mode>
```

Parameter

`<mode>`	PUSCH PTRS Freq. Density
Range	2, 4
Default	2

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH PTRS Freq. Density in Slot 1 to 2.

```
CALC:EVM:SLOT1:PUSC:PTRS:DENS:FREQ 2
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:FREQuency?

PUSCH PTRS Freq. Density Query

Function

This command queries the setting of PUSCH PTRS Freq. Density in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:DENSity:FREQuenc
y?
```

Response

```
<mode>
```

Parameter

`<mode>`	PUSCH PTRS Freq. Density
Range	2, 4

Details

Specify the slot number to be queried in the variable "[0] | 1 | … | 79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH PTRS Freq. Density in Slot 1.

```
CALC:EVM:SLOT1:PUSC:PTRS:DENS:FREQ?
> 2
```

:CALCulate:EVM:PUSCh:PTRS:DENSity:FREQuency 2|4

PUSCH PTRS Freq. Density

Function

This command sets the PUSCH PTRS Freq. Density in all slots.

Command

```
:CALCulate:EVM:PUSCh:PTRS:DENSity:FREQuency <mode>
```

Parameter

`<mode>`	PUSCH PTRS Freq. Density
Range	2, 4
Default	2

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH PTRS Freq. Density in all slots to 2.

```
CALC:EVM:PUSC:PTRS:DENS:FREQ 2
```

2.5.22 PUSCH PTRS RE Offset

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:OFFSet 00|01|10|11

PUSCH PTRS RE Offset

Function

This command sets the PUSCH PTRS RE Offset in each slot.

Command

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PUSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the PUSCH PTRS RE Offset in Slot 1 to 01.

```
CALC:EVM:SLOT1:PUSC:PTRS:OFFS 01
```

:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:OFFSet?

PUSCH PTRS RE Offset Query

Function

This command queries the setting of PUSCH PTRS RE Offset in each slot.

Query

```
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:PTRS:OFFSet?
```

Response

```
<mode>
```

Parameter

`<mode>`	PUSCH PTRS RE Offset
Range	00, 01, 10, 11

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the PUSCH PTRS RE Offset in Slot 1.

```
CALC:EVM:SLOT1:PUSC:PTRS:OFFS?
> 01
```

:CALCulate:EVM:PUSCh:PTRS:OFFSet 00|01|10|11

PUSCH PTRS RE Offset

Function

This command sets the PUSCH PTRS RE Offset in all slots.

Command

```
:CALCulate:EVM:PUSCh:PTRS:OFFSet <mode>
```

Parameter

`<mode>`	PUSCH PTRS RE Offset
Range	00, 01, 10, 11
Default	00

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH PTRS RE Offset in all slots to 01.

```
CALC:EVM:PUSC:PTRS:OFFS 01
```

2.5.23 PUSCH RBs Allocation Auto Detect

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:AUTO 0|1|ON|OFF

PUSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) by slot the auto detection of the RBs that are allocated to PUSCH.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To disable the auto detection of the RBs that are allocated to PUSCH in slot 1.

```
CALC:EVM:SLOT1:PUSC:RBL:AUTO OFF
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:AUTO?

PUSCH RBs Allocation Auto Detect Query

Function

This command queries by slot whether the auto detection is enabled (On) or disabled (Off) for the RBs that are allocated to PUSCH.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:AUTO?
```

Response

```
<switch>
```

Parameter

`<switch>`	Enabled (On) or disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query whether auto detection is enabled or disabled for the RBs that are allocated to PUSCH in slot 1.

```
CALC:EVM:SLOT1:PUSC:RBL:AUTO?
> 0
```

:CALCulate:EVM:PUSCh:RBLock:AUTO 0|1|ON|OFF

PUSCH RBs Allocation Auto Detect

Function

This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PUSCH in all slots.

Command

```
:CALCulate:EVM:PUSCh:RBLock:AUTO <switch>
```

Parameter

`<switch>`	Enabled (On) or disabled (Off)
`OFF|0`	Disabled
`ON|1`	Enabled (Default)

Details

The settings of the auto detection are performed collectively in all slots.

Example of Use

To disable the auto detection of the RBs that are allocated to PUSCH in all slots.

```
CALC:EVM:PUSC:RBL:AUTO OFF
```

2.5.24 PUSCH RBs Allocation Start RB

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:STARt <integer>

PUSCH RBs Allocation Start RB

Function

This command sets by slot the Start RB of the RBs that are allocated to PUSCH.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:STARt
<integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PUSCH
Range	0 to Number Of RBs – 1
Default	0

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the Start RB of the RBs that are allocated to PUSCH in slot 1 to 1.

```
CALC:EVM:SLOT1:PUSC:RBL:STAR 1
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:STARt?

PUSCH RBs Allocation Start RB Query

Function

To set the Start RB of the RBs that are allocated to PUSCH in slot 1 to 1.

Query

`:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:STARt?`

Response

`<integer>`

Parameter

`<integer>`	Start RB of the RBs that are allocated to PUSCH
Range	0 to Number Of RBs – 1

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the Start RB of the RBs that are allocated to PUSCH in slot 1.

```
CALC:EVM:SLOT1:PUSC:RBL:STAR?
> 1
```

:CALCulate:EVM:PUSCh:RBLock:STARt <integer>

PUSCH RBs Allocation Start RB

Function

This command sets the Start RB of the RBs that are allocated to PUSCH in all slots.

Command

```
:CALCulate:EVM:PUSCh:RBLock:STARt <integer>
```

Parameter

`<integer>`	Start RB of the RBs that are allocated to PUSCH
Range	0 to Number Of RBs – 1
Default	0

Details

The settings are performed collectively in all slots.

Example of Use

To set the Start RB of the RBs that are allocated to PUSCH in all slots to 1.

```
CALC:EVM:PUSC:RBL:STAR 1
```

2.5.25 PUSCH RBs Allocation Number of RBs

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:LENGth <integer>

PUSCH RBs Allocation Number of RBs

Function

This command sets by slot the number of RBs that are allocated to PUSCH.

Command

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:LENGth
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PUSCH
Range	1 to Number Of RB – PDSCH Start RB
Default	Number Of RB

Details

Specify the slot number to be set in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To set the number of RBs that are allocated to PUSCH in slot 1 to 1.

```
CALC:EVM:SLOT1:PUSC:RBL:LENG 1
```

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:LENGth?

PUSCH RBs Allocation Number of RBs Query

Function

This command queries by slot the number of RBs that are allocated to PUSCH.

Query

```
:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:RBLock:LENGth?
```

Response

```
<integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PUSCH
Range	1 to Number Of RB – PDSCH Start RB

Details

Specify the slot number to be queried in the variable "[0]|1|…|79" of this command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

Subcarrier Spacing	Range of Slot Number That Can be Specified
15 kHz	0 to 9
30 kHz	0 to 19
60 kHz	0 to 39
120 kHz	0 to 79

Example of Use

To query the number of RBs that are allocated to PUSCH in slot 1.

```
CALC:EVM:SLOT1:PUSC:RBL:LENG?
> 1
```

:CALCulate:EVM:PUSCh:RBLock:LENGth <integer>

PUSCH RBs Allocation Number of RBs

Function

This command sets the number of RBs that are allocated to PUSCH in all slots.

Command

```
:CALCulate:EVM:PUSCh:RBLock:LENGth <integer>
```

Parameter

`<integer>`	Number of RBs that are allocated to PUSCH
Range	1 to Number Of RB – PDSCH Start RB
Default	Number Of RB

Details

The settings are performed collectively in all slots.

Example of Use

To set the number of RBs that are allocated to PUSCH in all slots to 1.

```
CALC:EVM:PUSC:RBL:LENG 1
```

2.5.26 Equalizer Use Data

[:SENSe]:EVM:RADio:EQUalizer:DATA 0|1|ON|OFF

Equalizer Use Data

Function

This command sets Equalizer Use Data that allows whether to include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

Command

```
[:SENSe]:EVM:RADio:EQUalizer:DATA <switch>
```

Parameter

`<switch>`	Data subcarriers are included (On), not included (Off)
`0|OFF`	Not included (Default)
`1|ON`	Included

Example of Use

To include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

```
EVM:RAD:EQU:DATA ON
```

[:SENSe]:EVM:RADio:EQUalizer:DATA?

Equalizer Use Data Query

Function

This command queries the setting whether to include data subcarriers in the calculation (Equalizer Use Data) of Channel Estimation for Modulation Analysis.

Query

```
[:SENSe]:EVM:RADio:EQUalizer:DATA?
```

Response

```
<switch>
```

Parameter

`<switch>`	Data subcarriers are included (On), not included (Off)
`0`	Not included
`1`	Included

Example of Use

To query the setting whether to include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.

```
EVM:RAD:EQU:DATA?
> 1
```

2.5.27 Amplitude Tracking

:CALCulate:EVM:TRACK:AMPLitude[:STATe] OFF|ON|0|1

Amplitude Tracking

Function

This command sets the Amplitude Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:TRACK:AMPLitude[:STATe] <switch>
```

Parameter

`<switch>`	Amplitude Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Amplitude Tracking to Enabled.

```
CALC:EVM:TRACK:AMPL ON
```

:CALCulate:EVM:TRACK:AMPLitude[:STATe]?

Amplitude Tracking Query

Function

This command queries whether Amplitude Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:TRACK:AMPLitude[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Amplitude Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Amplitude Tracking is Enabled (On) or Disabled (Off).

```
CALC:EVM:TRACK:AMPL?
> 1
```

2.5.28 Phase Tracking

:CALCulate:EVM:TRACK:PHASe[:STATe] OFF|ON|0|1

Phase Tracking

Function

This command sets the Phase Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:TRACK:PHASe[:STATe] <switch>
```

Parameter

`<switch>`	Phase Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Phase Tracking to Enabled

```
CALC:EVM:TRACK:PHAS ON
```

:CALCulate:EVM:TRACK:PHASe[:STATe]?

Phase Tracking Query

Function

This command queries whether Phase Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:TRACK:PHASe[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Phase Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Phase Tracking is Enabled (On) or Disabled (Off).

```
CALC:EVM:TRACK:PHAS?
> 1
```

2.5.29 Timing Tracking

:CALCulate:EVM:TRACK:TIMing[:STATe] OFF|ON|0|1

Timing Tracking

Function

This command sets the Timing Tracking to Enabled (On) or Disabled (Off).

Command

```
:CALCulate:EVM:TRACK:TIMing[:STATe] <switch>
```

Parameter

`<switch>`	Timing Tracking Enabled (On) or Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To set the Timing Tracking to Enabled.

```
CALC:EVM:TRACK:TIM ON
```

:CALCulate:EVM:TRACK:TIMing[:STATe]?

Timing Tracking Query

Function

This command queries whether Timing Tracking is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:TRACK:TIMing[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Timing Tracking Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Timing Tracking is Enabled (On) or Disabled (Off).

```
CALC:EVM:TRACK:TIM?
> 1
```

2.5.30 Multicarrier Filter

:CALCulate:EVM:MCARrier:FILTer[:STATe] OFF|ON|0|1

Multicarrier Filter

Function

This command sets the Multicarrier Filter to Enabled (On) or Disabled (Off)

Command

```
:CALCulate:EVM:MCARrier:FILTer[:STATe] <switch>
```

Parameter

`<switch>`	Multicarrier Filter Enabled (On) or Disabled (Off)
`0|OFF`	Disabled
`1|ON`	Enabled (Default)

Example of Use

To set the Multicarrier Filter to Enabled.

```
CALC:EVM:MCAR:FILT ON
```

:CALCulate:EVM:MCARrier:FILTer[:STATe]?

Multicarrier Filter Query

Function

This command queries whether Multicarrier Filter is Enabled (On) or Disabled (Off).

Query

```
:CALCulate:EVM:MCARrier:FILTer[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	Multicarrier Filter Enabled (On) or Disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query whether Multicarrier Filter is Enabled (On) or Disabled (Off).

```
CALC:EVM:MCAR:FILT?
> 1
```

2.5.31 EVM Window

:CALCulate:EVM:EWINdow[:STATe] OFF|ON|0|1

EVM Window

Function

This command enables (On) or disables (Off) the EVM Window.

Command

`:CALCulate:EVM:EWINdow[:STATe] <switch>`

Parameter

`<switch>`	EVM Window enabled (On) or disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To enable the EVM Window.

```
CALC:EVM:EWIN ON
```

:CALCulate:EVM:EWINdow[:STATe]?

EVM Window Query

Function

This command queries if the EVM Window is Enabled (On) or Disabled (Off).

Query

`:CALCulate:EVM:EWINdow[:STATe]?`

Response

`<switch>`

Parameter

`<switch>`	EVM Window enabled (On) or disabled (Off)
`0`	Disabled
`1`	Enabled

Example of Use

To query if the EVM Window is enabled (On) or disabled (Off).

```
CALC:EVM:EWIN?
> 1
```

2.5.32 DC Cancellation

:CALCulate:EVM:DC:CANCel[:STATe] OFF|ON|0|1

DC Cancellation

Function

This command enables (On) or disables (Off) the DC Cancellation.

Command

```
:CALCulate:EVM:DC:CANCel[:STATe] <switch>
```

Parameter

`<switch>`	DC Cancellation Enabled (On), Disabled (Off)
`0|OFF`	Disabled (Default)
`1|ON`	Enabled

Example of Use

To enable (On) the DC Cancellation.

```
CALC:EVM:DC:CANC ON
```

:CALCulate:EVM:DC:CANCel[:STATe]?

DC Cancellation Query

Function

This command queries whether DC Cancellation is enabled or disabled.

Query

```
:CALCulate:EVM:DC:CANCel[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`	DC Cancellation Enabled, Disabled
`0`	Disabled
`1`	Enabled

Example of Use

To query whether DC Cancellation is Enabled or Disabled.

```
CALC:EVM:DC:CANC?
> 1
```

2.6 Utility Function

Table 2.6-1 lists the device messages used for the utility function.

Table 2.6-1 Device Messages for Utility Function

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

2.6.1 Erase Warm Up Message

:DISPlay:ANNotation:WUP:ERASe

Erase Warm Up Message

Function

This command cancels the warm up message display immediately after activation.

Command

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

Example of Use

To cancel the warm up message display.

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

2.6.2 Display Title

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

Display Title

Function

This command sets title display 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 the title display On/Off state.

Query

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

Response

```
<switch>
```

Parameter

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

Example of Use

To query the setting whether the title is displayed.

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

2.6.3 Title Entry

:DISPlay:ANNotation:TITLe:DATA <string>

Title Entry

Function

This command sets a title character string.

Command

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

Parameter

`<string>`	A character string within 32 characters, enclosed in double quotations (" ") or single quotations (' ')

Example of Use

To set a 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>`	A character string within 32 characters, enclosed in double quotations (" ") or single quotations (' ')

Example of Use

To query the title character string.

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

2.7 Common Measurement Function

Table 2.7-1 lists the device messages used for performing operations common to measurement functions.

Table 2.7-1 Device Messages for Operations Common to Measurement Functions

Function	Device Message
Continuous Measurement	`:INITiate:CONTinuous OFF|ON|0|1`
	`:INITiate:CONTinuous?`
	`:INITiate:MODE:CONTinuous`
Single Measurement	`:INITiate:MODE:SINGle`
Initiate	`:INITiate[:IMMediate]`
Calculate	`:INITiate:CALCulate`
Save Captured Data	`:MMEMory:STORe:IQData <filename>,<device>`
Cancel Execute Save Captured Data	`:MMEMory:STORe:IQData:CANCel`
Output Rate for Save Captured Data	`:MMEMory:STORe:IQData:RATE?`
Trigger Switch	`:TRIGger[:SEQuence][:STATe] ON|OFF|1|0`
	`:TRIGger[:SEQuence][:STATe]?`
Trigger Source	`:TRIGger[:SEQuence]:SOURce EXTernal[1]|2|EXT2|SG|IMMediate |WIF|RFBurst|VIDeo|FRAMe`
	`:TRIGger[:SEQuence]:SOURce?`
Trigger Slope	`:TRIGger[:SEQuence]:SLOPe POSitive|NEGative`
	`:TRIGger[:SEQuence]:SLOPe?`
Trigger Delay	`:TRIGger[:SEQuence]:DELay <time>`
	`:TRIGger[:SEQuence]:DELay?`
Video Trigger	`:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic] <power>`
	`:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic]?`
Wide IF Trigger Level	`:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <power>`
	`:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?`

Note:

The trigger setting is separately saved for each application, and is commonly applied to the measurement functions of each application.

2.7.1 Measurement and control

:INITiate:CONTinuous OFF|ON|0|1

Continuous Measurement

Function

This command sets the measurement mode.

Command

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

Parameter

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

Details

When On is set, the Continuous measurement mode is set and measurement is started. When set to Off, the Single measurement mode is set but measurement does not start at that time.

This command is not available when the Replay function is executed.

Example of Use

To perform 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
`1`	Continuous measurement

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`

Details

This command is not available when the Replay function is executed.

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`

Details

This command is not available when the Replay function is executed.

Example of Use

To start single measurement.

`INIT:MODE:SING`

:INITiate[:IMMediate]

Initiate

Function

This command starts measurement in the current measurement mode.

Command

`:INITiate[:IMMediate]`

Details

This command is not available when the Replay function is executed.

Example of Use

To start measurement in the current measurement mode.

`INIT`

:INITiate:CALCulate

Calculate

Function

This command executes analysis without capturing waveforms. This command is used when executing analysis for the same captured waveform by changing parameters.

Command

```
:INITiate:CALCulate
```

Details

If a waveform is not captured or if a parameter that requires waveform recapturing is changed, the waveform is captured before analysis is executed.

Another command or query can be accepted even if this function is being executed. Note, however, if a command that requires waveform recapturing or trace recalculation is received, this function is stopped and the received command is executed.

To query the measurement results after executing this command, use the *WAI command to control synchronization.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To start the measurement in the current measurement mode.

```
INIT:CALC
```

:MMEMory:STORe:IQData <filename>,<device>

Save Captured Data

Function

This command saves the captured waveform data in a file.

Command

```
:MMEMory:STORe:IQData <filename>,<device>
```

Parameter

`<filename>`	Name of the file to be saved. Specify a character string enclosed by single (‘ ’) or double (“ ”) quotation marks.
`<device>`	Name of the drive to be saved. Drive name such as A, B, D or E.

Details

Files are saved to the following directory in the specified drive.
\Anritsu Corporation\Signal Analyzer\User Data\Digitized Data\5GMeasurement
Up to 1000 files can be saved in a folder.

Example of Use

To save waveform data into drive D using the file name “DATA”.

```
MMEM:STOR:IQD "DATA",D
```

:MMEMory:STORe:IQData:CANCel

Cancel Execute Save Captured Data

Function

This command cancels saving of the waveform data file.

Command

```
:MMEMory:STORe:IQData:CANCel
```

Example of Use

To cancel digitizing.

```
MMEM:STOR:IQD:CANC
```

:MMEMory:STORe:IQData:RATE?

Output Rate for Save Captured Data

Function

This command queries the output rate when executing Save Captured Data.

Query

```
:MMEMory:STORe:IQData:RATE?
```

Response

```
<freq>
```

Parameter

`<freq>`	Output rate
Range	50 to 1300 MHz

No suffix code. Value is returned in Hz units.

Example of Use

To query the output rate.

```
MMEM:STOR:IQD:RATE?
> 1300000000
```

2.7.2 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 On/Off
`OFF|0`	Off (Default)
`ON|1`	On

Details

This command is not available when the Replay function is executed.

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 On/Off
`0`	Off
`1`	On

Example of Use

To query the trigger wait state On/Off.

```
TRIG?
> 1
```

2.7.3 Trigger Source

:TRIGger[:SEQuence]:SOURce EXTernal[1]|2|EXT2|SG|IMMediate |WIF|RFBurst|VIDeo|FRAMe

Trigger Source

Function

This command selects the trigger signal source.

Command

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

Parameter

`<mode>`	Trigger signal source
`EXTernal[1]`	External input (External) (Default)
`EXTernal2`	External input 2 (External 2) (only MS2850A)
`SG`	SG Marker (SG Marker) (Only when MS269xA-020 is installed)
`IMMediate`	Free run
`WIF|RFBurst`	Wideband IF detection (Wide IF Video)
`VIDeo`	Video detection (Video)
`FRAMe`	Frame period trigger (Only MS2850A)

Details

This command is not available when the Replay function is executed.

Example of Use

To set the trigger signal source to external input.

```
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 (External) (only MS2850A)
`EXT2`	External input 2 (External 2)
`SG`	SG Marker (SG Marker) (Only when MS269xA-020 is installed)
`IMM`	Free run
`WIF|RFBurst`	Wideband IF detection (Wide IF Video)
`VIDeo`	Video detection (Video)
`FRAMe`	Frame period trigger (Only MS2850A)

Example of Use

To query the trigger signal source.

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

2.7.4 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`	Triggers are detected at the rising edge (Default).
`NEGative`	Triggers are detected at the falling edge.

Details

This command is not available when the Replay function is executed.

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`	Triggers are detected at the rising edge.
`NEG`	Triggers are detected at the falling edge.

Example of Use

To query the trigger detection mode.

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

2.7.5 Trigger Delay

:TRIGger[:SEQuence]:DELay <time>

Trigger Delay

Function

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

Command

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

Parameter

`<time>`	Trigger delay time
Range	Refer to Table 3.9-3 of the *MX285051A-011 Operation Manual (Operation).*
Resolution	Refer to Table 3.9-3 of the *MX285051A-011 Operation Manual (Operation).*
Suffix code	`NS, US, MS, S` S is used when omitted.
Default	0 s

Details

This command is not available when the Replay function is executed.

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 trigger delay time from generation of a trigger to start of a capture operation.

Query

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

Response

```
<time>
```

Parameter

`<time>`	Trigger delay time
Range	Refer to Table 3.9-3 of the *MX285051A-011 Operation Manual (Operation)*.
Resolution	Refer to Table 3.9-3 of the *MX285051A-011 Operation Manual (Operation)*.
Unit	Value is returned in second units.

Example of Use

To query the trigger delay time.

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

2.7.6 Video Trigger Level

:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic] <power>

Video Trigger Level

Function

This command sets the video trigger detection level.

Command

```
:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic] <power>
```

Parameter

`<power>`	Video trigger detection level
Range	–150 to 50 dBm
Resolution	1 dB
Suffix code	`DBM` dBm is used when omitted.
Default	–40 dBm

Details

This command is not available when the Replay function is executed.

Example of Use

To set the video trigger detection level to 5 dBm.

```
TRIG:VID:LEV 5
```

:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic]?

Video Trigger Level Query

Function

This command queries the video trigger detection level.

Query

```
:TRIGger[:SEQuence]:VIDeo:LEVel[:LOGarithmic]?
```

Response

```
<power>
```

Parameter

`<power>`	Video trigger detection level
Range	–150 to 50 dBm
Resolution	1 dB

Example of Use

To query the video trigger detection level.

```
TRIG:VID:LEV?
> 5
```

2.7.7 Wide IF Trigger Level

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <power>

Wide IF Trigger Level

Function

This command sets the threshold level where the capture starts in Wide IF Video trigger.

Command

```
:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <power>
```

Parameter

`<power>`	Threshold level for the capture start
Range	–60 to 50 dBm
Resolution	1 dB
Default	–20 dBm

Details

This command is not available when the Replay function is executed.

Example of Use

To set the Wide IF Video trigger threshold level to 10 dBm.

```
TRIG:WIF:LEV:ABS 10
```

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?

Wide IF Trigger Level Query

Function

This command queries the threshold level where the capture starts in Wide IF Video trigger.

Query

```
:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?
```

Response

```
<power>
```

Parameter

`<power>`	Threshold level for the capture start
Range	–60 to 50 dBm
Resolution	1 dB
Suffix code	None, Value is returned in dBm units.

Example of Use

To query the Wide IF Video trigger threshold level.

```
TRIG:WIF:LEV:ABS?
> 10
```

2.8 Modulation Measurement Function

This section describes the device messages related to Modulation measurement.

Table 2.8-1 lists the device messages used for execution and result query of Modulation measurement.

Table 2.8-1 Device Messages for Modulation Measurement Functions

Function	Device Message
Configure	`:CONFigure:EVM`
Initiate	`:INITiate:EVM`
Fetch	`:FETCh:EVM[n]?`
Read/Measure	`:READ:EVM[n]?`
	`:MEASure:EVM[n]?`

Table 2.8-2 (MX285051A-011/MX269051A-011/MX285051A-021) or Table 2.8-3 (MX285051A-061/MX269051A-061/MX285051A-071) list the responses to parameter `[n]` of the device messages in Table 2.8-1.

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. Frequency Error (Average) [Hz] 2. Frequency Error (Maximum) [Hz] 3. Transmit Power (Average) [dBm] 4. Transmit Power (Maximum) [dBm] 5. EVM rms (Average) 6. EVM rms (Maximum) 7. EVM peak (Average) 8. EVM peak (Maximum) 9. EVM peak Symbol Number 10. EVM peak Subcarrier Number 11. Origin Offset (Average) [dB] 12. Origin Offset (Maximum) [dB] 13. Time Offset (Average) [second] 14. Time Offset (Maximum) [second] 15. Frequency Error PPM (Average) [ppm] 16. Frequency Error PPM (Maximum) [ppm] 17. Symbol Clock Error (Average) [ppm] 18. Symbol Clock Error (Maximum) [ppm] 19. IQ Skew (Average) [second] 20. IQ Skew (Maximum) [second] 21. IQ Imbalance (Average) [dB] 22. IQ Imbalance (Maximum) [dB] 23. IQ Quadrature Error (Average) [degree] 24. IQ Quadrature Error (Maximum) [degree] 25. OFDM Symbol Tx Power (Average) [dBm] 26. OFDM Symbol Tx Power (Maximum) [dBm]

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 1. Total EVM result valid (1 = valid/0 = invalid) 2. Total EVM rms (Average) 3. Total EVM rms (Maximum) 4. Total EVM peak (Average) 5. Total EVM peak (Maximum) 6. Total EVM peak Symbol Number 7. Total EVM peak Subcarrier Number 8. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 9. PDSCH ALL EVM rms (Average) 10. PDSCH ALL EVM rms (Maximum) 11. PDSCH ALL EVM peak (Average) 12. PDSCH ALL EVM peak (Maximum) 13. PDSCH ALL EVM peak Symbol Number 14. PDSCH ALL EVM peak Subcarrier Number 15. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 16. PDSCH QPSK EVM rms (Average) 17. PDSCH QPSK EVM rms (Maximum) 18. PDSCH QPSK EVM peak (Average) 19. PDSCH QPSK EVM peak (Maximum) 20. PDSCH QPSK EVM peak Symbol Number 21. PDSCH QPSK EVM peak Subcarrier Number 22. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 23. PDSCH 16QAM EVM rms (Average) 24. PDSCH 16QAM EVM rms (Maximum) 25. PDSCH 16QAM EVM peak (Average) 26. PDSCH 16QAM EVM peak (Maximum) 27. PDSCH 16QAM EVM peak Symbol Number 28. PDSCH 16QAM EVM peak Subcarrier Number 29. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 30. PDSCH 64QAM EVM rms (Average) 31. PDSCH 64QAM EVM rms (Maximum) 32. PDSCH 64QAM EVM peak (Average) 33. PDSCH 64QAM EVM peak (Maximum) 34. PDSCH 64QAM EVM peak Symbol Number 35. PDSCH 64QAM EVM peak Subcarrier Number

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	36. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 37. PDSCH 256QAM EVM rms (Average) 38. PDSCH 256QAM EVM rms (Maximum) 39. PDSCH 256QAM EVM peak (Average) 40. PDSCH 256QAM EVM peak (Maximum) 41. PDSCH 256QAM EVM peak Symbol Number 42. PDSCH 256QAM EVM peak Subcarrier Number 43. PDCCH EVM result valid (1 = valid/0 = invalid) 44. PDCCH EVM rms (Average) 45. PDCCH EVM rms (Maximum) 46. PDCCH EVM peak (Average) 47. PDCCH EVM peak (Maximum) 48. PDCCH EVM peak Symbol Number 49. PDCCH EVM peak Subcarrier Number 50. DM-RS(PDSCH) EVM result valid (1 = valid/0 = invalid) 51. DM-RS(PDSCH) EVM rms (Average) 52. DM-RS(PDSCH) EVM rms (Maximum) 53. DM-RS(PDSCH) EVM peak (Average) 54. DM-RS(PDSCH) EVM peak (Maximum) 55. DM-RS(PDSCH) EVM peak Symbol Number 56. DM-RS(PDSCH) EVM peak Subcarrier Number 57. DM-RS(PDCCH) EVM result valid (1 = valid/0 = invalid) 58. DM-RS(PDCCH) EVM rms (Average) 59. DM-RS(PDCCH) EVM rms (Maximum) 60. DM-RS(PDCCH) EVM peak (Average) 61. DM-RS(PDCCH) EVM peak (Maximum) 62. DM-RS(PDCCH) EVM peak Symbol Number 63. DM-RS(PDCCH) EVM peak Subcarrier Number 64. DM-RS(PBCH) EVM result valid (1 = valid/0 = invalid) 65. DM-RS(PBCH) EVM rms (Average) 66. DM-RS(PBCH) EVM rms (Maximum) 67. DM-RS(PBCH) EVM peak (Average) 68. DM-RS(PBCH) EVM peak (Maximum) 69. DM-RS(PBCH) EVM peak Symbol Number 70. DM-RS(PBCH) EVM peak Subcarrier Number

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	71. P-SS EVM result valid (1 = valid / 0 = invalid) 72. P-SS EVM rms (Average) 73. P-SS EVM rms (Maximum) 74. P-SS EVM peak (Average) 75. P-SS EVM peak (Maximum) 76. P-SS EVM peak Symbol Number 77. P-SS EVM peak Subcarrier Number 78. S-SS EVM result valid (1 = valid / 0 = invalid) 79. S-SS EVM rms (Average) 80. S-SS EVM rms (Maximum) 81. S-SS EVM peak (Average) 82. S-SS EVM peak (Maximum) 83. S-SS EVM peak Symbol Number 84. S-SS EVM peak Subcarrier Number 85. PBCH EVM result valid (1 = valid / 0 = invalid) 86. PBCH EVM rms (Average) 87. PBCH EVM rms (Maximum) 88. PBCH EVM peak (Average) 89. PBCH EVM peak (Maximum) 90. PBCH EVM peak Symbol Number 91. PBCH EVM peak Subcarrier Number ***Note:*** When Result Valid is invalid, the measurement result is regarded as an unmeasured result.

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
3	A/B	Responses are returned with comma-separated value formats in the following order: 1 to 2 × N Constellation 1. I-phase data of the 0th subcarrier 2. Q-phase data of the 0th subcarrier 3. I-phase data of the 1st subcarrier 4. Q-phase data of the 1st subcarrier … 2 × N–1. I-phase data of the (N–1)th subcarrier 2 × N. Q-phase data of the (N–1)th subcarrier The constellation data for the symbol set by Symbol Number is returned.
4	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N EVM vs Subcarrier (rms) 1. EVM (rms) of the 0th subcarrier 2. EVM (rms) of the 1st subcarrier … N. EVM (rms) of the (N–1)th subcarrier ***Note:*** Executable even when EVM vs Subcarrier is not selected for Graph window.
5	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N EVM vs Subcarrier (peak) 1. EVM (peak) of the 0th subcarrier 2. EVM (peak) of the 1st subcarrier … N. EVM (peak) of the (N–1)th subcarrier ***Note:*** Executable even when EVM vs Subcarrier is not selected for Graph window.
6	A/B	Responses are returned with comma-separated value formats in the following order: 1 to M EVM vs Symbol (rms) 1. EVM (rms) of the 0th symbol 2. EVM (rms) of the 1st symbol … M. EVM (rms) of the (M–1)th symbol ***Note:*** Executable even when EVM vs Symbol is not selected for Graph window.

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
7	A/B	Responses are returned with comma-separated value formats in the following order: 1 to M EVM vs Symbol (peak) 1. EVM (peak) of the 0th symbol 2. EVM (peak) of the 1st symbol … M. EVM (peak) of the (M–1)th symbol ***Note:*** Executable even when EVM vs Symbol is not selected for Graph window.
8	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N Spectral flatness amplitude 1. Spectral flatness amplitude of the 0th subcarrier 2. Spectral flatness amplitude of the 1st subcarrier … N. Spectral flatness amplitude of the (N–1)th subcarrier ***Note:*** Executable even when Spectral Flatness Amplitude is not selected for Graph window.
10	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N Spectral flatness phase 1. Spectral flatness phase of the 0th subcarrier 2. Spectral flatness phase of the 1st subcarrier … N. Spectral flatness phase of the (N–1)th subcarrier ***Note:*** Executable even when Spectral Flatness Phase is not selected for Graph window.

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>13</td><td>A/B</td><td>Responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table>
<tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr>
<tr><td>15 kHz</td><td>9</td></tr>
<tr><td>30 kHz</td><td>19</td></tr>
<tr><td>60 kHz</td><td>39</td></tr>
<tr><td>120 kHz</td><td>79</td></tr>
</table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

<i>Note:</i>
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.</td></tr>
</table>

Table 2.8-2 Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>14</td><td>A/B</td><td>Responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table>
<tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr>
<tr><td>15 kHz</td><td>9</td></tr>
<tr><td>30 kHz</td><td>19</td></tr>
<tr><td>60 kHz</td><td>39</td></tr>
<tr><td>120 kHz</td><td>79</td></tr>
</table>
1. Power of resource block 0 in slot y
2. Power of resource block 1 in slot y
…
x. Power of resource block (x–1) in slot y
x+1. Power of resource block 0 in slot y+1
…
2 × x. Power of resource block (x–1) in slot y+1
…
m. Power of resource block (x–1) in slot y+z

<i>Note:</i>
The unit of the response is always dBm.
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.</td></tr>
<tr><td>22</td><td>A/B</td><td>1. Cell ID
2. P-SS Power (Average) [dBm]
3. S-SS Power (Average) [dBm]
4. PBCH Power (Average) [dBm]
5. PDSCH Power (Average) [dBm]
6. PDCCH Power (Average) [dBm]
7. DM-RS(PBCH) Power (Average) [dBm]
8. DM-RS(PDSCH) Power (Average) [dBm]
9. DM-RS(PDCCH) Power (Average) [dBm]</td></tr>
</table>

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink /MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. Frequency Error (Average) [Hz] 2. Frequency Error (Maximum) [Hz] 3. Transmit Power (Average) [dBm] 4. Transmit Power (Maximum) [dBm] 5. EVM rms (Average) 6. EVM rms (Maximum) 7. EVM peak (Average) 8. EVM peak (Maximum) 9. EVM peak Symbol Number 10. EVM peak Subcarrier Number 11. Origin Offset (Average) [dB] 12. Origin Offset (Maximum) [dB] 13. Time Offset (Average) [second] 14. Time Offset (Maximum) [second] 15. Frequency Error PPM (Average) [ppm] 16. Frequency Error PPM (Maximum) [ppm] 17. Symbol Clock Error (Average) [ppm] 18. Symbol Clock Error (Maximum) [ppm] 19. IQ Skew (Average) [second] 20. IQ Skew (Maximum) [second] 21. IQ Imbalance (Average) [dB] 22. IQ Imbalance (Maximum) [dB] 23. IQ Quadrature Error (Average) [degree] 24. IQ Quadrature Error (Maximum) [degree] 25. OFDM Symbol Tx Power (Average) [dBm] 26. OFDM Symbol Tx Power (Maximum) [dBm]

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 1. Total EVM result valid (1 = Valid/0 = Invalid) 2. Total EVM rms (Average) 3. Total EVM rms (Maximum) 4. Total EVM peak (Average) 5. Total EVM peak (Maximum) 6. Total EVM peak Symbol Number 7. Total EVM peak Subcarrier Number 8. PUSCH ALL EVM result valid (1 = Valid/0 = Invalid) 9. PUSCH ALL EVM rms (Average) 10. PUSCH ALL EVM rms (Maximum) 11. PUSCH ALL EVM peak (Average) 12. PUSCH ALL EVM peak (Maximum) 13. PUSCH ALL EVM peak Symbol Number 14. PUSCH ALL EVM peak Subcarrier Number 15. PUSCH QPSK EVM result valid (1 = Valid/0 = Invalid) 16. PUSCH QPSK EVM rms (Average) 17. PUSCH QPSK EVM rms (Maximum) 18. PUSCH QPSK EVM peak (Average) 19. PUSCH QPSK EVM peak (Maximum) 20. PUSCH QPSK EVM peak Symbol Number 21. PUSCH QPSK EVM peak Subcarrier Number 22. PUSCH 16QAM EVM result valid (1 = Valid/0 = Invalid) 23. PUSCH 16QAM EVM rms (Average) 24. PUSCH 16QAM EVM rms (Maximum) 25. PUSCH 16QAM EVM peak (Average) 26. PUSCH 16QAM EVM peak (Maximum) 27. PUSCH 16QAM EVM peak Symbol Number 28. PUSCH 16QAM EVM peak Subcarrier Number 29. PUSCH 64QAM EVM result valid (1 = Valid/0 = Invalid) 30. PUSCH 64QAM EVM rms (Average) 31. PUSCH 64QAM EVM rms (Maximum) 32. PUSCH 64QAM EVM peak (Average) 33. PUSCH 64QAM EVM peak (Maximum) 34. PUSCH 64QAM EVM peak Symbol Number 35. PUSCH 64QAM EVM peak Subcarrier Number 36. PUSCH 256QAM EVM result valid (1 = Valid/0 = Invalid) 37. PUSCH 256QAM EVM rms (Average) 38. PUSCH 256QAM EVM rms (Maximum) 39. PUSCH 256QAM EVM peak (Average) 40. PUSCH 256QAM EVM peak (Maximum) 41. PUSCH 256QAM EVM peak Symbol Number 42. PUSCH 256QAM EVM peak Subcarrier Number

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
2 (Cont'd)	A/B	43. DM-RS(PUSCH) EVM result valid (1 = Valid/0 = Invalid) 44. DM-RS(PUSCH) EVM rms (Average) 45. DM-RS(PUSCH) EVM rms (Maximum) 46. DM-RS(PUSCH) EVM peak (Average) 47. DM-RS(PUSCH) EVM peak (Maximum) 48. DM-RS(PUSCH) EVM peak Symbol Number 49. DM-RS(PUSCH) EVM peak Subcarrier Number 50. PUSCH PI/2 BPSK EVM result valid (1 = Valid/0 = Invalid) 51. PUSCH PI/2 BPSK EVM rms (Average) 52. PUSCH PI/2 BPSK EVM rms (Maximum) 53. PUSCH PI/2 BPSK EVM peak (Average) 54. PUSCH PI/2 BPSK EVM peak (Maximum) 55. PUSCH PI/2 BPSK EVM peak Symbol Number 56. PUSCH PI/2 BPSK EVM peak Subcarrier Number
3	A/B	Responses are returned with comma-separated value formats in the following order: 1 to 2 × N Constellation 1. I-phase data of the 0th subcarrier 2. Q-phase data of the 0th subcarrier 3. I-phase data of the 1st subcarrier 4. Q-phase data of the 1st subcarrier … 2 × N–1. I-phase data of the (N–1)th subcarrier 2 × N. Q-phase data of the (N–1)th subcarrier The constellation data for the symbol set by Symbol Number is returned.
4	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N EVM vs Subcarrier (rms) 1. EVM (rms) of the 0th subcarrier 2. EVM (rms) of the 1st subcarrier … N. EVM (rms) of the (N–1)th subcarrier ***Note:*** Executable even when EVM vs Subcarrier is not selected for Graph window.

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
5	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N EVM vs Subcarrier (peak) 1. EVM (peak) of the 0th subcarrier 2. EVM (peak) of the 1st subcarrier … N. EVM (peak) of the (N–1)th subcarrier ***Note:*** Executable even when EVM vs Subcarrier is not selected for Graph window.
6	A/B	Responses are returned with comma-separated value formats in the following order: 1 to M EVM vs Symbol (rms) 1. EVM (rms) of the 0th symbol 2. EVM (rms) of the 1st symbol … M. EVM (rms) of the (M–1)th symbol ***Note:*** Executable even when EVM vs Symbol is not selected for Graph window.
7	A/B	Responses are returned with comma-separated value formats in the following order: 1 to M EVM vs Symbol (peak) 1. EVM (peak) of the 0th symbol 2. EVM (peak) of the 1st symbol … M. EVM (peak) of the (M–1)th symbol ***Note:*** Executable even when EVM vs Symbol is not selected for Graph window.
8	A/B	Responses are returned with comma-separated value formats in the following order: 1 to N Spectral flatness amplitude 1. Spectral flatness amplitude of the 0th subcarrier 2. Spectral flatness amplitude of the 1st subcarrier … N. Spectral flatness amplitude of the (N–1)th subcarrier ***Note:*** Executable even when Spectral Flatness Amplitude is not selected for Graph window.

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>10</td><td>A/B</td><td>Responses are returned with comma-separated value formats in the following order:
1 to N Spectral flatness phase
1. Spectral flatness phase of the 0th subcarrier
2. Spectral flatness phase of the 1st subcarrier
…
N. Spectral flatness phase of the (N–1)th subcarrier
<i>Note:</i>
Executable even when Spectral Flatness Phase is not selected for Graph window.</td></tr>
<tr><td>13</td><td>A/B</td><td>Responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table>
<tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr>
<tr><td>15 kHz</td><td>9</td></tr>
<tr><td>30 kHz</td><td>19</td></tr>
<tr><td>60 kHz</td><td>39</td></tr>
<tr><td>120 kHz</td><td>79</td></tr>
</table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)
<i>Note:</i>
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.</td></tr>
</table>

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>14</td><td>A/B</td><td>Responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table>
<tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr>
<tr><td>15 kHz</td><td>9</td></tr>
<tr><td>30 kHz</td><td>19</td></tr>
<tr><td>60 kHz</td><td>39</td></tr>
<tr><td>120 kHz</td><td>79</td></tr>
</table>
1. Power of the 0th resource block in slot y
2. Power of the 1st resource block in slot y
…
x. Power of the (x–1)th resource block in slot y
x + 1. Power of the 0th resource block in slot y+1
…
2 × x. Power of the (x–1)th resource block in slot y+1
…
m. Power of the (x–1)th resource block in slot y+z
<i>Note:</i>
The unit of the response is always dBm.
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.</td></tr>
<tr><td>22</td><td>A/B</td><td>1. PUSCH Power (Average) [dBm]
2. DM-RS(PUSCH) Power (Average) [dBm]</td></tr>
<tr><td>48</td><td>A/B</td><td>Responses are returned with comma-separated value formats in the following order:
1 to 4 × N Freuqnecy Error vs Slot
1. Frequency Error (Average) of the 0th Slot [Hz]
2. Frequency Error (Maximum) of the 0th Slot [Hz]
3. Frequency Error (Average) of the 0th Slot [ppm]
4. Frequency Error (Maximum) of the 0th Slot [ppm]
…
4 × N – 3. Frequency Error(Average) of the (N–1)th Slot [Hz]
4 × N – 2. Frequency Error(Maximum) of the (N–1)th Slot [Hz]
4 × N – 1. Frequency Error(Average) of the (N–1)th Slot [ppm]
4 × N. Frequency Error(Maximum) of the (N–1)th Slot [ppm]</td></tr>
</table>

Table 2.8-3 Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results (Cont'd)

n	Result Mode	Response
51	A/B	Responses are returned with comma-separated value formats in the following order: 1 to 2 × N Origin Offset vs Slot 1. Origin Offset (Average) of the 0th Slot [dB] 2. Origin Offset (Maximum) of the 0th Slot [dB] … 2 × N – 1. Origin Offset (Average) of the (N–1)th Slot [ppm] 2 × N. Origin Offset(Maximum) of the (N–1)th Slot [ppm]

For details on Result Mode, refer to the description of the `:SYSTem:RESult:MODE` command in the *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Mainframe Remote Control).*

Table 2.8-4 lists device messages for setting parameters for Modulation measurement.

Table 2.8-4 Device Messages for Setting Parameters for Modulation Measurement

Parameter	Device message
Storage Mode	`[:SENSe]:EVM:AVERage[:STATe] OFF|ON|AMAXimum|0|1|2`
	`[:SENSe]:EVM:AVERage[:STATe]?`
Storage Count	`[:SENSe]:EVM:AVERage:COUNt <integer>`
	`[:SENSe]:EVM:AVERage:COUNt?`
Scale – EVM Unit	`:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing LINear|LOGarithmic|PERCent|DB`
	`:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing?`
Scale – EVM	`:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel <scale>`
	`:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel?`
Scale – Flatness	`:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel <scale>`
	`:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel?`
Trace Mode	`:DISPlay:EVM[:VIEW]:SELect EVSubcarrier|EVSYmbol|FLATness|PVRB|EVRB|SUMMary`
	`:DISPlay:EVM[:VIEW]:SELect?`
Flatness Type	`:CALCulate:EVM:WINDow4:TYPE AMPLitude|PHASe`
	`:CALCulate:EVM:WINDow4:TYPE?`
Graph View Setting	`:CALCulate:EVM:WINDow2:MODE EACH|AVERage`
	`:CALCulate:EVM:WINDow2:MODE?`
	`:CALCulate:EVM:WINDow2:GVIew RMS|RPEak`
	`:CALCulate:EVM:WINDow2:GVIew?`
	`:CALCulate:EVM:WINDow3:MODE EACH|AVERage`
	`:CALCulate:EVM:WINDow3:MODE?`
	`:CALCulate:EVM:WINDow3:GVIew RMS|RPEak`
	`:CALCulate:EVM:WINDow3:GVIew?`
Marker – Symbol Number	`:CALCulate:EVM:WINDow[1]|2:SYMBol:NUMBer <integer>`
	`:CALCulate:EVM:WINDow[1]|2:SYMBol:NUMBer?`
Marker – Subcarrier Number	`:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer <integer>`
	`:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer?`
Slot Number	`:CALCulate:EVM:WINDow5|6:SLOT:NUMBer <integer>`
	`:CALCulate:EVM:WINDow5|6:SLOT:NUMBer`
Resource Block Number	`:CALCulate:EVM:WINDow5|6:RBLock:NUMBer <integer>`
	`:CALCulate:EVM:WINDow5|6:RBLock:NUMBer?`

Table 2.8-5 lists the device messages for setting the marker and reading out the value at the marker position for Modulation measurement.

Table 2.8-5 Device Messages Related to Marker for Modulation Measurement

Parameter	Device Message
Marker Position Number	`:CALCulate:EVM:MARKer:SUBCarrier <integer>`
	`:CALCulate:EVM:MARKer:SUBCarrier?`
	`:CALCulate:EVM:MARKer:SYMBol <integer>`
	`:CALCulate:EVM:MARKer:SYMBol?`
	`:CALCulate:EVM:MARKer:RELement <integer>`
	`:CALCulate:EVM:MARKer:RELement?`
Marker Value	`:CALCulate:EVM:MARKer:X?`
	`:CALCulate:EVM:MARKer:Y[:RMS]?`
	`:CALCulate:EVM:MARKer:Y:PEAK?`
	`:CALCulate:EVM:MARKer:EVM[:RMS]?`
	`:CALCulate:EVM:MARKer:EVM:PEAK?`
	`:CALCulate:EVM:MARKer:POWer:ABSolute?`
Peak Search	`:CALCulate:MARKer:MAXimum`
Next Peak Search	`:CALCulate:MARKer:MAXimum:NEXT`
Dip Search	`:CALCulate:MARKer:MINimum`
Next Dip Search	`:CALCulate:MARKer:MINimum:NEXT`

2.8.1 Measure

:CONFigure:EVM

Configure

Function

This command selects the Modulation measurement function.

Command

```
:CONFigure:EVM
```

Details

This command only selects the measurement function and does not start measurement.

Example of Use

To select the Modulation measurement function.

```
CONF:EVM
```

:INITiate:EVM

Initiate

Function

This command starts Modulation measurement.

Command

```
:INITiate:EVM
```

Example of Use

To start Modulation measurement.

```
INIT:EVM
```

:FETCh:EVM[n]?

Fetch Query

Function

This command queries the result of Modulation measurement.

Query

`:FETCh:EVM[n]?`

Response

See Table 2.8-2 or Table 2.8-3.

Details

–999.0 is returned when measurement is not performed or an error has occurred. Note, however, that “999999999999” is returned in the case of Frequency Error.

The unit of the read EVM value depends on the setting of EVM Unit.

Example of Use

To query the result of Modulation measurement.

```
FETC:EVM?
> 5.20,1.03,1,0.53,38,3,2.34,…
```

:READ:EVM[n]?

Read/Measure Query

Function

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

Query

`:READ:EVM[n]?`

Response

See Table 2.8-2 or Table 2.8-3.

Example of Use

To perform Modulation measurement and queries the measured result.

```
READ:EVM?
```

Related Command

This command functions the same as the following command.

`:MEASure:EVM[n]?`

:MEASure:EVM[n]?

Read/Measure Query

Function

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

Query

`:MEASure:EVM[n]?`

Response

See Table 2.8-2 or Table 2.8-3.

Example of Use

To perform Modulation measurement and query the measurement result.

`MEAS:EVM?`

Related Command

This command functions the same as the following command.

`READ:EVM[n]?`

2.8.2 Storage Mode

[:SENSe]:EVM:AVERage[:STATe] OFF|ON|AMAXimum|0|1|2

Storage Mode

Function

This command sets the storage mode.

Command

```
[:SENSe]:EVM:AVERage[:STATe] mode
```

Parameter

`<mode>`	Storage Mode
`OFF|0`	Off (Default)
`ON|1`	Average
`AMAXimum|2`	Average & Max

Details

When Capture Time Auto is set to Off, the capture time length must be 2 frames or more to perform measurement in Storage mode.

Example of Use

To set the storage mode to Average.

```
EVM:AVER ON
```

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

Storage Mode Query

Function

This command queries the storage mode.

Query

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

Response

```
<mode>
```

Parameter

`<mode>`	Storage Mode
0	Off
1	Average
2	Average & Max

Example of Use

To query the storage mode.

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

2.8.3 Storage Count

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

Storage Count

Function

This command sets the storage count.

Command

```
[:SENSe]:EVM: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.

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

[:SENSe]:EVM:AVERage:COUNt?

Storage Count Query

Function

This command queries the storage count.

Query

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

Response

```
<integer>
```

Parameter

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

Example of Use

To query the storage count.

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

2.8.4 Scale – EVM Unit

:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing LINear|LOGarithmic|PERCent|DB

Scale – EVM Unit

Function

This command sets the unit for EVM of measurement results.

Command

```
:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPAC
ing <mode>
```

Parameter

`<mode>`	Scale mode
`LINear`	% scale
`LOGarithmic`	dB scale
`PERCent`	% scale (Default)
`DB`	dB scale

Details

This command is not available when Trace Mode is set to Spectral Flatness.

Example of Use

To set the unit for EVM to dB scale.

```
DISP:EVM:WIND2:TRAC:Y:SPAC DB
```

:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing?

Scale – EVM Unit Query

Function

This command queries the scale unit for EVM.

Query

```
:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPAC
ing?
```

Response

```
<mode>
```

Parameter

`<mode>`	Scale mode
`PERC`	% scale
`DB`	dB scale

Example of Use

To query the unit for EVM.

```
DISP:EVM:WIND2:TRAC:Y:SPAC?
> DB
```

2.8.5 Scale – EVM

:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel 2|5|10|20|-40|-20|0

Scale – EVM

Function

This command sets the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit depends on the setting of EVM Unit.

Command

```
:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel
<scale>
```

Parameter

`<scale>`	Range of vertical axis scale when EVM Unit = %
20	0 to 20%
10	0 to 10%
5	0 to 5% (Default)
2	0 to 2%
`<scale>`	Range of vertical axis scale when EVM Unit = dB
–40	–80 to –40 dB (Default)
–20	–80 to –20 dB
0	–80 to 0 dB

Details

The selectable arguments depend on the setting of EVM Unit.

Example of Use

To set the vertical axis scale of the result graph to 10%.

```
DISP:EVM:WIND2:TRAC:Y:RLEV 10
```

:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel?

Scale – EVM Query

Function

This command queries the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit of the readout value depends on the setting of EVM Unit.

Query

```
:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<scale>
```

Parameter

`<scale>`	Range of vertical axis scale when EVM Unit = %
20	0 to 20%
10	0 to 10%
5	0 to 5%
2	0 to 2%
`<scale>`	Range of vertical axis scale when EVM Unit = dB
–40	–80 to –40 dB
–20	–80 to –20 dB
0	–80 to 0 dB

Example of Use

To query the vertical axis scale of the result graph.

```
DISP:EVM:WIND2:TRAC:Y:RLEV?
> 10
```

2.8.6 Scale – Flatness

:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel <scale>

Scale – Flatness

Function

This command sets the vertical axis scale of the Flatness graph. The unit depends on the setting of Flatness Type.

Command

```
:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel
<scale>
```

Parameter

`<scale>`	Range of vertical axis scale when Flatness Type = Amplitude
Range	1, 3, 10
Suffix code	None
Default	10
`<scale>`	Range of vertical axis scale when Flatness Type = Phase
Range	6, 20, 60
Suffix code	None
Default	20

Example of Use

To set the vertical axis scale of the result graph to 10 dB.

```
DISP:EVM:WIND4:TRAC:Y:RLEV 10
```

:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel?

Scale – Flatness Query

Function

This command queries the vertical axis scale of the Flatness graph. The unit of the readout value depends on the setting of Flatness Type.

Query

```
:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<scale>
```

Parameter

`<scale>`	Range of vertical axis scale when Flatness Type = Amplitude
Range	1, 3, 10
`<scale>`	Range of vertical axis scale when Flatness Type = Phase
Range	6, 20, 60

Example of Use

To query the vertical axis scale of the result graph.

```
DISP:EVM:WIND4:TRAC:Y:RLEV?
> 10
```

2.8.7 Trace Mode

:DISPlay:EVM[:VIEW]:SELect EVSubcarrier|EVSYmbol|FLATness|PVRB|EVRB|SUMMary

Trace Mode

Function

This command sets the result type to be displayed on the graph window.

Command

```
:DISPlay:EVM[:VIEW]:SELect <mode>
```

Parameter

`<mode>`	Displayed result type
`EVSubcarrier`	Displays EVM vs Subcarrier (Default)
`EVSYmbol`	Displays EVM vs Symbol.
`FLATness`	Displays Spectral Flatness.
`PVRB`	Displays Power vs Resource Block.
`EVRB`	Displays EVM vs Resource Block.
`SUMMary`	Displays Summary.

Example of Use

To display the Spectral Flatness to the graph window.

```
DISP:EVM:SEL FLAT
```

:DISPlay:EVM[:VIEW]:SELect?

Trace Mode Query

Function

This command queries the result type displayed on the graph window.

Command

```
:DISPlay:EVM[:VIEW]:SELect?
```

Response

```
<mode>
```

Parameter

`<mode>`	Displayed result type
`EVS`	EVM vs Subcarrier is displayed.
`EVSY`	EVM vs Symbol is displayed.
`FLAT`	Spectral Flatness is displayed.
`PVRB`	Displays Power vs Resource Block.
`EVRB`	Displays EVM vs Resource Block.
`SUMM`	Displays Summary.

Example of Use

To query the result type displayed on the graph window.

```
DISP:EVM:SEL?
> FLAT
```

2.8.8 Flatness Type

:CALCulate:EVM:WINDow4:TYPE AMPLitude|PHASe

Spectral Flatness Type

Function

This command sets the display type for the spectral flatness graph.

Command

```
:CALCulate:EVM:WINDow4:TYPE <mode>
```

Parameter

`<mode>`	Display type of spectral flatness graph
`AMPLitude`	Displays Amplitude (Default).
`PHASe`	Displays Phase.

Example of Use

To set the display type of the spectral flatness graph to Amplitude.

```
CALC:EVM:WIND4:TYPE AMPL
```

:CALCulate:EVM:WINDow4:TYPE?

Spectral Flatness Type Query

Function

This command queries the display type of the spectral flatness graph.

Query

```
:CALCulate:EVM:WINDow4:TYPE?
```

Response

```
<mode>
```

Parameter

`<mode>`	Display type of spectral flatness graph
`AMPL`	Amplitude is displayed.
`PHAS`	Phase is displayed.

Example of Use

To query the display type of the spectral flatness graph.

```
CALC:EVM:WIND4:TYPE?
> AMPL
```

2.8.9 Graph View Setting

:CALCulate:EVM:WINDow2:MODE EACH|AVERage

EVM vs Subcarrier View

Function

This command sets whether to display the averaged or unaveraged EVM vs Subcarrier.

Command

```
:CALCulate:EVM:WINDow2:MODE <mode>
```

Parameter

`<mode>`	Averaging of EVM vs Subcarrier
`EACH`	Displays the unaveraged EVM vs Subcarrier.
`AVERage`	Displays the averaged EVM vs Subcarrier (Default).

Example of Use

To display the averaged EVM vs Subcarrier.

```
CALC:EVM:WIND2:MODE AVER
```

:CALCulate:EVM:WINDow2:MODE?

EVM vs Subcarrier View Query

Function

This command queries the setting whether the EVM vs Subcarrier is averaged.

Query

```
:CALCulate:EVM:WINDow2:MODE?
```

Response

```
<mode>
```

Parameter

`<mode>`	Averaging of EVM vs Subcarrier
`EACH`	Unaveraged EVM vs Subcarrier is displayed.
`AVER`	Averaged EVM vs Subcarrier is displayed.

Example of Use

To query the setting whether the EVM vs Subcarrier is averaged.

```
CALC:EVM:WIND2:MODE?
> AVER
```

:CALCulate:EVM:WINDow2:GVIew RMS|RPEak

EVM vs Subcarrier View Graph View

Function

This command sets the display type for the EVM vs Subcarrier graph.

Command

```
:CALCulate:EVM:WINDow2:GVIew <mode>
```

Parameter

`<mode>`	Display type of EVM vs Subcarrier graph
`RMS`	Displays the average value.
`RPEak`	Displays the average and peak values (Default).

Example of Use

To display the average value in the EVM vs Subcarrier graph.

```
CALC:EVM:WIND2:GVI RMS
```

:CALCulate:EVM:WINDow2:GVIew?

EVM vs Subcarrier View Graph View Query

Function

This command queries the display type of the EVM vs Subcarrier graph.

Query

```
:CALCulate:EVM:WINDow2:GVIew?
```

Response

```
<mode>
```

Parameter

`<mode>`	Display type of EVM vs Subcarrier graph
`RMS`	The average value is displayed.
`RPE`	The average and peak values are displayed.

Example of Use

To query the display type of the EVM vs Subcarrier graph.

```
CALC:EVM:WIND2:GVI?
> RMS
```

:CALCulate:EVM:WINDow3:MODE EACH|AVERage

EVM vs Symbol View

Function

This command sets whether to display the averaged or unaveraged EVM vs Symbol.

Command

```
:CALCulate:EVM:WINDow3:MODE <mode>
```

Parameter

`<mode>`	Averaging of EVM vs Symbol
`EACH`	Displays the unaveraged EVM vs Symbol.
`AVERage`	Displays the averaged EVM vs Symbol (Default).

Example of Use

To display the averaged EVM vs Symbol.

```
CALC:EVM:WIND3:MODE AVER
```

:CALCulate:EVM:WINDow3:MODE?

EVM vs Symbol View Query

Function

This command queries the setting whether the displayed EVM vs Symbol is averaged.

Query

```
:CALCulate:EVM:WINDow3:MODE?
```

Response

```
<mode>
```

Parameter

`<mode>`	Averaging of EVM vs Symbol
`EACH`	Unaveraged EVM vs Symbol is displayed.
`AVER`	Averaged EVM vs Symbol is displayed.

Example of Use

To query the setting whether the displayed EVM vs Symbol is averaged.

```
CALC:EVM:WIND3:MODE?
> AVER
```

:CALCulate:EVM:WINDow3:GVIew RMS|RPEak

EVM vs Symbol View Graph View

Function

This command sets the display type for the EVM vs Symbol graph.

Command

```
:CALCulate:EVM:WINDow3:GVIew <mode>
```

Parameter

`<mode>`	Display type of EVM vs Symbol graph
`RMS`	Displays the average value.
`RPEak`	Displays the average and peak values (Default).

Example of Use

To display the average value of the EVM vs Symbol graph.

```
CALC:EVM:WIND3:GVI RMS
```

:CALCulate:EVM:WINDow3:GVIew?

EVM vs Symbol View Graph View Query

Function

This command queries the display type of the EVM vs Symbol graph.

Query

```
:CALCulate:EVM:WINDow3:GVIew?
```

Response

```
<mode>
```

Parameter

`<mode>`	Display type of EVM vs Symbol graph
`RMS`	Average value is displayed.
`RPE`	Average and peak values are displayed.

Example of Use

To query the display type of the EVM vs Symbol graph.

```
CALC:EVM:WIND3:GVI?
> RMS
```

2.8.10 Marker – Symbol Number

:CALCulate:EVM:WINDow[1]|2:SYMBol:NUMBer <integer>

Marker – Symbol Number

Function

This command sets the symbol number to be displayed in a constellation of graph.

Command

```
:CALCulate:EVM:WINDow[1]|2:SYMBol:NUMBer <integer>
```

Parameter

`<integer>`	Symbol number
Range	0 to 1119
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the display symbol number to 110.

```
CALC:EVM:WIND1:SYMB:NUMB 110
```

:CALCulate:EVM:WINDow[1]|2:SYMBol:NUMBer?

Marker – Symbol Number Query

Function

This command queries the symbol number displayed in a constellation of graph.

Query

```
:CALCulate:EVM:WINDow[1]|2:SYMBol:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Symbol number
Range	0 to 1119
Resolution	1

Details

Use `: CALCulate: EVM: MARKer: SYMBol?` to query the symbol number to be displayed in a Power vs RB or EVM vs RB constellation.

Example of Use

To query the display symbol number.

```
CALC:EVM:WIND:SYMB:NUMB?
> 110
```

2.8.11 Marker – Subcarrier Number

:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer <integer>

Marker – Subcarrier Number

Function

This command sets the subcarrier number of the displayed constellation and graph.

Command

```
:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer <integer>
```

Parameter

`<integer>`	Subcarrier number
Range	0 to 3275
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the display subcarrier number to 110.

```
CALC:EVM:WIND3:SUBC:NUMB 110
```

:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer?

Marker – Subcarrier Number Query

Function

This command queries the subcarrier number of displayed constellation and graph.

Query

```
:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Subcarrier number
Range	0 to 3275
Resolution	1

Example of Use

To query the display subcarrier number.

```
CALC:EVM:WIND3:SUBC:NUMB?
> 110
```

2.8.12 Slot Number

:CALCulate:EVM:WINDow5|6:SLOT:NUMBer <integer>

Slot Number

Function

This command sets the slot number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

```
:CALCulate:EVM:WINDow5|6:SLOT:NUMBer <integer>
```

Parameter

`<integer>`	Slot number to be displayed
Range	0 to 79
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the slot number to be displayed for Power vs Resource Block to 1.

```
CALC:EVM:WIND5:SLOT:NUMB 1
```

:CALCulate:EVM:WINDow5|6:SLOT:NUMBer?

Slot Number Query

Function

This command queries the slot number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

```
:CALCulate:EVM:WINDow5|6:SLOT:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Slot number to be displayed
Range	0 to 79
Resolution	1

Example of Use

To query the slot number displayed for Power vs Resource Block.

```
CALC:EVM:WIND5:SLOT:NUMB?
> 1
```

2.8.13 Resource Block Number

:CALCulate:EVM:WINDow5|6:RBLock:NUMBer <integer>

Resource Block Number

Function

This command sets the Resource Block number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

```
:CALCulate:EVM:WINDow5|6:RBLock:NUMBer <integer>
```

Parameter

`<integer>`	Resource Block number to be displayed
Range	0 to 272
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the Resource Block number to be displayed for Power vs Resource Block to 10.

```
CALC:EVM:WIND5:RBL:NUMB 10
```

:CALCulate:EVM:WINDow5|6:RBLock:NUMBer?

Resource Block Number Query

Function

This command queries the Resource Block number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

```
:CALCulate:EVM:WINDow5|6:RBLock:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Resource Block number to be displayed
Range	0 to 272
Resolution	1

Example of Use

To query the Resource Block number displayed for Power vs Resource Block.

```
CALC:EVM:WIND5:RBL:NUMB?
> 10
```

2.8.14 Marker Position Number

:CALCulate:EVM:MARKer:SUBCarrier <integer>

Marker Subcarrier Number

Function

This command sets the marker position on the Constellation or on the graph window, in subcarrier number.

Command

```
:CALCulate:EVM:MARKer:SUBCarrier <integer>
```

Parameter

`<integer>`	Subcarrier number
Range	0 to 3275
Resolution	1
Suffix code	None
Default	0

Details

The marker position specified by this command does not apply to the subcarrier number of the constellation displayed on Power vs RB and EVM vs RB.

Example of Use

To set the marker position to 100.

```
CALC:EVM:MARK:SUBC 100
```

:CALCulate:EVM:MARKer:SUBCarrier?

Marker Subcarrier Number Query

Function

This command queries the marker position on the Constellation or on the graph window, in subcarrier number.

Command

```
:CALCulate:EVM:MARKer:SUBCarrier?
```

Response

```
<integer>
```

Parameter

`<integer>`	Subcarrier number
Range	0 to 3275
Resolution	1

Details

For Power vs Resource Block and EVM vs Resource Block, the marker position on the constellation is returned as a subcarrier number.

Example of Use

To query the marker position in subcarrier number.

```
CALC:EVM:MARK:SUBC?
> 100
```

:CALCulate:EVM:MARKer:SYMBol <integer>

Marker Symbol Number

Function

This command sets the marker position on the constellation or in the graph window as a symbol number.

Command

```
:CALCulate:EVM:MARKer:SYMBol <integer>
```

Parameter

`<integer>`	Symbol number
Range	0 to 1119
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the marker position to 100.

```
CALC:EVM:MARK:SYMB 100
```

:CALCulate:EVM:MARKer:SYMBol?

Marker Symbol Number Query

Function

This command queries the marker position on the constellation or in the graph window as a symbol number.

Command

```
:CALCulate:EVM:MARKer:SYMBol?
```

Response

```
<integer>
```

Parameter

`<integer>`	Symbol number
Range	0 to 1119
Resolution	1

Details

For Power vs Resource Block and EVM vs Resource Block, the marker position of Constellation is returned in a symbol number.

Example of Use

To query the marker position.

```
CALC:EVM:MARK:SYMB?
> 100
```

:CALCulate:EVM:MARKer:RELement <integer>

Marker Resource Element Number

Function

This command sets the marker position of Constellation in a source element number when Trace Mode is set to Power vs Resource Block or EVM vs Resource Block.

Command

```
:CALCulate:EVM:MARKer:RELement <integer>
```

Parameter

`<integer>`	Resource element number
Range	0 to Number of resource elements detected as PDSCH or PUSCH.
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the marker target of Constellation to 100.

```
CALC:EVM:MARK:REL 100
```

:CALCulate:EVM:MARKer:RELement?

Marker Resource Element Number Query

Function

This command queries the marker position of Constellation in a resource element number when Trace Mode is set to Power vs Resource Block or EVM vs Resource Block.

Command

```
:CALCulate:EVM:MARKer:RELement?
```

Response

```
<integer>
```

Parameter

`<integer>`	Resource element number
Range	0 to Number of resource elements detected as PDSCH or PUSCH.
Resolution	1

Example of Use

To query the marker target of Constellation.

```
CALC:EVM:MARK:REL?
> 100
```

2.8.15 Marker Value

:CALCulate:EVM:MARKer:X?

Marker X Axis Value Query

Function

This command queries the X-coordinate value at the marker on the Constellation.

Query

```
:CALCulate:EVM:MARKer:X?
```

Response

```
<real>
```

Parameter

`<real>`	X-coordinate value at the marker on the Constellation

Details

This command is not available when Trace Mode is set to Summary.
–999.0 is returned when measurement is not made or an error has occurred.

Example of Use

To query the X-coordinate value at the marker on the Constellation.

```
CALC:EVM:MARK:X?
> 0.12345
```

:CALCulate:EVM:MARKer:Y[:RMS]?

Marker Y Axis Value (RMS) Query

Function

This command queries the RMS value on the Y coordinate at the marker on the target graph.

Query

```
:CALCulate:EVM:MARKer:Y[:RMS]?
```

Response

```
<real>
```

Parameter

`<real>`	RMS value on Y coordinate at maker on target graph

When Active Trace = Constellation:

Constellation:	No unit

When Active Trace = Graph window
and Trace Mode = EVM vs Subcarrier:

When EVM Unit = %:	In % units
When EVM Unit = dB:	In dB units

When Active Trace = Graph window
and Trace Mode = EVM vs Symbol:

When EVM Unit = %:	In % units
When EVM Unit = dB:	In dB units

When Active Trace = Graph window
and Trace Mode = Spectral Flatness:

For Amplitude:	In dB units
For Phase:	In degree units

When Active Trace = Graph window
and Trace Mode = Power vs Resource Block:

Power	In dB units

When Active Trace = Graph window
and Trace Mode = EVM vs Resource Block:

When EVM Unit = %	In % units
When EVM Unit = dB	In dB units

Details

–999.0 is returned if Trace Mode is Summary.

–999.0 is returned when measurement is not performed or an error has occurred.

Execute the following command to specify whether to query the Q coordinate of Constellation or the value at the marker at the bottom of the screen.

```
:CALCulate:EVM:MARKer:ACTive CONStellation|BOTTom
```

Example of Use

To query the RMS value on the Y coordinate at the marker on the target graph.

```
CALC:EVM:MARK:Y?
> –20.00
```

:CALCulate:EVM:MARKer:Y:PEAK?

Marker Y Axis Value (Peak) Query

Function

This command queries the peak value on the Y coordinate at the marker on the graph window.

Query

```
:CALCulate:EVM:MARKer:Y:PEAK?
```

Response

```
<real>
```

Parameter

`<real>`	Peak value on Y coordinate at maker on target graph

When EVM Unit = %: % units
When EVM Unit = dB: dB units

Details

–999.0 is returned if Trace Mode is not EVM vs Subcarrier or EVM vs Symbol. –999. 0 is returned when measurement is not made or an error has occurred.

Example of Use

To query the peak value on the Y coordinate at the marker on the target graph.

```
CALC:EVM:MARK:Y:PEAK?
> –20.00
```

:CALCulate:EVM:MARKer:EVM[:RMS]?

Marker EVM Value (RMS) Query

Function

This command queries the RMS value of EVM at the marker position in the corresponding graph.

Query

`:CALCulate:EVM:MARKer:EVM[:RMS]?`

Response

`<real>`

Parameter

`<real>`	RMS value of EVM at the marker position in the corresponding graph

When EVM Unit is set to %: Unit:%
When EVM Unit is set to dB: Unit: dB

Details

–999.0 is returned if Trace Mode is not EVM vs Subcarrier, EVM vs Symbol, Power vs RB, or EVM vs RB.
–999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the RMS value of EVM at the marker position.

```
CALC:EVM:MARK:EVM?
> -20.00
```

:CALCulate:EVM:MARKer:EVM:PEAK?

Marker EVM Value (Peak) Query

Function

This command queries the Peak value of EVM at the marker position in the graph window.

Query

```
:CALCulate:EVM:MARKer:EVM:PEAK?
```

Response

```
<real>
```

Parameter

`<real>`	Peak value of EVM at the marker position in the corresponding graph

When EVM Unit is set to %: Unit: %
When EVM Unit is set to dB: Unit: dB

Details

–999.0 is returned if Trace Mode is not EVM vs Subcarrier, EVM vs Symbol, Power vs RB, or EVM vs RB.
–999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the Peak value of EVM at the marker position.

```
CALC:EVM:MARK:EVM:PEAK?
> -20.00
```

:CALCulate:EVM:MARKer:POWer:ABSolute?

Marker Absolute Power Value (Peak) Query

Function

This command queries the absolute power value at the marker position in the graph window.

Query

```
:CALCulate:EVM:MARKer:POWer:ABSolute?
```

Response

```
<real>
```

Parameter

`<real>`	Absolute power value at the marker position in the corresponding graph
Unit	dBm

Details

–999.0 is returned if Trace Mode is not Power vs RB or EVM vs RB.
–999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the absolute power value at the marker position.

```
CALC:EVM:MARK:POW:ABS?
> -20.00
```

2.8.16 Peak Search

:CALCulate:MARKer:MAXimum

Peak Search

Function

This command searches for the maximum level point of the active trace and moves the marker point.

Command

```
:CALCulate:MARKer:MAXimum
```

Details

This function is available on the following traces:

- EVM vs Subcarrier
- EVM vs Symbol
- Spectral flatness
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the maximum level point and query the marker value.

```
CALC:MARK:MAX
*WAI
CALC:EVM:MARK:Y?
```

:CALCulate:MARKer:MAXimum:NEXT

Next Peak Search

Function

This command searches for the feature point on the active trace and moves the marker point to the peak point of a level that is lower than the current marker level.

Command

```
:CALCulate:MARKer:MAXimum:NEXT
```

Details

This function is available on the following traces:

- EVM vs Subcarrier
- EVM vs Symbol
- Spectral flatness
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the next peak point and query the marker value.

```
CALC:MARK:MAX:NEXT
*WAI
CALC:EVM:MARK:Y?
```

:CALCulate:MARKer:MINimum

Dip Search

Function

This command searches for the minimum level point of the active trace and moves the marker point.

Command

```
:CALCulate:MARKer:MINimum
```

Details

This function is available when the following traces are active:
- EVM vs Subcarrier
- EVM vs Symbol
- Spectral flatness
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the minimum level point and query the marker value.

```
CALC:MARK:MIN
*WAI
CALC:EVM:MARK:Y?
```

:CALCulate:MARKer:MINimum:NEXT

Next Dip Search

Function

This command searches for the feature point on the active trace and moves the marker point to the peak point in which the marker value of a level that is lower than the current marker level is minimum.

Command

```
:CALCulate:MARKer:MINimum:NEXT
```

Details

This function is available when the following traces are active:

- EVM vs Subcarrier
- EVM vs Symbol
- Spectral flatness
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the next minimum peak point and query the marker value.

```
CALC:MARK:MIN:NEXT
*WAI
CALC:EVM:MARK:Y?
```

2.9 Carrier Aggregation Measurement Function

This section describes the device messages related to Carrier Aggregation measurement.

Table 2.9-1 lists the device messages used for execution and result query of Carrier Aggregation measurement.

Table 2.9-1 Device Messages for Carrier Aggregation Measurement Functions

Function	Device Message
Configure	`:CONFigure:CAGG`
Initiate	`:INITiate:CAGG`
Fetch	`:FETCh:CAGG[n]?`
Read/Measure	`:READ:CAGG[n]?`
	`:MEASure:CAGG[n]?`

Table 2.9-2 list the responses to parameter `[n]` of the device messages in Table 2.9-1

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1. CC#0 Measurement status 2. Frequency Error [Hz] 3. Transmit Power [dBm] 4. EVM (rms) 5. EVM (peak) 6. Time Difference [ns] 7. CC#1 Measurement status 8. Frequency Error [Hz] 9. Transmit Power [dBm] 10. EVM (rms) 11. EVM (peak) 12. Time Difference [ns] 13. CC#2 Measurement status 14. Frequency Error [Hz] 15. Transmit Power [dBm] 16. EVM (rms) 17. EVM (peak) 18. Time Difference [ns] 19. CC#3 Measurement status 20. Frequency Error [Hz] 21. Transmit Power [dBm] 22. EVM (rms) 23. EVM (peak) 24. Time Difference [ns] 25. CC#4 Measurement status 26. Frequency Error [Hz] 27. Transmit Power [dBm] 28. EVM (rms) 29. EVM (peak) 30. Time Difference [ns] 31. CC#5 Measurement status 32. Frequency Error [Hz] 33. Transmit Power [dBm] 34. EVM (rms) 35. EVM (peak) 36. Time Difference [ns]

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 37. CC#6 Measurement status 38. Frequency Error [Hz] 39. Transmit Power [dBm] 40. EVM (rms) 41. EVM (peak) 42. Time Difference [ns] 43. CC#7 Measurement status 44. Frequency Error [Hz] 45. Transmit Power [dBm] 46. EVM (rms) 47. EVM (peak) 48. Time Difference [ns] 49. Total Tx Power [dBm] 50. Tx Power Flatness [dB]

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 1. CC#0 Total EVM result valid (1 = valid/0 = invalid) 2. Total EVM rms 3. Reserved 4. Total EVM peak (Average) 5. Reserved 6. Total EVM peak symbol position 7. Total EVM peak subcarrier position 8. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 9. PDSCH ALL EVM rms (Average) 10. Reserved 11. PDSCH ALL EVM peak (Average) 12. Reserved 13. PDSCH ALL EVM peak symbol position 14. PDSCH ALL EVM peak subcarrier position 15. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 16. PDSCH QPSK EVM rms (Average) 17. Reserved 18. PDSCH QPSK EVM peak (Average) 19. PDSCH QPSK EVM peak (max) 20. PDSCH QPSK EVM peak symbol position 21. PDSCH QPSK EVM peak subcarrier position 22. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 23. PDSCH 16QAM EVM rms (Average) 24. Reserved 25. PDSCH 16QAM EVM peak (Average) 26. Reserved 27. PDSCH 16QAM EVM peak symbol position 28. PDSCH 16QAM EVM peak subcarrier position 29. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 30. PDSCH 64QAM EVM rms (Average) 31. Reserved 32. PDSCH 64QAM EVM peak (Average) 33. Reserved 34. PDSCH 64QAM EVM peak symbol position 35. PDSCH 64QAM EVM peak subcarrier position 36. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 37. PDSCH 256QAM EVM rms (Average) 38. Reserved 39. PDSCH 256QAM EVM peak (Average) 40. Reserved 41. PDSCH 256QAM EVM peak symbol position 42. PDSCH 256QAM EVM peak subcarrier position 43. to 98. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 99. CC#1 Total EVM result valid (1 = valid/0 = invalid) 100. Total EVM rms 101. Reserved 102. Total EVM peak (Average) 103. Reserved 104. Total EVM peak symbol position 105. Total EVM peak subcarrier position 106. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 107. PDSCH ALL EVM rms (Average) 108. Reserved 109. PDSCH ALL EVM peak (Average) 110. Reserved 111. PDSCH ALL EVM peak symbol position 112. PDSCH ALL EVM peak subcarrier position 113. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 114. PDSCH QPSK EVM rms (Average) 115. Reserved 116. PDSCH QPSK EVM peak (Average) 117. PDSCH QPSK EVM peak (max) 118. PDSCH QPSK EVM peak symbol position 119. PDSCH QPSK EVM peak subcarrier position 120. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 121. PDSCH 16QAM EVM rms (Average) 122. Reserved 123. PDSCH 16QAM EVM peak (Average) 124. Reserved 125. PDSCH 16QAM EVM peak symbol position 126. PDSCH 16QAM EVM peak subcarrier position 127. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 128. PDSCH 64QAM EVM rms (Average) 129. Reserved 130. PDSCH 64QAM EVM peak (Average) 131. Reserved 132. PDSCH 64QAM EVM peak symbol position 133. PDSCH 64QAM EVM peak subcarrier position 134. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 135. PDSCH 256QAM EVM rms (Average) 136. Reserved 137. PDSCH 256QAM EVM peak (Average) 138. Reserved 139. PDSCH 256QAM EVM peak symbol position 140. PDSCH 256QAM EVM peak subcarrier position 141. to 196. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 197. CC#2 Total EVM result valid (1 = valid/0 = invalid) 198. Total EVM rms 199. Reserved 200. Total EVM peak (Average) 201. Reserved 202. Total EVM peak symbol position 203. Total EVM peak subcarrier position 204. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 205. PDSCH ALL EVM rms (Average) 206. Reserved 207. PDSCH ALL EVM peak (Average) 208. Reserved 209. PDSCH ALL EVM peak symbol position 210. PDSCH ALL EVM peak subcarrier position 211. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 212. PDSCH QPSK EVM rms (Average) 213. Reserved 214. PDSCH QPSK EVM peak (Average) 215. PDSCH QPSK EVM peak (max) 216. PDSCH QPSK EVM peak symbol position 217. PDSCH QPSK EVM peak subcarrier position 218. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 219. PDSCH 16QAM EVM rms (Average) 220. Reserved 221. PDSCH 16QAM EVM peak (Average) 222. Reserved 223. PDSCH 16QAM EVM peak symbol position 224. PDSCH 16QAM EVM peak subcarrier position 225. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 226. PDSCH 64QAM EVM rms (Average) 227. Reserved 228. PDSCH 64QAM EVM peak (Average) 229. Reserved 230. PDSCH 64QAM EVM peak symbol position 231. PDSCH 64QAM EVM peak subcarrier position 232. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 233. PDSCH 256QAM EVM rms (Average) 234. Reserved 235. PDSCH 256QAM EVM peak (Average) 236. Reserved 237. PDSCH 256QAM EVM peak symbol position 238. PDSCH 256QAM EVM peak subcarrier position 239. to 294. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 295. CC#3 Total EVM result valid (1 = valid/0 = invalid) 296. Total EVM rms 297. Reserved 298. Total EVM peak (Average) 299. Reserved 300. Total EVM peak symbol position 301. Total EVM peak subcarrier position 302. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 303. PDSCH ALL EVM rms (Average) 304. Reserved 305. PDSCH ALL EVM peak (Average) 306. Reserved 307. PDSCH ALL EVM peak symbol position 308. PDSCH ALL EVM peak subcarrier position 309. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 310. PDSCH QPSK EVM rms (Average) 311. Reserved 312. PDSCH QPSK EVM peak (Average) 313. PDSCH QPSK EVM peak (max) 314. PDSCH QPSK EVM peak symbol position 315. PDSCH QPSK EVM peak subcarrier position 316. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 317. PDSCH 16QAM EVM rms (Average) 318. Reserved 319. PDSCH 16QAM EVM peak (Average) 320. Reserved 321. PDSCH 16QAM EVM peak symbol position 322. PDSCH 16QAM EVM peak subcarrier position 323. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 324. PDSCH 64QAM EVM rms (Average) 325. Reserved 326. PDSCH 64QAM EVM peak (Average) 327. Reserved 328. PDSCH 64QAM EVM peak symbol position 329. PDSCH 64QAM EVM peak subcarrier position 330. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 331. PDSCH 256QAM EVM rms (Average) 332. Reserved 333. PDSCH 256QAM EVM peak (Average) 334. Reserved 335. PDSCH 256QAM EVM peak symbol position 336. PDSCH 256QAM EVM peak subcarrier position 337. to 392. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 393. CC#4 Total EVM result valid (1 = valid/0 = invalid) 394. Total EVM rms 395. Reserved 396. Total EVM peak (Average) 397. Reserved 398. Total EVM peak symbol position 399. Total EVM peak subcarrier position 400. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 401. PDSCH ALL EVM rms (Average) 402. Reserved 403. PDSCH ALL EVM peak (Average) 404. Reserved 405. PDSCH ALL EVM peak symbol position 406. PDSCH ALL EVM peak subcarrier position 407. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 408. PDSCH QPSK EVM rms (Average) 409. Reserved 410. PDSCH QPSK EVM peak (Average) 411. PDSCH QPSK EVM peak (max) 412. PDSCH QPSK EVM peak symbol position 413. PDSCH QPSK EVM peak subcarrier position 414. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 415. PDSCH 16QAM EVM rms (Average) 416. Reserved 417. PDSCH 16QAM EVM peak (Average) 418. Reserved 419. PDSCH 16QAM EVM peak symbol position 420. PDSCH 16QAM EVM peak subcarrier position 421. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 422. PDSCH 64QAM EVM rms (Average) 423. Reserved 424. PDSCH 64QAM EVM peak (Average) 425. Reserved 426. PDSCH 64QAM EVM peak symbol position 427. PDSCH 64QAM EVM peak subcarrier position 428. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 429. PDSCH 256QAM EVM rms (Average) 430. Reserved 431. PDSCH 256QAM EVM peak (Average) 432. Reserved 433. PDSCH 256QAM EVM peak symbol position 434. PDSCH 256QAM EVM peak subcarrier position 435. to 490. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 491. CC#5 Total EVM result valid (1 = valid/0 = invalid) 492. Total EVM rms 493. Reserved 494. Total EVM peak (Average) 495. Reserved 496. Total EVM peak symbol position 497. Total EVM peak subcarrier position 498. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 499. PDSCH ALL EVM rms (Average) 500. Reserved 501. PDSCH ALL EVM peak (Average) 502. Reserved 503. PDSCH ALL EVM peak symbol position 504. PDSCH ALL EVM peak subcarrier position 505. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 506. PDSCH QPSK EVM rms (Average) 507. Reserved 508. PDSCH QPSK EVM peak (Average) 509. PDSCH QPSK EVM peak (max) 510. PDSCH QPSK EVM peak symbol position 511. PDSCH QPSK EVM peak subcarrier position 512. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 513. PDSCH 16QAM EVM rms (Average) 514. Reserved 515. PDSCH 16QAM EVM peak (Average) 516. Reserved 517. PDSCH 16QAM EVM peak symbol position 518. PDSCH 16QAM EVM peak subcarrier position 519. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 520. PDSCH 64QAM EVM rms (Average) 521. Reserved 522. PDSCH 64QAM EVM peak (Average) 523. Reserved 524. PDSCH 64QAM EVM peak symbol position 525. PDSCH 64QAM EVM peak subcarrier position 526. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 527. PDSCH 256QAM EVM rms (Average) 528. Reserved 529. PDSCH 256QAM EVM peak (Average) 530. Reserved 531. PDSCH 256QAM EVM peak symbol position 532. PDSCH 256QAM EVM peak subcarrier position 533. to 588. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 589. CC#6 Total EVM result valid (1 = valid/0 = invalid) 590. Total EVM rms 591. Reserved 592. Total EVM peak (Average) 593. Reserved 594. Total EVM peak symbol position 595. Total EVM peak subcarrier position 596. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 597. PDSCH ALL EVM rms (Average) 598. Reserved 599. PDSCH ALL EVM peak (Average) 600. Reserved 601. PDSCH ALL EVM peak symbol position 602. PDSCH ALL EVM peak subcarrier position 603. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 604. PDSCH QPSK EVM rms (Average) 605. Reserved 606. PDSCH QPSK EVM peak (Average) 607. PDSCH QPSK EVM peak (max) 608. PDSCH QPSK EVM peak symbol position 609. PDSCH QPSK EVM peak subcarrier position 610. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 611. PDSCH 16QAM EVM rms (Average) 612. Reserved 613. PDSCH 16QAM EVM peak (Average) 614. Reserved 615. PDSCH 16QAM EVM peak symbol position 616. PDSCH 16QAM EVM peak subcarrier position 617. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 618. PDSCH 64QAM EVM rms (Average) 619. Reserved 620. PDSCH 64QAM EVM peak (Average) 621. Reserved 622. PDSCH 64QAM EVM peak symbol position 623. PDSCH 64QAM EVM peak subcarrier position 624. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 625. PDSCH 256QAM EVM rms (Average) 626. Reserved 627. PDSCH 256QAM EVM peak (Average) 628. Reserved 629. PDSCH 256QAM EVM peak symbol position 630. PDSCH 256QAM EVM peak subcarrier position 631. to 686. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
2	A/B	Responses are returned with comma-separated value formats in the following order: 687. CC#7 Total EVM result valid (1 = valid/0 = invalid) 688. Total EVM rms 689. Reserved 690. Total EVM peak (Average) 691. Reserved 692. Total EVM peak symbol position 693. Total EVM peak subcarrier position 694. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 695. PDSCH ALL EVM rms (Average) 696. Reserved 697. PDSCH ALL EVM peak (Average) 698. Reserved 699. PDSCH ALL EVM peak symbol position 700. PDSCH ALL EVM peak subcarrier position 701. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 702. PDSCH QPSK EVM rms (Average) 703. Reserved 704. PDSCH QPSK EVM peak (Average) 705. PDSCH QPSK EVM peak (max) 706. PDSCH QPSK EVM peak symbol position 707. PDSCH QPSK EVM peak subcarrier position 708. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 709. PDSCH 16QAM EVM rms (Average) 710. Reserved 711. PDSCH 16QAM EVM peak (Average) 712. Reserved 713. PDSCH 16QAM EVM peak symbol position 714. PDSCH 16QAM EVM peak subcarrier position 715. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 716. PDSCH 64QAM EVM rms (Average) 717. Reserved 718. PDSCH 64QAM EVM peak (Average) 719. Reserved 720. PDSCH 64QAM EVM peak symbol position 721. PDSCH 64QAM EVM peak subcarrier position 722. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 723. PDSCH 256QAM EVM rms (Average) 724. Reserved 725. PDSCH 256QAM EVM peak (Average) 726. Reserved 727. PDSCH 256QAM EVM peak symbol position 728. PDSCH 256QAM EVM peak subcarrier position 729. to 784. Reserved

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
10	A/B	For CC#0 measurement results, responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block x = Number of RBs y = 0 z = Number of Slots <table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table> 1. EVM (rms) of resource block 0 in slot y 2. EVM (rms) of resource block 1 in slot y … x. EVM (rms) of resource block (x – 1) in slot y x + 1. EVM (rms) of resource block 0 in slot (y + 1) … 2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1) … m. EVM (rms) of resource block (x – 1) in slot (y + z) ***Note:*** The units of the response are determined to be % or dB according to the EVM Unit setting. Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid. If Storage Mode is Average or Average&Max, the result of the last measurement is returned. The response of the carrier not to be measurement target is one –999.0.

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>11</td><td>A/B</td><td>For CC#1 measurement results, responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

Note:
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>12</td><td>A/B</td><td>For CC#2 measurement results, responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

<i>Note:</i>
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>13</td><td>A/B</td><td>For CC#3 measurement results, responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

<i>Note:</i>
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
14	A/B	For CC#4 measurement results, responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block x = Number of RBs y = 0 z = Number of Slots <table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table> 1. EVM (rms) of resource block 0 in slot y 2. EVM (rms) of resource block 1 in slot y … x. EVM (rms) of resource block (x – 1) in slot y x + 1. EVM (rms) of resource block 0 in slot (y + 1) … 2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1) … m. EVM (rms) of resource block (x – 1) in slot (y + z) ***Note:*** The units of the response are determined to be % or dB according to the EVM Unit setting. Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid. If Storage Mode is Average or Average&Max, the result of the last measurement is returned. The response of the carrier not to be measurement target is one –999.0.

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>15</td><td>A/B</td><td>For CC#5 measurement results, responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

Note:
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>16</td><td>A/B</td><td>For CC#6 measurement results, responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

Note:
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>17</td><td>A/B</td><td>For CC#7 measurement results, responses are returned with comma-separated value formats in the following order:
EVM (rms) vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. EVM (rms) of resource block 0 in slot y
2. EVM (rms) of resource block 1 in slot y
…
x. EVM (rms) of resource block (x – 1) in slot y
x + 1. EVM (rms) of resource block 0 in slot (y + 1)
…
2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)
…
m. EVM (rms) of resource block (x – 1) in slot (y + z)

Note:
The units of the response are determined to be % or dB according to the EVM Unit setting.
Measurement is not performed for the resource blocks for which Resource Block Result Valid is invalid.
If Storage Mode is Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
20	A/B	For CC#0 measurement results, responses are returned with comma-separated value formats in the following order: 1 to m (= x × y) Power vs Resource Block x = Number of RBs y = 0 z = Number of Slots <table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table> 1. Power of resource block 0 in slot y 2. Power of resource block 1 in slot y … x. Power of resource block (x–1) in slot y x+1. Power of resource block 0 in slot y+1 … 2 × x. Power of resource block (x–1) in slot y+1 … m. Power of resource block (x–1) in slot y+z ***Note:*** The unit of the response is always dBm. The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result. If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned. The response of the carrier not to be measurement target is one –999.0.

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
21	A/B	For CC#1 measurement results, responses are returned with comma-separated value formats in the following order: 1 to m (= x × y) Power vs Resource Block x = Number of RBs y = 0 z = Number of Slots <table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table> 1. Power of resource block 0 in slot y 2. Power of resource block 1 in slot y … x. Power of resource block (x–1) in slot y x+1. Power of resource block 0 in slot y+1 … 2 × x. Power of resource block (x–1) in slot y+1 … m. Power of resource block (x–1) in slot y+z ***Note:*** The unit of the response is always dBm. The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result. If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned. The response of the carrier not to be measurement target is one –999.0.

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>22</td><td>A/B</td><td>For CC#2 measurement results, responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. Power of resource block 0 in slot y
2. Power of resource block 1 in slot y
…
x. Power of resource block (x–1) in slot y
x+1. Power of resource block 0 in slot y+1
…
2 × x. Power of resource block (x–1) in slot y+1
…
m. Power of resource block (x–1) in slot y+z

<i>Note:</i>
The unit of the response is always dBm.
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>23</td><td>A/B</td><td>For CC#3 measurement results, responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. Power of resource block 0 in slot y
2. Power of resource block 1 in slot y
…
x. Power of resource block (x–1) in slot y
x+1. Power of resource block 0 in slot y+1
…
2 × x. Power of resource block (x–1) in slot y+1
…
m. Power of resource block (x–1) in slot y+z

<i>Note:</i>
The unit of the response is always dBm.
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>24</td><td>A/B</td><td>For CC#4 measurement results, responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. Power of resource block 0 in slot y
2. Power of resource block 1 in slot y
…
x. Power of resource block (x–1) in slot y
x+1. Power of resource block 0 in slot y+1
…
2 × x. Power of resource block (x–1) in slot y+1
…
m. Power of resource block (x–1) in slot y+z

<i>Note:</i>
The unit of the response is always dBm.
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
25	A/B	For CC#5 measurement results, responses are returned with comma-separated value formats in the following order: 1 to m (= x × y) Power vs Resource Block x = Number of RBs y = 0 z = Number of Slots **Subcarrier Spacing** | **Number of Slots** 120 kHz | 79 1. Power of resource block 0 in slot y 2. Power of resource block 1 in slot y … x. Power of resource block (x–1) in slot y x+1. Power of resource block 0 in slot y+1 … 2 × x. Power of resource block (x–1) in slot y+1 … m. Power of resource block (x–1) in slot y+z ***Note:*** The unit of the response is always dBm. The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result. If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned. The response of the carrier not to be measurement target is one –999.0.

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

<table>
<tr><th>n</th><th>Result Mode</th><th>Response</th></tr>
<tr><td>26</td><td>A/B</td><td>For CC#6 measurement results, responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots
<table><tr><th>Subcarrier Spacing</th><th>Number of Slots</th></tr><tr><td>120 kHz</td><td>79</td></tr></table>
1. Power of resource block 0 in slot y
2. Power of resource block 1 in slot y
…
x. Power of resource block (x–1) in slot y
x+1. Power of resource block 0 in slot y+1
…
2 × x. Power of resource block (x–1) in slot y+1
…
m. Power of resource block (x–1) in slot y+z

<i>Note:</i>
The unit of the response is always dBm.
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.
The response of the carrier not to be measurement target is one –999.0.</td></tr>
</table>

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont'd)

n	Result Mode	Response
27	A/B	For CC#7 measurement results, responses are returned with comma-separated value formats in the following order: 1 to m (= x × y) Power vs Resource Block x = Number of RBs y = 0 z = Number of Slots **Subcarrier Spacing** / **Number of Slots**: 120 kHz / 79 1. Power of resource block 0 in slot y 2. Power of resource block 1 in slot y … x. Power of resource block (x–1) in slot y x+1. Power of resource block 0 in slot y+1 … 2 × x. Power of resource block (x–1) in slot y+1 … m. Power of resource block (x–1) in slot y+z ***Note:*** The unit of the response is always dBm. The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result. If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned. The response of the carrier not to be measurement target is one –999.0.

Table 2.9-3 lists device messages for setting parameters for Carrier Aggregation measurement.

Table 2.9-3 Device Messages for Setting Parameters for Carrier Aggregation Measurement

Parameter	Device message
Scale – EVM Unit	`:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing LINear|LOGarithmic|PERCent|DB`
	`:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing?`
Scale – EVM	`:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel <scale>`
	`:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel?`
Trace Mode	`:DISPlay:CAGG[:VIEW]:SELect PVRB|EVRB|SUMMary`
	`:DISPlay:CAGG[:VIEW]:SELect?`
Carrier Number	`:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer <integer>`
	`:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer?`
Slot Number	`:CALCulate:CAGG:WINDow5|6:SLOT:NUMBer <integer>`
	`:CALCulate:CAGG:WINDow5|6:SLOT:NUMBer?`
ResourceBlock Number	`:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer <integer>`
	`:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer?`

Table 2.9-4 lists the device messages for setting the marker and reading out the value at the marker position for Carrier Aggregation measurement.

Table 2.9-4 Device Messages Related to Marker for Carrier Aggregation Measurement

Parameter	Device message
Marker Position Number	`:CALCulate:CAGG:MARKer:CARRier <integer>`
	`:CALCulate:CAGG:MARKer:CARRier?`
	`:CALCulate:CAGG:MARKer:SLOT <integer>`
	`:CALCulate:CAGG:MARKer:SLOT?`
	`:CALCulate:CAGG:MARKer:RBLock <integer>`
	`:CALCulate:CAGG:MARKer:RBLock?`
Marker Value	`:CALCulate:CAGG:MARKer:EVM[:RMS]?`
	`:CALCulate:CAGG:MARKer:POWer:[ABSolute]?`
Peak Search	`:CALCulate:MARKer:MAXimum`
Next Peak Search	`:CALCulate:MARKer:MAXimum:NEXT`
Dip Search	`:CALCulate:MARKer:MINimum`
Next Dip Search	`:CALCulate:MARKer:MINimum:NEXT`

2.9.1 Measure

:CONFigure:CAGG

Configure

Function

This command selects the Carrier Aggregation measurement function.

Command

`:CONFigure:CAGG`

Details

This command only selects the measurement function and does not start measurement.

Example of Use

To select the Carrier Aggregation measurement function.

```
CONF:CAGG
```

:INITiate:CAGG

Initiate

Function

This command starts Carrier Aggregation measurement.

Command

`:INITiate:CAGG`

Example of Use

To start Carrier Aggregation measurement.

```
INIT:CAGG
```

:FETCh:CAGG[n]?

Fetch Query

Function

This command queries the result of Carrier Aggregation measurement.

Query

```
:FETCh:CAGG[n]?
```

Response

See Table 2.9-2.

Details

–999.0 is returned when measurement is not performed or an error has occurred. Note, however, that “999999999999” is returned in the case of Frequency Error.

The unit of the read EVM value depends on the setting of EVM Unit.

Example of Use

To query the result of Carrier Aggregation measurement.

```
FETC:CAGG?
> 5.20,1.03,1,0.53,38,3,2.34,…
```

:READ:CAGG[n]?

Read/Measure Query

Function

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

Query

`:READ:CAGG[n]?`

Response

See Table 2.9-2.

Example of Use

To perform Carrier Aggregation measurement and queries the measured result.

```
READ:CAGG?
```

Related Command

This command functions the same as the following command.

`:MEASure:CAGG[n]?`

:MEASure:CAGG[n]?

Read/Measure Query

Function

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

Query

`:MEASure:CAGG[n]?`

Response

See Table 2.9-2.

Example of Use

To perform Carrier Aggregation measurement and query the measurement result.

```
MEAS:CAGG?
```

Related Command

This command functions the same as the following command.

`READ:CAGG[n]?`

2.9.2 Scale – EVM Unit

:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing LINear|LOGarithmic|PERCent|DB

Scale – EVM Unit

Function

This command sets the unit for EVM of measurement results.

Command

```
:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing
<mode>
```

Parameter

`<mode>`	Scale mode
`LINear`	% scale
`LOGarithmic`	dB scale
`PERCent`	% scale (Default)
`DB`	dB scale

Details

This command is not available when Trace Mode is set to Spectral Flatness.

Example of Use

To set the unit for EVM to dB scale.

```
DISP:CAGG:WIND7:TRAC:Y:SPAC DB
```

:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing?

Scale – EVM Unit Query

Function

This command queries the scale unit for EVM.

Query

```
:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing?
```

Response

```
<mode>
```

Parameter

`<mode>`	Scale mode
`PERC`	% scale
`DB`	dB scale

Example of Use

To query the unit for EVM.

```
DISP:CAGG:WIND7:TRAC:Y:SPAC?
> DB
```

2.9.3 Scale – EVM

:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel <scale>

Scale – EVM

Function

This command sets the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit depends on the setting of EVM Unit.

Command

```
:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel
<scale>
```

Parameter

`<scale>`	Range of vertical axis scale when EVM Unit = %
20	0 to 20%
10	0 to 10%
5	0 to 5% (Default)
2	0 to 2%
`<scale>`	Range of vertical axis scale when EVM Unit = dB
–40	–80 to –40 dB (Default)
–20	–80 to –20 dB
0	–80 to 0 dB

Details

The selectable arguments depend on the setting of EVM Unit.

Example of Use

To set the vertical axis scale of the result graph to 10%.

```
DISP:CAGG:WIND6:TRAC:Y:RLEV 10
```

:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel?

Scale – EVM Query

Function

This command queries the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit of the readout value depends on the setting of EVM Unit.

Query

```
:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel?
```

Response

```
<scale>
```

Parameter

`<scale>`	Range of vertical axis scale when EVM Unit = %
20	0 to 20%
10	0 to 10%
5	0 to 5%
2	0 to 2%
`<scale>`	Range of vertical axis scale when EVM Unit = dB
–40	–80 to –40 dB
–20	–80 to –20 dB
0	–80 to 0 dB

Example of Use

To query the vertical axis scale of the result graph.

```
DISP:CAGG:WIND6:TRAC:Y:RLEV?
> 10
```

2.9.4 Trace Mode

:DISPlay:CAGG[:VIEW]:SELect PVRB|EVRB|SUMMary

Trace Mode

Function

This command sets the result type to be displayed on the graph window.

Command

```
:DISPlay:CAGG[:VIEW]:SELect <mode>
```

Parameter

`<mode>`	Displayed result type
`PVRB`	Displays Power vs Resource Block.
`EVRB`	Displays EVM vs Resource Block.
`SUMMary`	Displays Summary. (Default)

Example of Use

To display the EVM vs Resource Block to the graph window.

```
DISP:CAGG:SEL EVRB
```

:DISPlay:CAGG[:VIEW]:SELect?

Trace Mode Query

Function

This command queries the result type displayed on the graph window.

Command

```
:DISPlay:CAGG[:VIEW]:SELect?
```

Response

```
<mode>
```

Parameter

`<mode>`	Displayed result type
`PVRB`	Displays Power vs Resource Block.
`EVRB`	Displays EVM vs Resource Block.
`SUMM`	Displays Summary.

Example of Use

To query the result type displayed on the graph window.

```
DISP:CAGG:SEL?
> EVRB
```

2.9.5 Carrier Number

:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer <integer>

Carrier Number

Function

This command sets the Component Carrier number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

```
:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer <integer>
```

Parameter

`<integer>`	Component Carrier number to be displayed
Range	0 to (Number of Carriers – 1)
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the Component Carrier number to be displayed for Power vs Resource Block to 1.

```
CALC:CAGG:WIND5:CARR:NUMB 1
```

:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer?

Carrier Number Query

Function

This command queries the Component Carrier number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

```
:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Component Carrier number to be displayed
Range	0 to (Number of Carriers – 1)
Resolution	1

Example of Use

To query the Component Carrier number displayed for Power vs Resource Block.

```
CALC:CAGG:WIND5:CARR:NUMB?
> 1
```

2.9.6 Slot Number

:CALCulate:CAGG:WINDow5|6:SLOT:NUMBer <integer>

Slot Number

Function

This command sets the slot number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

```
:CALCulate:CAGG:WINDow5|6:SLOT:NUMBer <integer>
```

Parameter

`<integer>`	Slot number to be displayed
Range	0 to 79
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the slot number to be displayed for Power vs Resource Block to 1.

```
CALC:CAGG:WIND5:SLOT:NUMB 1
```

:CALCulate:CAGG:WINDow5|6: SLOT:NUMBer?

Slot Number Query

Function

This command queries the slot number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

```
:CALCulate:CAGG:WINDow5|6:SLOT:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Slot number to be displayed
Range	0 to 79
Resolution	1

Example of Use

To query the slot number displayed for Power vs Resource Block.

```
CALC:CAGG:WIND5: SLOT:NUMB?
> 1
```

2.9.7 Resource Block Number

:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer <integer>

Resource Block Number

Function

This command sets the Resource Block number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

```
:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer <integer>
```

Parameter

`<integer>`	Resource Block number to be displayed
Range	0 to (Number of RBs – 1)
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the Resource Block number to be displayed for Power vs Resource Block to 10.

```
CALC:CAGG:WIND5:RBL:NUMB 10
```

:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer?

Resource Block Number Query

Function

This command queries the Resource Block number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

```
:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer?
```

Response

```
<integer>
```

Parameter

`<integer>`	Resource Block number to be displayed
Range	0 to (Number of RBs – 1)
Resolution	1

Example of Use

To query the Resource Block number displayed for Power vs Resource Block.

```
CALC:CAGG:WIND5:RBL:NUMB?
> 10
```

2.9.8 Marker Position Number

:CALCulate:CAGG:MARKer:CARRier <integer>

Marker Carrier Number

Function

This command sets the marker position on the graph window by carrier number.

Command

```
:CALCulate:CAGG:MARKer:CARRier <integer>
```

Parameter

`<integer>`	Carrier number
Range	0 to 7
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the marker position to carrier number 4.

```
CALC:CAGG:MARK:CARR 4
```

:CALCulate:CAGG:MARKer: CARRier?

Marker Carrier Number Query

Function

This command queries the marker position on the graph window by carrier number.

Command

```
:CALCulate:CAGG:MARKer:CARRier?
```

Response

```
<integer>
```

Parameter

`<integer>`	Carrier number
Range	0 to 7
Resolution	1

Example of Use

To query the marker position in carrier number.

```
CALC:CAGG:MARK:CARR?
> 4
```

:CALCulate:CAGG:MARKer:SLOT<integer>

Marker Slot Number

Function

This command sets the marker position on the graph window by slot number.

Command

```
:CALCulate:CAGG:MARKer:SLOT <integer>
```

Parameter

`<integer>`	Slot number
Range	0 to 79
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the marker position to slot number 10.

```
CALC:CAGG:MARK:SLOT 10
```

:CALCulate:CAGG:MARKer: SLOT?

Marker Slot Number Query

Function

This command queries the marker position on the graph window by slot number.

Command

```
:CALCulate:CAGG:MARKer:SLOT?
```

Response

```
<integer>
```

Parameter

`<integer>`	Slot number
Range	0 to 79
Resolution	1

Example of Use

To query the marker position in slot number.

```
CALC:CAGG:MARK:SLOT?
> 10
```

:CALCulate:CAGG:MARKer:RBLock <integer>

Marker Resource Block Number

Function

This command sets the marker position by Resource Block number.

Command

```
:CALCulate:CAGG:MARKer:RBLock <integer>
```

Parameter

`<integer>`	Resource Block Number
Range	0 to (Number of RBs – 1)
Resolution	1
Suffix code	None
Default	0

Example of Use

To set the marker position to Resource Block 10.

```
CALC:CAGG:MARK:RBL 10
```

:CALCulate:CAGG:MARKer:RBLock?

Marker Resource Block Number Query

Function

This command queries the marker position by Resource Block number.

Command

```
:CALCulate:CAGG:MARKer:RBLock?
```

Response

```
<integer>
```

Parameter

`<integer>`	Resource Block Number
Range	0 to (Number of RBs – 1)
Resolution	1

Example of Use

To query the marker position in Resource Block number.

```
CALC:CAGG:MARK:RBL?
> 10
```

2.9.9 Marker Value

:CALCulate:CAGG:MARKer:EVM[:RMS]?

Marker EVM Value (RMS) Query

Function

This command queries the RMS value of EVM at the marker position in the corresponding graph.

Query

```
:CALCulate:CAGG:MARKer:EVM[:RMS]?
```

Response

```
<real>
```

Parameter

`<real>`	RMS value of EVM at the marker position in the corresponding graph

When EVM Unit is set to %:	Unit:%
When EVM Unit is set to dB:	Unit: dB

Details

–999.0 is returned if Trace Mode is not EVM vs Subcarrier, EVM vs Symbol, Power vs RB, or EVM vs RB.

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

Example of Use

To query the RMS value of EVM at the marker position.

```
CALC:CAGG:MARK:EVM?
> -20.00
```

:CALCulate:CAGG:MARKer:POWer:[ABSolute]?

Marker Absolute Power Value (Peak) Query

Function

This command queries the absolute power value at the marker position in the graph window.

Query

`:CALCulate:CAGG:MARKer:POWer[:ABSolute]?`

Response

`<real>`

Parameter

`<real>`	Absolute power value at the marker position in the corresponding graph
Unit	dBm

Details

–999.0 is returned if Trace Mode is not Power vs RB or EVM vs RB.
–999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the absolute power value at the marker position.

```
CALC:CAGG:MARK:POW:ABS?
> -20.00
```

2.9.10 Peak Search

:CALCulate:MARKer:MAXimum

Peak Search

Function

This command searches for the maximum level point of the active trace and moves the marker point.

Command

```
:CALCulate:MARKer:MAXimum
```

Details

This function is available on the following traces:

- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the maximum level point and query the marker value.

```
CALC:MARK:MAX
*WAI
CALC:EVM:MARK:Y?
```

:CALCulate:MARKer:MAXimum:NEXT

Next Peak Search

Function

This command searches for the feature point on the active trace and moves the marker point to the peak point of a level that is lower than the current marker level.

Command

```
:CALCulate:MARKer:MAXimum:NEXT
```

Details

This function is available on the following traces:

- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the next peak point and query the marker value.

```
CALC:MARK:MAX:NEXT
*WAI
CALC:EVM:MARK:Y?
```

:CALCulate:MARKer:MINimum

Dip Search

Function

This command searches for the minimum level point of the active trace and moves the marker point.

Command

```
:CALCulate:MARKer:MINimum
```

Details

This function is available when the following traces are active:

- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the minimum level point and query the marker value.

```
CALC:MARK:MIN
*WAI
CALC:EVM:MARK:Y?
```

:CALCulate:MARKer:MINimum:NEXT

Next Dip Search

Function

This command searches for the feature point on the active trace and moves the marker point to the peak point in which the marker value of a level that is lower than the current marker level is minimum.

Command

```
:CALCulate:MARKer:MINimum:NEXT
```

Details

This function is available when the following traces are active:

- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the `*WAI` command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the next minimum peak point and query the marker value.

```
CALC:MARK:MIN:NEXT
*WAI
CALC:EVM:MARK:Y?
```

2.10 Spectrum Measurement Functions

Table 2.10-1 lists the device messages used for calling the ACP, Channel Power, OBW, and SEM measurement functions. The application to be used, the Signal Analyzer or Spectrum Analyzer, must be activated before using these device messages.

For the commands and queries to be used for control after any of these measurement functions is called, refer to the *MS2690A/MS2691A/MS2692A and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual (Spectrum Analyzer Function Remote Control).*

Table 2.10-1 Modulation measurement functions

Function	Device Message
ACP	`:CONFigure[:SWEPt]:ACP`
Channel Power	`:CONFigure[:SWEPt]:CHPower`
OBW	`:CONFigure[:SWEPt]:OBWidth`
SEM	`:CONFigure[:SWEPt]:SEMask`
Standard	`[:SENSe]:ASETting:STANdard[:SELect] CONDucted|RADiated`
	`[:SENSe]:ASETting:STANdard[:SELect]?`

:CONFigure[:SWEPt]:ACP

ACP

Function

This command selects the ACP measurement function.

Command

```
:CONFigure[:SWEPt]:ACP
```

Details

This command only selects the measurement function and does not start measurement.
This command cannot perform synchronous control during the Continuous measurement.

Example of Use

To select the ACP measurement function of the Spectrum Analyzer.

```
CONF:SWEP:ACP
```

:CONFigure[:SWEPt]:CHPower

Channel Power

Function

This command selects the Channel Power measurement function.

Command

```
:CONFigure[:SWEPt]:CHPower
```

Details

This command only selects the measurement function and does not start measurement.
This command cannot perform synchronous control during the Continuous measurement.

Example of Use

To select the Channel Power measurement function of the Spectrum Analyzer.

```
CONF:SWEP:CHP
```

:CONFigure[:SWEPt]:OBWidth

OBW

Function

This command selects the OBW measurement function.

Command

```
:CONFigure[:SWEPt]:OBWidth
```

Details

This command only selects the measurement function and does not start measurement.
This command cannot perform synchronous control during the Continuous measurement.

Example of Use

To select the OBW measurement function of the Spectrum Analyzer.

```
CONF:SWEP:OBW
```

:CONFigure[:SWEPt]:SEMask

SEM

Function

This command selects the SEM measurement function.

Command

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

Details

This command only selects the measurement function and does not start measurement.
This command cannot perform synchronous control during the Continuous measurement.

Example of Use

To select the SEM measurement function of the Spectrum Analyzer.

```
CONF:SWEP:SEM
```

[:SENSe]:ASETting:STANdard[:SELect] CONDucted|RADiated

Standard

Function

This command specifies the parameter type of the spectrum analyzer function where the parameters of this application are handed over.

Command

```
[:SENSe]:ASETting:STANdard[:SELect] <mode>
```

Parameter

`<mode>`	Parameter types of spectrum analyzer function
`CONDucted`	Parameters for Conducted Uses “5GNR TDD DL (s6G)_Con”.
`RADiated`	Parameters for Radiated Uses “5GNR TDD DL (s6G)_Rad”.

Details

This command is available when Standard is set to NR TDD Sub-6GHz Downlink.

Example of Use

To specify the parameter type of the spectrum analyzer function where the parameters of this application are handed over.

```
ASET:STAN COND
```

[:SENSe]:ASETting:STANdard[:SELect]?

Standard Query

Function

This command queries the parameter type of the spectrum analyzer function where the parameters of this application are handed over.

Query

```
[:SENSe]:ASETting:STANdard[:SELect]?
```

Response

```
<mode>
```

Parameter

`<mode>`	Parameter types of spectrum analyzer function
`CONDucted`	Parameters for Conducted Uses “5GNR TDD DL (s6G)_Con”.
`RADiated`	Parameters for Radiated Uses “5GNR TDD DL (s6G)_Rad”.

Details

This command is available when Standard is set to NR TDD Sub-6GHz Downlink.

Example of Use

To query the parameter type of the spectrum analyzer function where the parameters of this application are handed over.

```
ASET:STAN?
> COND
```

2.11 Measurement Result Saving Function

Table 2.10-1 lists device messages for saving measurement results.

Table 2.11-1 Measurement Result Saving Function

Function	Device Message
Save All Results	`:MMEMory:STORe:RESult [<filename>[,<device>]]`
Save as Type	`:MMEMory:STORe:RESult:MODE XML|CSV`
	`:MMEMory:STORe:RESult:MODE?`

:MMEMory:STORe:RESult [<filename>[,<device>]]

Save All Results Data

Function

This command saves a measurement result in a file.

Command

`:MMEMory:STORe:RESult [<filename>[,<device>]]`

Parameter

`<filename>`	Target filename Character string within 32 characters enclosed by double quotes (“ ”) or single quotes (‘ ’) The following characters cannot be used: \ / : * ? ‶ ″ ‵ ′ < > | Automatically named “5G date_sequential number.xml”. 5G20080617_00.xml
`<device>`	Drive name `A,B,D,E,F`,... D drive is used when omitted.

Details

When a file name is not specified, the sequence numbers suffixed to a file name are 00 to 99. No more files can be saved when all numbers through 99 are used.

Files are saved to the following directory in the specified drive.
\Anritsu Corporation\Signal Analyzer\User Data\Measurement Results\5G Measurement

Up to 1000 files can be saved in the folder.

Example of Use

To save a measurement result with the file name “`TEST`” to the internal hard disk.

```
MMEM:STOR:RES "TEST",D
```

:MMEMory:STORe:RESult:MODE XML|CSV

Save as Type

Function

This command sets the type of the file to be saved.

Command

```
:MMEMory:STORe:RESult:MODE <mode>
```

Parameter

`<mode>`	File type
`XML`	xml format (Default)
`CSV`	csv format

Example of Use

To set the type of the file to be saved to csv format.

```
MMEM:STOR:RES:MODE CSV
```

:MMEMory:STORe:RESult:MODE?

Save as Type Query

Function

This command queries the type of the file to be saved.

Query

```
:MMEMory:STORe:RESult:MODE?
```

Response

```
<mode>
```

Parameter

`<mode>`	File type
`XML`	xml format
`CSV`	csv format

Example of Use

To query the type of the file to be saved.

```
MMEM:STOR:RES:MODE?
> CSV
```

2.12 Replay Function

Table 2.12-1 lists the device messages for the Replay function.

Table 2.12-1 Device message for setting Replay function

Function	Device message
Stop Replay	`:MMEMory:LOAD:IQData:STOP`
Execute Replay	`:MMEMory:LOAD:IQData filename>,<device>,<application>`
Replay File Information Query	`:MMEMory:LOAD:IQData:INFormation?`
Replay Execute Query	`:MMEMory:LOAD:IQData:INFormation:STATe?`
Replay Filename Query	`:MMEMory:LOAD:IQData:INFormation:FILE?`
Replay Device Query	`:MMEMory:LOAD:IQData:INFormation:DEVice?`
Replay Application Query	`:MMEMory:LOAD:IQData:INFormation:APPLication?`
Replay Level Over Query	`:MMEMory:LOAD:IQData:INFormation:CONDition?`
Replay Error Icon Query	`:MMEMory:LOAD:IQData:INFormation:ERRor?`
Replay Correction Query	`:MMEMory:LOAD:IQData:INFormation:CORRection?`
Replay External Reference Query	`:MMEMory:LOAD:IQData:INFormation:ROSCillator?`

:MMEMory:LOAD:IQData:STOP

Stop Replay

Function

This command stops the Replay function.

Command

```
:MMEMory:LOAD:IQData:STOP
```

Details

This command is available only when the Replay function is executed.

Example of Use

To stop the Replay function.

```
MMEM:LOAD:IQD:STOP
```

:MMEMory:LOAD:IQData <filename>,<device>,<application>

Execute Replay

Function

This command executes the Replay function. Set a file, a drive, and an application to select the target IQ data.

Command

```
:MMEMory:LOAD:IQData <filename>,<device>,<application>
```

Parameter

`<filename>`	Target file name Character string within 32 characters enclosed by double quotes (“ ”) or single quotes (‘ ’) (excluding extension) The following characters cannot be used: `\ / : * ? “ ” ‘ ’ < > |`
`<device>`	Drive name `A,B,D,E,F,...`
`<application>`	Application to load IQ data file
`BASE5G`	5G measurement software
`SIGANA`	Signal Analyzer

Example of Use

To load the IQ data file “TEST” from drive D and execute the replay function.

```
MMEM:LOAD:IQD "TEST",D,BASE5G
```

:MMEMory:LOAD:IQData:INFormation?

Replay File Information Query

Function

This command queries the information of the file for which the Replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation?
```

Response

```
<filename>,<time_length>
```

Parameter

`<filename>`	File name Character string within 32 characters (excluding extension) *** is returned when the Replay function is not executed.
`<time_length>`	Time length of analyzable IQ data
Resolution	1 frame No suffix code. Value is returned in frame units. –999999999999 is returned when the Replay function is not executed.

Example of Use

To query the information of the file for which the Replay function is executed.

```
MMEM:LOAD:IQD:INF?
> TEST,38.838771500
```

:MMEMory:LOAD:IQData:INFormation:STATe?

Replay Execute Query

Function

This command queries the setting whether the Replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation:STATe?
```

Response

```
<switch>
```

Parameter

`<switch>`	Replay On/Off
1	On
0	Off

Example of Use

To query the setting whether the Replay function is executed.

```
MMEM:LOAD:IQD:INF:STAT?
> 1
```

:MMEMory:LOAD:IQData:INFormation:FILE?

Replay Filename Query

Function

This command queries the name of the file for which the Replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation:FILE?
```

Response

```
<filename>
```

Parameter

`<filename>`	File name Character string within 32 characters (excluding extension) *** is returned when the Replay function is not executed.

Example of Use

To query the name of the file for which the Replay function is executed.

```
MMEM:LOAD:IQD:INF:FILE?
```

:MMEMory:LOAD:IQData:INFormation:DEVice?

Replay Device Query

Function

This command queries the name of the drive for which the Replay function is executed.

Query

`:MMEMory:LOAD:IQData:INFormation:DEVice?`

Response

`<device>`

Parameter

`<device>`	Drive name `A,B,D,E,F,...` *** is returned when the Replay function is not executed.

Example of Use

To query the name of the drive for which the Replay function is executed.

`MMEM:LOAD:IQD:INF:DEV?`

:MMEMory:LOAD:IQData:INFormation:APPLication?

Replay Application Query

Function

This command queries the name of the application for which the Replay function is executed.

Query

`:MMEMory:LOAD:IQData:INFormation:APPLication?`

Response

`<application>`

Parameter

`<application>`	Application to load IQ data file
`BASE5G`	5G measurement software *** is returned when the Replay function is not executed.

Example of Use

To query the name of the application for which the Replay function is executed.

`MMEM:LOAD:IQD:INF:APPL?`

:MMEMory:LOAD:IQData:INFormation:CONDition?

Replay Level Over Query

Function

This command queries the setting whether Level Over is displayed while the replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation:CONDition?
```

Response

```
<switch>
```

Parameter

`<switch>`	Display of Level Over
`1`	Level Over is displayed.
`0`	Normal
	–999.0 is returned when the Replay function is not executed.

Example of Use

To query the setting whether Level Over is displayed while the replay function is executed.

```
MMEM:LOAD:IQD:INF:COND?
> 0
```

:MMEMory:LOAD:IQData:INFormation:ERRor?

Replay Error Icon Query

Function

This command queries the setting whether the Replay Error Info. icon is displayed while the replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation:ERRor?
```

Response

```
<switch>
```

Parameter

`<switch>`	Display of Replay Error Info. icon
`1`	Replay Error Info. icon is displayed.
`0`	Normal
	–999.0 is returned when the Replay function is n or executed.

Details

The Replay Error Info. icon is displayed if the loaded xml file contains error information.

Example of Use

To query the setting whether Level Over is displayed while the replay function is executed.

```
MMEM:LOAD:IQD:INF:ERR?
> 0
```

:MMEMory:LOAD:IQData:INFormation:CORRection?

Replay Correction Query

Function

This command queries the Correction value while the Replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation:CORRection?
```

Response

```
<real>
```

Parameter

`<real>`	Correction level
Range	–100 to +100 dB 0.000 is returned when Correction is Off. –999.0 is returned when the Replay function is not executed.

Example of Use

To query the Correction value while the Replay function is executed.

```
MMEM:LOAD:IQD:INF:CORR?
```

:MMEMory:LOAD:IQData:INFormation:ROSCillator?

Replay External Reference Query

Function

This command queries the frequency reference signal source when the Replay function is executed.

Query

```
:MMEMory:LOAD:IQData:INFormation:ROSCillator?
```

Response

```
<source>
```

Parameter

`<source>`	Frequency reference signal source
INT	Internal reference signal source
INTU	Internal reference signal source (Unlock state)
EXT	External reference signal source
EXTU	External reference signal source (Unlock state) *** is returned when the Replay function is not executed.

Example of Use

To query the frequency reference signal source when the Replay function is executed.

```
MMEM:LOAD:IQD:INF:ROSC?
```

Chapter 3 SCPI Status Register

This chapter explains the SCPI commands used to read the state of the application and the status register.

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.

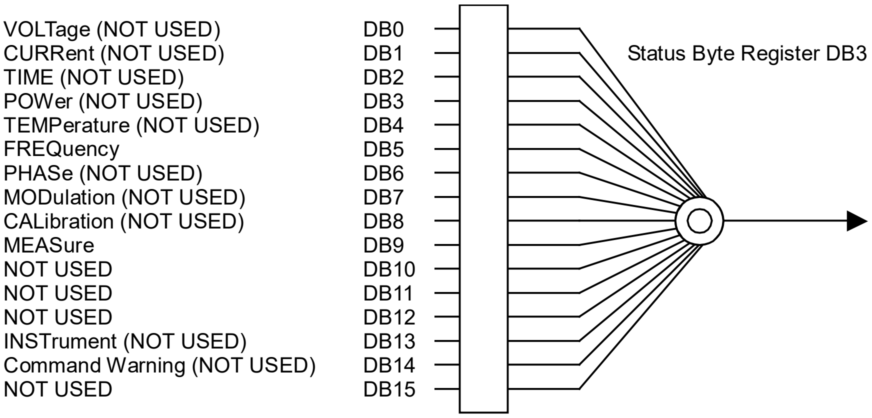

Figure 3.2-1 QUEStionable Status Register

Table 3.2-1 Bit Definition of QUEStionable Status Register

Bit	Definition
DB5	Reference Clock Unlock
DB9	QUEStionable Measure Register Summary

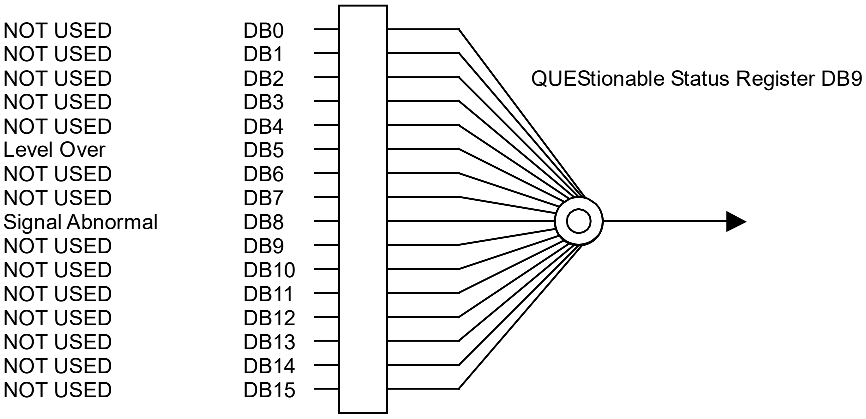

Figure 3.2-2 QUEStionable Measure Register

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.

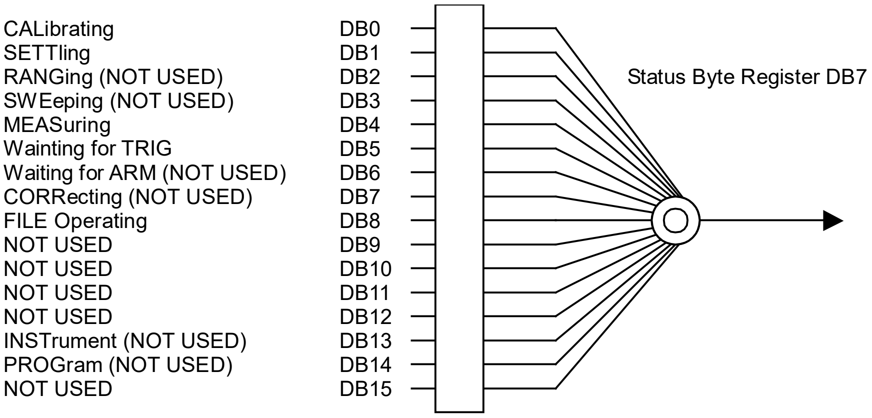

Figure 3.3-1 OPERation Status Register

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
```