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
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.
Notes On Export Management

This product and its manuals may require an Export License/Approval by the Government of the product's country of origin for re-export from your country.

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 MS2690A/MS2691A/MS2692A,
“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)
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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”).

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Chapter 1  Outline

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).

![Flow Chart]

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.
Chapter 1  Outline

Start

Initialization of Communication Interface

Setting Language Mode and Response Mode

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

Starting Application

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

Selecting Application

INST BASE5G

Selecting 5G Standard

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

Initialization

*RST
*CLS

Setting Measurement Mode

INIT:CONT OFF

End

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)

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
1.2 Basic Flow of Control

**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
1.2 Basic Flow of Control

**Start**

**Trigger**
- TRIG ON
- TRIG:SOUR EXT
- TRIG:SLOP POS
- TRIG:DEL 0

**Frame Parameter**
- RAD:SUBC:SPAC 30
- RAD:RBL:NUMB 273
- CALC:EVM:CELL 1

**PDSCH/DM-RS**
- CALC:EVM:PUSC:APOR 1000
- CALC:EVM:SLOT0:PUSC:MOD AUTO

End

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
### Basic Flow of Control

#### Outline

1. **Start**
2. **Selecting Measurement Function**
   - `CONF:EVM`
3. **Setting Measurement Parameters**
   - `EVM:AVER ON`
   - `EVM:AVER:COUN 10`
4. **Performing Measurement and Reading Out Measured Results**
   - `READ:EVM?`
   - `STAT:ERR?`
5. **Setting Contents to Be Displayed (as required)**
   - `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?`
6. **End**

---

**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`. 
1.3 How to use the 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.

Figure 1.3-1 SCPI mode and Native mode
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>
1.3 How to use the Native Mode

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.

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  :INStrument[:SELECT] ? ................................................................................................. 2-23
  :INStrument:SYSTem BASE5G,[ACTIVE]|[INACTIVE]|MINimum ........................................ 2-24
  :INStrument:SYSTem? BASE5G ....................................................................................... 2-24
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  :DISPlay:WINDow[1]:TRACe:y:SCAlE:RLEVel:OFFSet:STATe OFF|ON|0|1 .......................... 2-35
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2.2.8  Pre Amp

[:SENSe]:POWer[:RF]:GAIN[:STATe] OFF|ON|0|1  ................................................................. 2-36
[:SENSe]:POWer[:RF]:GAIN[:STATe]? ................................................................. 2-36

2.2.9  Standard

[:SENSe]:RADio:STANdard

NR_TDD_SUB6GHZ_DL|NR_TDD_MMWAVE_DL|NR_TDD_SUB6GHZ_UL
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2.3.4  Number of RBs

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[:SENSe]:RADio:PCOMpensation[:STATe]? ...................................................... 2-51

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2.3.11 SS-Block RB Offset

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2.3.14 SS-Block Transmission

:.CALCulate:EVM:SSBLock:INDEX[0]|1…|7:TRANsmission[:STATE] OFF|ON|0|1 ........................................ 2-59
:.CALCulate:EVM:SSBLock:INDEX[0]|1…|7:TRANsmission[:STATE]?
:.CALCulate:EVM:SSBLock:TRANsmision[:STATE] OFF|ON|0|1 ........................................ 2-60

2.3.15 PDCCH/DM-RS On/Off

:.CALCulate:EVM:SLOT[0]|1…|79:PDCCh[:STATE] OFF|ON|0|1 ........................................ 2-61
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2.3.16 PDSCH/DM-RS On/Off

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[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:TMODel <model> ......................................................... 2-138
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:CALCulate:CAGG:SSBLock:PERiodicity 10|20 ....................................................................... 2-160
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity 10|20 ....................................... 2-160
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:PERiodicity? ....................................... 2-161

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:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:ANALysis:FRAME:NUMBer <integer> .... 2-162

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:CALCulate:CAGG:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1 ................ 2-164
:CALCulate:CAGG:CC[0]|1|…|7:SSBLock:INDex[0]|1…|7:TRANsmission[:STATe] OFF|ON|0|1 .... 2-164
:CALCulate:CAGG:CC[0]|1|…|7:TRANsmission[:STATe] OFF|ON|0|1 ........................................ 2-165
:CALCulate:CAGG:CC[0]|1|…|7:TRANsmission[:STATe] OFF|ON|0|1 ........................... 2-166
:CALCulate:CAGG:SSBLock:TRANsmission[:STATe] OFF|ON|0|1 ........................................ 2-166
:CALCulate:CAGG:SSBLock:TRANsmission[:STATe] OFF|ON|0|1 ............................... 2-167
:CALCulate:CAGG:SSBLock:TRANsmission[:STATe]? ....................................................... 2-168

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:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ........................................ 2-169
:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ........................................ 2-169
:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ........................................ 2-169
:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ........................................ 2-169
:CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ........................................ 2-169

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:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1 ........................................ 2-170
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1 ........................................ 2-170
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1 ........................................ 2-170

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:CALCulate:CAGG:SLOT[0]|1|…|79:PDSch:APORt 1000|1001|1002|1003 ............................ 2-175
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSch:APORt 1000|1001|1002|1003 ........................................ 2-175
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSch:APORt 1000|1001|1002|1003 ........................................ 2-175
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSch:APORt 1000|1001|1002|1003 ........................................ 2-175

2.4.21 PDSCH Modulation Scheme

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSch:MODulation QPSK|16Qam|64Qam|256Qam|AUTO ........................................ 2-178
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:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:TYPE A|B ... 2-186
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2.4.23 PDSCH Start Symbol

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer> ................................... 2-186
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer> ... 2-186
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:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:SYMBol:STARt <integer> ................ 2-188

2.4.24 PDSCH Number of Symbols

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:LENGth <integer> . 2-189
:CALCulate:CAGG:PDSCh:SYMBol:LENGth <integer> ........................................................... 2-190
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2.4.25 PDSCH Power Boosting (Auto/Manual)

:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1 ................................. 2-192
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1. 2-192
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2.4.26 PDSCH Power Boosting

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:BOOSting <rel_power> ...... 2-196
:CALCulate:CAGG:PDSCh:POWer:BOOSting <rel_power> ................................................. 2-197
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POWer:BOOSting <rel_power> .............. 2-197

2.4.27 PDSCH DM-RS typeA-pos

:CALCulate:CAGG:PDSCh:MAPPing:DMRS:APOSition <integer> ....................................... 2-200
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPing:DMRS:APOSition <integer> ...... 2-200
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2.4.29  PDSCH DM-RS CDM Group Without Data

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CALCulate:CAGG:SLOT[0]|1…|79:PDSch:PTRS[:STATe] OFF|ON|0|1 ............................... 2-208

CALCulate:CAGG:SLOT[0]|1…|79:PDSch:PTRS:DENSity:TIME 1|2|4 ........................................................... 2-211


CALCulate:CAGG:SLOT[0]|1…|79:PDSch:PTRS:OFFSet 00|01|10|11 ........................................................... 2-217

CALCulate:CAGG:SLOT[0]|1…|79:PDSch:RBLock:AUTO 0|1|ON|OFF .................................................. 2-220
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:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSch:RBLock:AUTO
0|1|ON|OFF .......................................................................................................................... 2-220
:CALCulate:CAGG:PDSch:RBLock:AUTO 0|1|ON|OFF .......................................................... 2-221
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSch:RBLock:AUTO 0|1|ON|OFF ... 2-221

2.4.35 PDSCH RBs Allocation Start RB

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSch:RBLock:STARt <integer>... 2-223
:CALCulate:CAGG:PDSch:RBLock:STARt <integer> ............................................................. 2-224
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSch:RBLock:STARt <integer> ............................. 2-224

2.4.36 PDSCH RBs Allocation Number of RBs

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSch:RBLock:LENGth

<integer> .............................................................................................................................. 2-226
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:CALCulate:CAGG:TRACK:PHASe[:STATe]? ................................................................. 2-240

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:CALCulate:CAGG:MCARrier:FILTer[:STATe]? .............................................................. 2-242

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:CALCulate:CAGG:EWINdow[:STATe]? ................................................................. 2-243

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[:SENSe]:RADio:RBLock:NUMBer? ................................................................. 2-249

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CALCulate:EVM:CELLid? ................................................................. 2-250

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:CALCulate:EVM:PUSCh:MULTiplexing? ................................................................. 2-253

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2.1 Selecting Application

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<td>:INStrument:DEFault</td>
</tr>
<tr>
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</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>&lt;apl_name&gt;</th>
<th>Application name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE5G</td>
<td>This application</td>
</tr>
<tr>
<td>CONFIG</td>
<td>Config</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;apl_name&gt;</th>
</tr>
</thead>
</table>

Parameter

<table>
<thead>
<tr>
<th>&lt;apl_name&gt;</th>
<th>Application name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE5G</td>
<td>This application</td>
</tr>
<tr>
<td>SIGANA</td>
<td>Signal Analyzer</td>
</tr>
<tr>
<td>SPECT</td>
<td>Spectrum Analyzer</td>
</tr>
<tr>
<td>CONFIG</td>
<td>Config</td>
</tr>
</tbody>
</table>

Details

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

Example of Use

To query the application being controlled.
INST?
> BASE5G
Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>&lt;window&gt;</th>
<th>Window status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTive</td>
<td>Active</td>
</tr>
<tr>
<td>INAcive</td>
<td>Inactive</td>
</tr>
<tr>
<td>MINimum</td>
<td>Minimized</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;status&gt;</th>
<th>Application status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR</td>
<td>Activated and controlled</td>
</tr>
<tr>
<td>RUN</td>
<td>Activated but not controlled</td>
</tr>
<tr>
<td>IDLE</td>
<td>Loaded but not activated</td>
</tr>
<tr>
<td>UNL</td>
<td>Unloaded</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;window&gt;</th>
<th>Window status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTive</td>
<td>Active</td>
</tr>
<tr>
<td>INAcive</td>
<td>Inactive</td>
</tr>
<tr>
<td>MINimum</td>
<td>Minimized</td>
</tr>
<tr>
<td>NON</td>
<td>Not displayed</td>
</tr>
</tbody>
</table>

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.

Example of Use
To initialize the settings and status of the currently selected application.
SYST:PRES

See the description of :INSTRument:DEFault.
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>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Frequency</td>
<td>[:SENSe]:FREQuency:CENTer &lt;freq&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:FREQuency:CENTer?</td>
</tr>
<tr>
<td>RF Spectrum</td>
<td>[:SENSe]:SPECTrum NORMal</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:SPECTrum?</td>
</tr>
<tr>
<td>Input Level</td>
<td>[:SENSe]:POWer[:RF]:RANGe:ILEvel &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:POWer[:RF]:RANGe:ILEvel?</td>
</tr>
<tr>
<td>Auto Range</td>
<td>[:SENSe]:POWer[:RF]:RANGe:AUTO ONCE</td>
</tr>
<tr>
<td>Attenuator</td>
<td>[:SENSe]:POWer[:RF]:ATTenuation:AUTO ON</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:POWer[:RF]:ATTenuation:AUTO?</td>
</tr>
<tr>
<td>Attenuator Value</td>
<td>[:SENSe]:POWer[:RF]:ATTenuation &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:POWer[:RF]:ATTenuation?</td>
</tr>
<tr>
<td>Level Offset</td>
<td>:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet &lt;rel_power&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?</td>
</tr>
<tr>
<td>Level Offset State</td>
<td>:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe OFF</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?</td>
</tr>
<tr>
<td>Pre-Amp State</td>
<td>[:SENSe]:POWer[:RF]:GAIN[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:POWer[:RF]:GAIN[:STATe]?</td>
</tr>
<tr>
<td>Standard</td>
<td>[:SENSe]:RADio:STANdard NR_TDD_SUB6GHz_DL</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:STANdard?</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Option</th>
<th>077/177</th>
<th>078/178</th>
<th>067/167</th>
<th>Setting frequency range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS2690A</td>
<td>✓/X</td>
<td>✓/X</td>
<td></td>
<td>100 MHz to 6 GHz</td>
</tr>
<tr>
<td>MS2691A</td>
<td>X</td>
<td>X</td>
<td>✓/X</td>
<td>100 MHz to 6 GHz</td>
</tr>
<tr>
<td>MS2692A</td>
<td>X</td>
<td>X</td>
<td>✓/X</td>
<td>100 MHz to 26.5 GHz</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓/X</td>
<td>✓</td>
<td>100 MHz to 26.5 GHz</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓/X</td>
<td>X</td>
<td>100 MHz to 6 GHz</td>
</tr>
</tbody>
</table>

✓: 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

<table>
<thead>
<tr>
<th>Option</th>
<th>077/177</th>
<th>078/178</th>
<th>067/167</th>
<th>Setting frequency range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS2850A</td>
<td>✓/X</td>
<td>✓/X</td>
<td></td>
<td>100 MHz to the upper limit of the main unit</td>
</tr>
<tr>
<td>MS269xA</td>
<td></td>
<td></td>
<td></td>
<td>See the following table.</td>
</tr>
<tr>
<td>MS2690A</td>
<td>X</td>
<td>X</td>
<td>✓/✓</td>
<td>100 MHz to 6 GHz</td>
</tr>
<tr>
<td>MS2691A</td>
<td>X</td>
<td>X</td>
<td>✓/✓</td>
<td>100 MHz to 13.5 GHz</td>
</tr>
<tr>
<td>MS2692A</td>
<td>X</td>
<td>X</td>
<td>✓/✓</td>
<td>100 MHz to 26.5 GHz</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓/✓</td>
<td>✓</td>
<td>100 MHz to 26.5 GHz</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓/X</td>
<td>X</td>
<td>100 MHz to 6 GHz</td>
</tr>
</tbody>
</table>

✓: Installed
X: Not installed
✓/X: Installed or Not installed

Resolution  1 Hz
Unit        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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;real&gt;</td>
<td>Input level</td>
</tr>
<tr>
<td>Range</td>
<td>(−60.00 + level offset) to (30.00 + level offset) dBm (Pre-Amp Off)</td>
</tr>
<tr>
<td></td>
<td>(−80.00 + level offset) to (10.00 + level offset) dBm (Pre-Amp On)</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01 dB</td>
</tr>
<tr>
<td>Unit</td>
<td>1 dBm</td>
</tr>
<tr>
<td>Suffix code</td>
<td>DBM</td>
</tr>
</tbody>
</table>

*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
2.2 Setting Basic Parameters

[: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

Unit 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 unit.

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.

```
```

**: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.

```
> 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> 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.

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

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>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Model</td>
<td>[:SENSe]:RADio:TMODel &lt;model&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:TMODel?</td>
</tr>
<tr>
<td>Test Model Version</td>
<td>[:SENSe]:RADio:TMODel:VERSION AUTO</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:TMODel:VERSION?</td>
</tr>
<tr>
<td>Subcarrier Spacing</td>
<td>[:SENSe]:RADio:SUBCarrier:SPACing 15</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:SUBCarrier:SPACing?</td>
</tr>
<tr>
<td>Number of RBs</td>
<td>[:SENSe]:RADio:RBLock:NUMBer &lt;mode&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:RBLock:NUMBer?</td>
</tr>
<tr>
<td>Cell ID</td>
<td>:CALCulate:EVM:CELLId &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:CELLld?</td>
</tr>
<tr>
<td>Synchronization Mode</td>
<td>[:SENSe]:RADio:SYNChronization:MODE SS</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:SYNChronization:MODE?</td>
</tr>
<tr>
<td>Phase Compensation</td>
<td>[:SENSe]:RADio:PCOMpensation[:STATe] 0</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:PCOMpensation[:STATe]?</td>
</tr>
<tr>
<td>SS-Block On/Off</td>
<td>:CALCulate:EVM:SSBLock[:STATe] 0</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock[:STATe]?</td>
</tr>
<tr>
<td>SS-Block Candidate</td>
<td>:CALCulate:EVM:SSBLock:CANDidate A4</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:CANDidate?</td>
</tr>
<tr>
<td>SS-Block Subcarrier Offset</td>
<td>:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:SUBCarrier:OFFSet?</td>
</tr>
<tr>
<td>SS-Block RB Offset</td>
<td>:CALCulate:EVM:SSBLock:RBLock:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:RBLock:OFFSet?</td>
</tr>
<tr>
<td>SS-Block Periodicity</td>
<td>:CALCulate:EVM:SSBLock:PERiodicity 10</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:PERiodicity?</td>
</tr>
<tr>
<td>SS-Block Analysis Frame Number</td>
<td>:CALCulate:EVM:SSBLock:ANALysis:FRAME:NUMBer &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:ANALysis:FRAME:NUMBer?</td>
</tr>
</tbody>
</table>
### Table 2.3-1  Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SS-Block Transmission</strong></td>
<td>:CALCulate:EVM:SSBLock:INDex[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:INDex[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SSBLock:TRANsmission[:STATe] OFF</td>
</tr>
<tr>
<td><strong>PDCCH/DM-RS On/Off</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH/DM-RS On/Off</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH/DM-RS Antenna Port</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH Modulation Scheme</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH Mapping Type</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH Start Symbol</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH Number of Symbols</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH Power Boosting (Auto/Manual)</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH Power Boosting</strong></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td>Parameter</td>
<td>Device Message</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:DMRS:APOSITION &lt;integer&gt;</td>
</tr>
<tr>
<td>PDSCH DM-RS CDM Group Without Data</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:DMRS:CDM 1</td>
</tr>
<tr>
<td>PDSCH PTRS</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:PTRS[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:PTRS:DENSITY:TIME 1</td>
</tr>
<tr>
<td>PDSCH PTRS RE Offset</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:PTRS:OFFSet 00</td>
</tr>
<tr>
<td>PDSCH RBs Allocation Auto Detect</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:RBLock:AUTO 0</td>
</tr>
<tr>
<td>PDSCH RBs Allocation Start RB</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:RBLock:START &lt;integer&gt;</td>
</tr>
<tr>
<td>PDSCH RBs Allocation Number of RBs</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSch:RBLock:LENGth &lt;integer&gt;</td>
</tr>
</tbody>
</table>
### Chapter 2  SCPI Device Message Details

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Model TDD Configuration</td>
<td>:CALCulate:EVM:TMODEl:TDDConfig:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TMODEl:TDDConfig:AUTO?</td>
</tr>
<tr>
<td>Equalizer Use Data</td>
<td>[:SENSe]:EVM:RADio:EQUalizer:DATA 0</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:RADio:EQUalizer:DATA?</td>
</tr>
<tr>
<td>Amplitude Tracking</td>
<td>:CALCulate:EVM:TRACK:AMPLitude[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:AMPLitude[:STATe]?</td>
</tr>
<tr>
<td>Phase Tracking</td>
<td>:CALCulate:EVM:TRACK:PHASe[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:PHASe[:STATe]?</td>
</tr>
<tr>
<td>Timing Tracking</td>
<td>:CALCulate:EVM:TRACK:TIMing[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:TIMing[:STATe]?</td>
</tr>
<tr>
<td>Number Of Carriers</td>
<td>[:SENSe]:EVM:RADio:NCARrrier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:RADio:NCARrrier?</td>
</tr>
<tr>
<td>Reference Carrier</td>
<td>[:SENSe]:EVM:RADio:CARRrier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:RADio:CARRrier?</td>
</tr>
<tr>
<td>Frequency Offset</td>
<td>:CALCulate:EVM:FREQuency:OFFSet &lt;rel_frequency_offset_Hz&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:FREQuency:OFFSet?</td>
</tr>
<tr>
<td>Multicarrier Filter</td>
<td>:CALCulate:EVM:MCARrier:FILTer[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MCARrier:FILTer[:STATe]?</td>
</tr>
<tr>
<td>EVM Window</td>
<td>:CALCulate:EVM:EWINdow[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:EWINdow[:STATe]?</td>
</tr>
<tr>
<td>DC Cancellation</td>
<td>:CALCulate:EVM:DC:CANCel[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:DC:CANCel[:STATe]?</td>
</tr>
</tbody>
</table>
### 2.3 Setting System Parameters

#### 2.3.1 Test Model

[:SENSe]:RADio:TMODel <model>

**Function**

This command sets the Test Model.

**Command**

[:SENSe]:RADio:TMODel <model>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF (Default)</td>
</tr>
<tr>
<td>FR1_TM1_1</td>
<td>NR-FR1-TM1.1</td>
</tr>
<tr>
<td>FR1_TM1_2</td>
<td>NR-FR1-TM1.2</td>
</tr>
<tr>
<td>FR1_TM2</td>
<td>NR-FR1-TM2</td>
</tr>
<tr>
<td>FR1_TM2A</td>
<td>NR-FR1-TM2a</td>
</tr>
<tr>
<td>FR1_TM3_1</td>
<td>NR-FR1-TM3.1</td>
</tr>
<tr>
<td>FR1_TM3_1A</td>
<td>NR-FR1-TM3.1a</td>
</tr>
<tr>
<td>FR1_TM3_2</td>
<td>NR-FR1-TM3.2</td>
</tr>
<tr>
<td>FR1_TM3_3</td>
<td>NR-FR1-TM3.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard: NR TDD sub-6GHz Downlink</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
</tr>
<tr>
<td>FR2_TM1_1</td>
</tr>
<tr>
<td>FR2_TM2</td>
</tr>
<tr>
<td>FR2_TM3_1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard: NR TDD mmWave Downlink</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
</tr>
<tr>
<td>FR2_TM1_1</td>
</tr>
<tr>
<td>FR2_TM2</td>
</tr>
<tr>
<td>FR2_TM3_1</td>
</tr>
</tbody>
</table>

**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

<mmodel>

Parameter

<mmodel> Test Model

Standard: NR TDD sub-6GHz Downlink

- 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 (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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>Automatic detection of the input signal test model version (Default)</td>
</tr>
<tr>
<td>201903</td>
<td>TS 38.141 V15.1.0 (2019-03)</td>
</tr>
<tr>
<td>201906</td>
<td>TS 38.141 V15.2.0 (2019-06)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>Automatic detection of the input signal test model version (Default)</td>
</tr>
<tr>
<td>201903</td>
<td>TS 38.141 V15.1.0 (2019-03)</td>
</tr>
<tr>
<td>201906</td>
<td>TS 38.141 V15.2.0 (2019-06)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>51</td>
<td>51</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>52</td>
<td>52</td>
<td>216</td>
<td>216</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>217</td>
<td>217</td>
</tr>
<tr>
<td>66</td>
<td>66</td>
<td>245</td>
<td>245</td>
</tr>
<tr>
<td>78</td>
<td>78</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>79</td>
<td>79</td>
<td>270</td>
<td>270</td>
</tr>
<tr>
<td>93</td>
<td>93</td>
<td>273</td>
<td>273</td>
</tr>
<tr>
<td>106</td>
<td>106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Details

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

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Resource Blocks That Can Be Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>25, 52, 79, 106, 133, 160*, 216*, 270*(Default)</td>
</tr>
<tr>
<td>60 kHz MX285051A-021</td>
<td>66, 132, 264 (Default)</td>
</tr>
<tr>
<td>120 kHz</td>
<td>32, 66, 132 (Default), 264*</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>18</td>
<td>121</td>
<td>18</td>
<td>121</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>51</td>
<td>51</td>
<td>216</td>
<td>216</td>
</tr>
<tr>
<td>52</td>
<td>65</td>
<td>217</td>
<td>245</td>
</tr>
<tr>
<td>66</td>
<td>78</td>
<td>245</td>
<td>270</td>
</tr>
<tr>
<td>78</td>
<td>79</td>
<td>270</td>
<td>273</td>
</tr>
<tr>
<td>93</td>
<td>106</td>
<td>273</td>
<td>273</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Cell ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1007</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Cell ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1007</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

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

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>

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Enables (On) or disables (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

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>

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Enables (On) or disables (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>Enable</td>
</tr>
</tbody>
</table>

Example of Use

To query the On/Off status of Phase Compensation.

RAD:PCOM?

> 1
2.3.8 SS-Block On/Off

:CALCulate:EVM:SSBLo ck[: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:SSBLo ck[: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:SSBLo ck[: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:SSBLo ck[: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>SS-Block Candidate That Can be Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>A4, A8 (Default)</td>
</tr>
<tr>
<td>30 kHz</td>
<td>B4, B8 (Default), C4, C8</td>
</tr>
<tr>
<td>120 kHz</td>
<td>D64 (Default)</td>
</tr>
</tbody>
</table>

Example of Use

To set the SS-Block Candidate to B4.

CALC:EVM:SSBL:CAND B4
Chapter 2  SCPI Device Message Details

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

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

```plaintext
: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 Setting System Parameters

**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
**SS-Block Transmission**

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

**Command**

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

**Parameter**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>SS-Block Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

**Example of Use**

To disable the SS-Block in all indexes.

```
CALC:EVM:SSBL:TRAN OFF
```
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

2.3.15 PDCCH/DM-RS On/Off

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

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To set PDCCH/DM-RS in Slot 1 to Included.
CALC:EVM,SLOT1:PDC ON
Chapter 2 SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use
To query the setting of PDCCH/DM-RS in Slot 1.
CALC:EVM:SLOT1:PDCC?
> 1
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

: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>
  OFF|0  PDCCH/DM-RS is included (On), not included (Off)
  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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDS ON
PDSCH/DM-RS On/Off Query

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

```
CALC:EVM:SLOT1:PDSCh?
```

```n
> 1
```
Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Not included</td>
</tr>
<tr>
<td>ON</td>
<td>Included (Default)</td>
</tr>
</tbody>
</table>

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

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSCh: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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>1001</td>
<td>1001</td>
</tr>
<tr>
<td>1002</td>
<td>1002</td>
</tr>
<tr>
<td>1003</td>
<td>1003</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

```
CALC:EVM:SLOT1:PDSCH:APOR?
> 1001
```
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH/DM-RS antenna port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>1000 (Default)</td>
</tr>
<tr>
<td>1001</td>
<td>1001</td>
</tr>
<tr>
<td>1002</td>
<td>1002</td>
</tr>
<tr>
<td>1003</td>
<td>1003</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To set the PDSCH modulation scheme in Slot 1 to 256QAM.
CALC:EVM:SLOT1:PDSCh:MOD 256Q
2.3 Setting System Parameters (MX285051A-011/MX285051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

:PCLCulate: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

<table>
<thead>
<tr>
<th>Modulation</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
<td>16QAM</td>
</tr>
<tr>
<td>64Qam</td>
<td>64QAM</td>
</tr>
<tr>
<td>256Qam</td>
<td>256QAM</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic judgment of input signal modulation scheme</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PDSCH modulation scheme in Slot 1.
CALC:EVM:SLOT1:PDSCh:MOD?
> 256Q
Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Modulation scheme to analyze PDSCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
<td>16QAM</td>
</tr>
<tr>
<td>64Qam</td>
<td>64QAM</td>
</tr>
<tr>
<td>256Qam</td>
<td>256QAM</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic judgment of input signal modulation scheme (Default)</td>
</tr>
</tbody>
</table>

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

**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

**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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<td>0 to 19</td>
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<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

```
CALC:EVM:SLOT1:PDSC:MAPP:TYPE A
```
Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH Mapping Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use
To query the PDSCH Mapping Type in Slot 1.

CALC:EVM:SLOT1:PDSCh:MAPP:TYPE?
> A
2.3 Setting System Parameters

: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**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH Mapping Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A (Default)</td>
</tr>
<tr>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<tr>
<td>30 kHz</td>
<td>0 to 19</td>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To set the PDSCH start symbol in Slot 1 to 1.
CALC:EVM:SLOT1:PDS: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.

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<tr>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PDSCH start symbol in Slot 1.

CALC:EVM:SL0T1:PDS: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
            0 to 12  PDSCH Mapping Type: typeB
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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSC:SYMB:LENG 3
Chapter 2  SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
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<td>15 kHz</td>
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<td>30 kHz</td>
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<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSCh:POWer:AUTO OFF
Chapter 2  SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
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<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query whether the PDSCH boosting level is automatic in Slot 1.
CALC:EVM:SLOT1:PDSCh: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:PDSCh:POW:AUTO OFF
2.3.23 PDSCH Power Boosting

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh:POWer:BOOSt:ing <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:BOOSt:ing <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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
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<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDS:C: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  None. 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.

<table>
<thead>
<tr>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PDSCH boosting level in Slot 1.

CALC:EVM:SLOT1:PDSCh: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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Range</th>
<th>Resolution</th>
<th>Suffix code</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;rel_power&gt;</td>
<td>PDSCH boosting level</td>
<td>–20.000 to +20.000 dB</td>
<td>0.001 dB</td>
<td>dB, dB is used when omitted.</td>
</tr>
<tr>
<td>Default</td>
<td></td>
<td>–3.000 dB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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


**<integer>**

PDSCH DM-RS typeA-pos

**Function**

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

**Command**


**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.

<table>
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<th>Subcarrier Spacing</th>
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<td>120 kHz</td>
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</tr>
</tbody>
</table>

**Example of Use**

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

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

: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:APOSition?

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.

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</tr>
</tbody>
</table>

Example of Use

To query the PDSCH DM-RS typeA-pos in Slot 1.
CALC:EVM:SLOT1:PDSCh: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:PDSCh:MAPP:DMRS:APOS_3
2.3.25 PDSCH DM-RS add-pos


PDSCH DM-RS add-pos

Function

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

Command


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.

<table>
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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSC:DMRS:APOS 3
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

: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

**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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can Be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**
To query the PDSCH DM-RS add-pos in Slot 1.
CALC:EVM:SLOT1:PDSCh: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

**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:PDSCh: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


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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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

: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.

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<thead>
<tr>
<th>Subcarrier Spacing</th>
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</thead>
<tbody>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PDSCH DM-RS CDM Group Without Data in Slot 1.
CALC:EVM:SLOT1:PDSCh: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:PDSCh: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


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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To set the PDSCH PT-RS in Slot 1 to Enabled.
CALC:EVM:SLOT1:PDS:PTRS ON
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use
To query the setting of PDSCH PT-RS in Slot 1.
CALC:EVM:SLOT1:PDS: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:PDS:PTRS ON
2.3.28 PDSCH PTRS Time Density


PDSCH PTRS Time Density

Function

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

Command


Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH PTRS Time Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>Default</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

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


PDSCH PTRS Time Density Query

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

Query

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.

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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use
To query the PDSCH PTRS Time Density in Slot 1.
CALC:EVM:SLOT1:PDS: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

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:PDS:PTRS:DENS:TIME 2
2.3.29 PDSCH PTRS Freq. Density


PDSCH PTRS Freq. Density

Function

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

Command


Parameter

<mode> PDSCH PTRS Freq. Density

<table>
<thead>
<tr>
<th>Range</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 4</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

<table>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

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

PDSCH PTRS Freq. Density Query

Function

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

Query


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.

<table>
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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSCh:PTRS:DENS:FREQ?

> 2


PDSCH PTRS Freq. Density

Function

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

Command


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


Parameter

<mode> PDSCH PTRS RE Offset

<table>
<thead>
<tr>
<th>Range</th>
<th>00, 01, 10, 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>00</td>
</tr>
</tbody>
</table>

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.

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<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSCh:PTRS:OFFS 01
2.3 Setting System Parameters

**: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.

<table>
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<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the PDSCH PTRS RE Offset in Slot 1.

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

---

![Device Message Details](2-99)
### 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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

`CALC:EVM:SLOT1:PDSCh:RB:LOCK:AUTO OFF`
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.

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</tr>
</tbody>
</table>

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:PDSCh:RBL:AUTO?

> 0
Chapter 2  SCPI Device Message Details

: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>  
OFF|0  Enabled (On) or disabled (Off)  
ON|1  Disabled

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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<td>120 kHz</td>
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</tr>
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</table>

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
Chapter 2  SCPI Device Message Details

:\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.

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</tbody>
</table>

Example of Use

To query the Start RB of the RBs that are allocated to PDSCH in slot 1.
\CALC:EVM:SLOT1:PDSCH:RBLoc: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDS:RBL:LENG 1
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDSC:RBL:LENG?

> 1
Chapter 2  SCPI Device Message Details

: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


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


Parameter

<integer> Slot number for Frame synchronization

Range: Refer to Table 2.3.35-1.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range for Slot number</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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

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


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


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


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.


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


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.
### 2.3.37 Test Model TDD Configuration Slot Types


**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**


**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.

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


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


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
Chapter 2  SCPI Device Message Details

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

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>

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:PHAS[:STATE] OFF|ON|0|1

Phase Tracking

Function

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

Command

:CALCulate:EVM:TRACK:PHAS[:STATE] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Phase Tracking Enabled (On) or Disabled (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

Example of Use

To set the Phase Tracking to Enabled.

CALC:EVM:TRACK:PHAS ON

:CALCulate:EVM:TRACK:PHAS[:STATE]? 

Phase Tracking Query

Function

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

Query

:CALCulate:EVM:TRACK:PHAS[:STATE]?

Response

<switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Phase Tracking Enabled (On) or Disabled (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Standard</th>
<th>Option</th>
<th>Channel Bandwidth</th>
<th>Max. Number of Carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR TDD mmWave Downlink</td>
<td>Without</td>
<td>50 MHz</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MS2850A-033/133</td>
<td>100 MHz</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 MHz</td>
<td>1</td>
</tr>
<tr>
<td>With MS2850A-033/133</td>
<td>50 MHz</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 MHz</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 MHz</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>400 MHz</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>With MS2850A-034/134</td>
<td>50 MHz</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 MHz</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 MHz</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>400 MHz</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>NR TDD Sub6GHz Downlink</td>
<td>With MX285051A-011</td>
<td>–</td>
<td>2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;integer&gt;</td>
<td>Reference Carrier</td>
</tr>
<tr>
<td>Range</td>
<td>0 to (Number of Carriers – 1)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;integer&gt;</td>
<td>Reference Of Carrier</td>
</tr>
<tr>
<td>Range</td>
<td>0 to (Number of Carriers – 1)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

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>  
0|OFF  
1|ON  

Disabled  
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>  
0  
1  

Disabled  
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

:EVALulate:EVM:EWINdow[:STATe] OFF|ON|0|1

EVM Window

Function

This command enables (On) or disables (Off) the EVM Window.

Command

:EVALulate: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

:EVALulate:EVM:EWINdow[:STATe]?

EVM Window Query

Function

This command queries whether EVM Window is enabled (On) or disabled (Off).

Query

:EVALulate: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**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>DC Cancellation Enabled (On) or Disabled (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>DC Cancellation Enabled or Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Carriers</td>
<td>[:SENSe]:CAGG:RADio:NCARrier &lt;integer&gt;[:SENSe]:CAGG:RADio:NCARrier?</td>
</tr>
<tr>
<td>Reference Carrier</td>
<td>[:SENSe]:CAGG:RADio:CARRier &lt;integer&gt;[:SENSe]:CAGG:RADio:CARRier?</td>
</tr>
<tr>
<td>Frequency Offset</td>
<td>:CALCulate:CAGG:CC[0]1</td>
</tr>
</tbody>
</table>
| 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?
| 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)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-Block On/Off</td>
<td>:CALCulate:CAGG:SSBLock[:STATe] 0</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td>SS-Block Candidate</td>
<td>:CALCulate:CAGG:SSBLock:CANDidate D64</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td>SS-Block Subcarrier Offset</td>
<td>:CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet?</td>
</tr>
<tr>
<td>SS-Block RB Offset</td>
<td>:CALCulate:CAGG:SSBLock:RBLock:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:RBLock:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:RBLock:OFFSet?</td>
</tr>
<tr>
<td>SS-Block Periodicity</td>
<td>:CALCulate:CAGG:SSBLock:PERiodicity 10</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:PERiodicity 10</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:PERiodicity?</td>
</tr>
<tr>
<td>SS-Block Analysis Frame Number</td>
<td>:CALCulate:CAGG:SSBLock:ANALysis:FRAMe:NU Mber &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:ANALysis:FRAMe:NU Mber?</td>
</tr>
<tr>
<td>SS-Block Transmission</td>
<td>:CALCulate:CAGG:SSBLock:INDex[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:TRANsmission[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:SSBLock:TRANsmission[:STATe]?</td>
</tr>
<tr>
<td>PDCCH/DM-RS On/Off</td>
<td>:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDCCh[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDCCh[:STATe]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
</tbody>
</table>
### Table 2.4-1 Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDSCH/DM-RS On/Off</td>
<td>:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSCh[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
</tbody>
</table>
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh[:STATe]?
| PDSCH/DM-RS Antenna Port          | :CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:APORt 1000|1001|1002|1003 |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:APORt 1000|1001|1002|1003 |
|                                   | :CALCulate:CAGG:PDSCh:APORt 1000|1001|1002|1003 |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDSCh:APORt 1000|1001|1002|1003 |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:APORt?
| PDSCH Modulation Scheme           | :CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO |
|                                   | :CALCulate:CAGG:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:MODulation?
| PDSCH Mapping Type                | :CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:MAPPing:TYPE A|B |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:MAPPing:TYPE A|B |
|                                   | :CALCulate:CAGG:PDSCh:MAPPing:TYPE A|B |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDSCh:MAPPing:TYPE A|B |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:MAPPing:TYPE?
| PDSCH Start Symbol                | :CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:SYMBol:START <integer> |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:SYMBol:START <integer> |
|                                   | :CALCulate:CAGG:PDSCh:SYMBol:START <integer> |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDSCh:SYMBol:START <integer> |
|                                   | :CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:SYMBol:START?
## Table 2.4-1  Device Messages for Setting System Parameters (Cont'd)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PDSCH Number of Symbols</strong></td>
<td>(:\text{CALCulate:CAGG:SLOT}{0}{1\ldots{79}:\text{PDSCh:SYMBOL:LENGTH}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:SYMBOL:LENGTH}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:SYMBOL:LENGTH}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td><strong>PDSCH Power Boosting (Auto/Manual)</strong></td>
<td>(:\text{CALCulate:CAGG:SLOT}{0}{1\ldots{79}:\text{PDSCh:POWER:\text{AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:POWER:\text{AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:PDSCh:POWER:\text{AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:POWER:AUTO OFF</td>
</tr>
<tr>
<td><strong>PDSCH Power Boosting</strong></td>
<td>(:\text{CALCulate:CAGG:SLOT}{0}{1\ldots{79}:\text{PDSCh:POWER:BOOSTing}\ &lt;\text{rel_power}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:POWER:BOOSTing}\ &lt;\text{rel_power}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:PDSCh:POWER:BOOSTing}\ &lt;\text{rel_power}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:POWER:BOOSTing}\ &lt;\text{rel_power}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:POWER:BOOSTing}\ &lt;\text{rel_power}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSCh:POWER:BOOSTing}\ &lt;\text{rel_power}&gt;)</td>
</tr>
<tr>
<td><strong>PDSCH DM-RS typeA-pos</strong></td>
<td>(:\text{CALCulate:CAGG:SLOT}{0}{1\ldots{79}:\text{PDSch:MAPPING:DMRS:APOSITION}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSch:MAPPING:DMRS:APOSITION}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:PDSch:MAPPING:DMRS:APOSITION}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSch:MAPPING:DMRS:APOSITION}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td></td>
<td>(:\text{CALCulate:CAGG:CC}{0}{1\ldots{79}:\text{PDSch:MAPPING:DMRS:APOSITION}\ &lt;\text{integer}&gt;)</td>
</tr>
<tr>
<td>Parameter</td>
<td>Device Message</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSch:DMRS:APOSition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSch:DMRS:CDM 1</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td>PDSCH DM-RS</td>
<td>:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td>CDM Group</td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td>Without Data</td>
<td>:CALCulate:CAGG:PDSch:PTRS[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
</tbody>
</table>
### Table 2.4-1  Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PDSCH PTRS RE Offset</strong></td>
<td>**:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH RBs Allocation Auto Detect</strong></td>
<td>**:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH RBs Allocation Start RB</strong></td>
<td>**:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td><strong>PDSCH RBs Allocation Number of RBs</strong></td>
<td>**:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td><strong>Test Model TDD Configuration</strong></td>
<td>**:CALCulate:CAGG:TMODEl:TDDConfig:AUTO OFF</td>
</tr>
</tbody>
</table>
### Table 2.4-1  Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>`:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>`:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td>Test Model TDD Configuration Slot Types</td>
<td>`[:SENSe]:CAGG:RADIO:EQUalizer:DATA 0</td>
</tr>
<tr>
<td></td>
<td><code>[:SENSe]:CAGG:RADIO:EQUalizer:DATA?</code></td>
</tr>
<tr>
<td>Equalizer Use Data</td>
<td>`:CALCulate:CAGG:TRACK:AMPLitude[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:CAGG:TRACK:AMPLitude[:STATe] ?</code></td>
</tr>
<tr>
<td>Amplitude Tracking</td>
<td>`:CALCulate:CAGG:TRACK:PHASe[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:CAGG:TRACK:PHASe[:STATe] ?</code></td>
</tr>
<tr>
<td>Phase Tracking</td>
<td>`:CALCulate:CAGG:TRACK:TIMing[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:CAGG:TRACK:TIMing[:STATe] ?</code></td>
</tr>
<tr>
<td>Timing Tracking</td>
<td>`:CALCulate:CAGG:MCARRier:FILTer[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:CAGG:MCARRier:FILTer[:STATe] ?</code></td>
</tr>
<tr>
<td>Multicarrier Filter</td>
<td>`:CALCulate:CAGG:EWINdow[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:CAGG:EWINdow[:STATe] ?</code></td>
</tr>
<tr>
<td>EVM Window</td>
<td>`:CALCulate:CAGG:DC:CANCel[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td><code>:CALCulate:CAGG:DC:CANCel[:STATe] ?</code></td>
</tr>
</tbody>
</table>
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:NCARrier <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 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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 \textit{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 \textit{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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF (Default)</td>
</tr>
<tr>
<td>FR2_TM1_1</td>
<td>NR-FR2-TM1.1</td>
</tr>
<tr>
<td>FR2_TM2</td>
<td>NR-FR2-TM2</td>
</tr>
<tr>
<td>FR2_TM3_1</td>
<td>NR-FR2-TM3.1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF (Default)</td>
</tr>
<tr>
<td>FR2_TM1_1</td>
<td>NR-FR2-TM1.1</td>
</tr>
<tr>
<td>FR2_TM2</td>
<td>NR-FR2-TM2</td>
</tr>
<tr>
<td>FR2_TM3_1</td>
<td>NR-FR2-TM3.1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>Automatic detection of the signal test model version (Default)</td>
</tr>
<tr>
<td>201903</td>
<td>TS 38.141 V15.1.0 (2019-03)</td>
</tr>
<tr>
<td>201906</td>
<td>TS 38.141 V15.2.0 (2019-06)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>Automatic detection of the input signal test model version (Default)</td>
</tr>
<tr>
<td>201903</td>
<td>TS 38.141 V15.1.0 (2019-03)</td>
</tr>
<tr>
<td>201906</td>
<td>TS 38.141 V15.2.0 (2019-06)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;model&gt;</th>
<th>Test Model Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>Automatic detection of the signal test model version</td>
</tr>
<tr>
<td>201903</td>
<td>TS 38.141 V15.1.0 (2019-03)</td>
</tr>
<tr>
<td>201906</td>
<td>TS 38.141 V15.2.0 (2019-06)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Subcarrier Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>15 kHz</td>
</tr>
<tr>
<td>30</td>
<td>30 kHz (Default)</td>
</tr>
<tr>
<td>60</td>
<td>60 kHz</td>
</tr>
</tbody>
</table>

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
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 (Default)
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 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Number of Resource Blocks</th>
<th>&lt;mode&gt;</th>
<th>Number of Resource Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>51</td>
<td>51</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>52</td>
<td>52</td>
<td>216</td>
<td>216</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>217</td>
<td>217</td>
</tr>
<tr>
<td>66</td>
<td>66</td>
<td>245</td>
<td>245</td>
</tr>
<tr>
<td>78</td>
<td>78</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>79</td>
<td>79</td>
<td>270</td>
<td>270</td>
</tr>
<tr>
<td>93</td>
<td>93</td>
<td>273</td>
<td>273</td>
</tr>
<tr>
<td>106</td>
<td>106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range for Number of Resource Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>25, 52, 79, 106, 133, 160, 216, 270 (Default)</td>
</tr>
<tr>
<td>30 kHz</td>
<td>11, 24, 38, 51, 65, 78, 106, 133, 162, 189, 217, 245, 273 (Default)</td>
</tr>
<tr>
<td>60 kHz MX285051A-011</td>
<td>11, 18, 24, 31, 38, 51, 65, 79, 93, 107, 121, 135 (Default)</td>
</tr>
<tr>
<td>60 kHz MX285051A-021</td>
<td>66, 132, 264 (Default)</td>
</tr>
<tr>
<td>120 kHz</td>
<td>32, 66, 132 (Default), 264*1</td>
</tr>
</tbody>
</table>

*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:NUMB <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:NUMB <mode>
```

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Number of Resource Blocks</th>
<th>&lt;mode&gt;</th>
<th>Number of Resource Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>51</td>
<td>51</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>52</td>
<td>52</td>
<td>216</td>
<td>216</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>217</td>
<td>217</td>
</tr>
<tr>
<td>66</td>
<td>66</td>
<td>245</td>
<td>245</td>
</tr>
<tr>
<td>78</td>
<td>78</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>79</td>
<td>79</td>
<td>270</td>
<td>270</td>
</tr>
<tr>
<td>93</td>
<td>93</td>
<td>273</td>
<td>273</td>
</tr>
<tr>
<td>106</td>
<td>106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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
```
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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Cell ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1007</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Cell ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1007</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

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
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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 Cell 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
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

[: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**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the SS-Block for Component Carrier 2 to Included.

CALC:CAGG:CC2:SSBL ON
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;mode&gt;</td>
<td>SS-Block Candidate</td>
</tr>
<tr>
<td>D64</td>
<td>Maps SS-Block to 64 positions in Case D.</td>
</tr>
</tbody>
</table>

**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>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;mode&gt;</td>
<td>SS-Block Candidate</td>
</tr>
<tr>
<td>D64</td>
<td>Maps SS-Block to 64 positions in Case D.</td>
</tr>
</tbody>
</table>

**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
- Standard: NR TDD mmWave Downlink

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
- Standard: NR TDD mmWave Downlink

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


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
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.

```
> 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[: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 all Component Carriers to Enable.
CALC:CAGG:SSBL:IND1:TRAN ON
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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


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
Chapter 2  SCPI Device Message Details

: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
SS-Block Transmission

Function

This command enables or disables the SS-Block in all indexes of the specified Component Carrier.

Command


Parameter

<switch>

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Disable</td>
</tr>
<tr>
<td>ON</td>
<td>Enable (Default)</td>
</tr>
</tbody>
</table>

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
Chapter 2  SCPI Device Message Details

: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 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>PDCCH/DM-RS is included (On), not included (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

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:PDCCh[:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>PDCCH/DM-RS is included (On), not included (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

Example of Use
To set PDCCH/DM-RS in Slot 1 of Component Carriers 2 to Included.
CALC:CAGG:CC2:SLOT1:PDCC ON
Chapter 2  SCPI Device Message Details

: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>  
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>  
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
**2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)**

: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>  
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:PDCCh?  
> 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>

| OFF|0 | PDSCH/DM-RS is included (On), not included (Off) |
| ON|1 | Not included |

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:PDSCh[:STATE] <switch>

Parameter

<switch>

| OFF|0 | PDSCH/DM-RS is included (On), not included (Off) |
| ON|1 | Not included |

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
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

:PCLCulate:CA:G7: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
:PCLCulate:CA:G7:PDSCh[:STATe] <switch>

Parameter
<switch>
  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:CA:G7:PDSC ON

:PCLCulate:CA:G7: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
:PCLCulate:CA:G7:CC[0]|1]|2|3|4|5|6|7:PDSCh[:STATe] <switch>

Parameter
<switch>
  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:CA:G7:CC2:PDSC ON
Chapter 2  SCPI Device Message Details

: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:PDSCh?  
> 1
### 2.4 Setting System Parameters

#### 2.4.20 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**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH/DM-RS antenna port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>1000 (Default)</td>
</tr>
<tr>
<td>1001</td>
<td>1001</td>
</tr>
<tr>
<td>1002</td>
<td>1002</td>
</tr>
<tr>
<td>1003</td>
<td>1003</td>
</tr>
</tbody>
</table>

**Example of Use**

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

CALC:CAGG:SLOT1:PDSCh:APor 1001

---

**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**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH/DM-RS antenna port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>1000 (Default)</td>
</tr>
<tr>
<td>1001</td>
<td>1001</td>
</tr>
<tr>
<td>1002</td>
<td>1002</td>
</tr>
<tr>
<td>1003</td>
<td>1003</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the PDSCH/DM-RS antenna port in Slot 1 of Component Carrier 2 to 1001.

CALC:CAGG:CC2:SLOT1:PDSCh:APor 1001
Chapter 2  SCPI Device Message Details

: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
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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


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:PDSCh: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Modulation scheme to analyze PDSCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
<td>16QAM</td>
</tr>
<tr>
<td>64Qam</td>
<td>64QAM</td>
</tr>
<tr>
<td>256Qam</td>
<td>256QAM</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic judgment of input signal modulation scheme (Default)</td>
</tr>
</tbody>
</table>

Example of Use
To set the PDSCH modulation scheme in Slot 1 of all Component Carriers to 256QAM.
CALC:CAGG:SLOT1:PDS:C MOD 256Q
### Setting System Parameters

**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
QPSK|16Qam|64Qam|256Qam|AUTO
```

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
<td>16QAM</td>
</tr>
<tr>
<td>64Qam</td>
<td>64QAM</td>
</tr>
<tr>
<td>256Qam</td>
<td>256QAM</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic judgment of input signal modulation scheme (Default)</td>
</tr>
</tbody>
</table>

**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
```
**Chapter 2  SCPI Device Message Details**

: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**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Modulation scheme to analyze PDSCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
<td>16QAM</td>
</tr>
<tr>
<td>64Qam</td>
<td>64QAM</td>
</tr>
<tr>
<td>256Qam</td>
<td>256QAM</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic judgment of input signal modulation scheme (Default)</td>
</tr>
</tbody>
</table>

**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:PDSch:MOD 256Q
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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

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:PDSCh:MOD 256Q
Chapter 2  SCPI Device Message Details

:PDL: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

:PDL: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

A | B
<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:TY PE 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:PDSCh:MAPPing:TYPE <mode>

Parameter

A | B
<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
Chapter 2  SCPI Device Message Details

: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:TY PE?

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.
> A
### 2.4.23 PDSCH Start Symbol

**:CALCulate:CAGG:SLOT[0]|1…|79:PDSCh:SYMBol:STA<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:STA<integer>**

**Parameter**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH start symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>PDSCH Mapping Type: typeA</td>
</tr>
<tr>
<td></td>
<td>0 to DM-RS typeA-pos</td>
</tr>
<tr>
<td></td>
<td>PDSCH Mapping Type: typeB</td>
</tr>
<tr>
<td></td>
<td>0 to 12</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
</tbody>
</table>

**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:STA<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:STA<integer>**

**Parameter**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH start symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>PDSCH Mapping Type: typeA</td>
</tr>
<tr>
<td></td>
<td>0 to DM-RS typeA-pos</td>
</tr>
<tr>
<td></td>
<td>PDSCH Mapping Type: typeB</td>
</tr>
<tr>
<td></td>
<td>0 to 12</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
</tbody>
</table>

**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
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:STA Rt?
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:PDSCh:SYMB:START?
> 1
2.4.24 PDSCH Number of Symbols


PDSCH Number of Symbols

Function

This command sets the number of PDSCH mapping symbols in the specified slot of all Component Carriers.

Command


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.
Chapter 2  SCPI Device Message Details

: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.
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:SYMBol:LEN
Gth?
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:PDS:SYMB:LENG?

> 3
### 2.4.25 PDSCH Power Boosting (Auto/Manual)

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

**Function**

This command sets the PDSCH boosting level to automatic (On) or manual (Off) in the specified slot of all Component Carriers.

**Command**


**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**

**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.

2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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
Chapter 2  SCPI Device Message Details

: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:PDSCh: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:PDS:POW:BOOST 3.00DB
Chapter 2  SCPI Device Message Details

: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:PDSCh:POW:BOOS 3.00DB
PDSCH Power Boosting

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

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

PDSCH Power Boosting

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: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 all slots of Component Carrier 2 to 3.00 dB.
CALC:CAGG:CC2:PDSC:POW:BOOS 3.00DB
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWer:BOO
ing?

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:PDS
cb:POWer:BOOSting?

Response

<rel_power>

Parameter

<rel_power>  PDSCH boosting level
  Range       –20.000 to +20.000 dB
  Resolution  0.001 dB
  Suffix code None. Value is returned in dB unit.

Example of Use

To query the PDSCH boosting level in Slot 1 of Component Carrier 2.
> 3.000

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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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH DM-RS typeA-pos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2, 3</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
</tbody>
</table>

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 of all Component Carriers to 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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH DM-RS typeA-pos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2, 3</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
</tbody>
</table>

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 of Component Carriers 2 to 3.
Chapter 2  SCPI Device Message Details

: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.

: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.
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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.


> 3
2.4.28 PDSCH DM-RS add-pos


PDSCH DM-RS add-pos

Function
This command sets the PDSCH DM-RS add-pos in the specified slot of all Component Carriers.

Command

Parameter

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH DM-RS add-pos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0, 1, 2, 3</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH DM-RS add-pos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0, 1, 2, 3</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

Example of Use
To set the PDSCH DM-RS add-pos in Slot 1 of Component Carriers 2 to 3.
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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: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 all slots of Component Carrier 2 to 3.
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOS
ition?
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.
Chapter 2  SCPI Device Message Details

: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.
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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:PDCS:DMRS:CDM?
> 2
Chapter 2  SCPI Device Message Details

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]

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: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 Component Carrier 2 to Enabled.

CALC:CAGG:CC2:SLOT1:PDSC:PTRS ON
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

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
Chapter 2  SCPI Device Message Details

: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:PDSCh:PTRS?
> 1
### 2.4.31 PDSCH PTRS Time Density


**PDSCH PTRS Time Density**

**Function**

This command sets the PDSCH PTRS Time Density in the specified slot of all Component Carriers.

**Command**


**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.


#### :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**


**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.

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: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

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH PTRS Time Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>Default</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH PTRS Time Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>Default</td>
<td>1</td>
</tr>
</tbody>
</table>

Example of Use
To set the PDSCH PTRS Time Density in all slots of Component Carrier 2 to 2.
Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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

ty: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.


> 2
2.4.32 PDSCH PTRS Freq. Density


PDSCH PTRS Freq. Density

Function

This command sets the PDSCH PTRS Freq. Density in the specified slot of all Component Carriers.

Command


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.

: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


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.
### Setting System Parameters


**PDSCH PTRS Freq. Density**

<table>
<thead>
<tr>
<th>Function</th>
<th>This command sets the PDSCH PTRS Freq. Density in all slots of all Component Carriers.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Command</strong></td>
<td>:CALCulate:CAGG:PDSCh:PTRS:DENSity:FREQuency &lt;mode&gt;</td>
</tr>
<tr>
<td><strong>Parameter</strong></td>
<td><code>&lt;mode&gt;</code> PDSCH PTRS Freq. Density</td>
</tr>
<tr>
<td></td>
<td>Range 2, 4</td>
</tr>
<tr>
<td></td>
<td>Default 2</td>
</tr>
<tr>
<td><strong>Details</strong></td>
<td>This command sets the setting of PDSCH in all slots of all Component Carriers at once.</td>
</tr>
<tr>
<td><strong>Example of Use</strong></td>
<td>To set the PDSCH PTRS Freq. Density in all slots of all Component Carriers to 2.</td>
</tr>
</tbody>
</table>

#### :CALCulate:CAGG CC[0]|1]|2|3|4|5|6|7:PDSCh:PTRS:DENSity:FREQuency 2|4

**PDSCH PTRS Freq. Density**

<table>
<thead>
<tr>
<th>Function</th>
<th>This command sets the PDSCH PTRS Freq. Density in all slots of the specified Component Carriers.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Command</strong></td>
<td>:CALCulate:CAGG CC[0]</td>
</tr>
<tr>
<td><strong>Parameter</strong></td>
<td><code>&lt;mode&gt;</code> PDSCH PTRS Freq. Density</td>
</tr>
<tr>
<td></td>
<td>Range 2, 4</td>
</tr>
<tr>
<td></td>
<td>Default 2</td>
</tr>
<tr>
<td><strong>Example of Use</strong></td>
<td>To set the PDSCH PTRS Freq. Density in all slots of Component Carrier 2 to 2.</td>
</tr>
</tbody>
</table>
: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.
> 2
2.4.33 PDSCH PTRS RE Offset

This command sets the PDSCH PTRS RE Offset in the specified slot of all Component Carriers.

Command:


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
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: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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;mode&gt;</td>
<td>00, 01, 10, 11</td>
<td>00</td>
</tr>
</tbody>
</table>

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:PDSCh: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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;mode&gt;</td>
<td>00, 01, 10, 11</td>
<td>00</td>
</tr>
</tbody>
</table>

Example of Use
To set the PDSCH PTRS RE Offset in all slots of Component Carrier 2 to 01.
CALC:CAGG:CC2:PDSCh:PTRS:OFFS 01
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**


**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.


> 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

:PCALCulate: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: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 Component Carrier 2.
### Setting System Parameters

**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>  
OFF|0  
ON|1  
Enabled (On) or Disabled (Off)  
Disabled  
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

---

**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>  
OFF|0  
ON|1  
Enabled (On) or Disabled (Off)  
Disabled  
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
Chapter 2  SCPI Device Message Details

:PCLCulate: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:PDSCh: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: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 Component Carrier 2 to 1.
CALC:CAGG:CC2:SLOT1:PDSC:RBL:STAR 1
Chapter 2  SCPI Device Message Details

: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

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2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STA Rrt?
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.
> 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: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 the RBs that are allocated to PDSCH to 1 in slot 1 of Component Carrier 2.

CALC:CAGG:CC2:SLOT1:PDSC:RBL:LENG 1
### 2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

**: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
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:LEN
Gth?
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:LEN
Gth?

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:PDSCh: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
Chapter 2  SCPI Device Message Details

: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:AUTO?

Response
<switch>

Parameter
<switch>  

<table>
<thead>
<tr>
<th></th>
<th>Enabled, Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled (Default)</td>
</tr>
</tbody>
</table>

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: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 for Component Carrier 2 is enabled.

CALC:CAGG:CC2:TMOD:TDDC:SYNC:SLOT 0
Chapter 2  SCPI Device Message Details

: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.


> 0
2.4.39 Number of DL Symbols in Special Slots


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

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.


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

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.
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.


> 6
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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.

: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: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 Component Carrier 2 to Special.
Chapter 2  SCPI Device Message Details

**: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>*

- 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:SLOT:TYPE <mode>**

**Parameter**

*<mode>*

- 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.

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.

**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.

```
> 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>

- 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>

- 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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Phase Tracking Enabled (On) or Disabled (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

Example of Use
To query whether Phase Tracking is Enabled (On) or Disabled (Off).
CALC:CAGG:TRACK:PHAS?
> 1
2.4.44 Timing Tracking

\texttt{: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

\texttt{:CALCulate:CAGG:TRACK:TIMing[:STATe] <switch>}

Parameter

<\texttt{switch}> Timing Tracking Enabled (On) or Disabled (Off)
\hspace{2em} 0|OFF  Disabled (Default)
\hspace{2em} 1|ON  Enabled

Example of Use

To set the Timing Tracking to Enabled.
\texttt{CALC:CAGG:TRACK:TIM ON}

\texttt{:CALCulate:CAGG:TRACK:TIMing[:STATe]?

Timing Tracking Query

Function

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

Query

\texttt{:CALCulate:CAGG:TRACK:TIMing[:STATe] ?}

Response

<\texttt{switch}>

<\texttt{switch}> Timing Tracking Enabled (On) or Disabled (Off)
\hspace{2em} 0  Disabled
\hspace{2em} 1  Enabled

Example of Use

To query whether Timing Tracking is Enabled (On) or Disabled (Off).
\texttt{CALC:CAGG:TRACK:TIM?}
\texttt{> 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

:EVALuate: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


Parameter

<switch>

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

Example of Use

To enable (On) the DC Cancellation.
CALC:CAGG:DC:CANCE 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>

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

Example of Use

To query the setting of DC Cancellation.
CALC:CAGG:DC:CANCE?
> 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>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcarrier Spacing</td>
<td>[:SENSe]:RADio:SUBCarrier:SPACing 15</td>
</tr>
<tr>
<td>Number of RBs</td>
<td>[:SENSe]:RADio:RBLock:NUMBer &lt;mode&gt;</td>
</tr>
<tr>
<td>Cell ID</td>
<td>:CALCulate:EVM:CELLid &lt;integer&gt;</td>
</tr>
<tr>
<td>Phase Compensation</td>
<td>[:SENSe]:RADio:PCOMpensation[:STATe] 0</td>
</tr>
<tr>
<td>PUSCH Modulation Scheme</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
</tbody>
</table>
Table 2.5-1  Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUSCH Mapping Type</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:MAPPing:TYPE A</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:SYMBol:START &lt;integer&gt;</td>
</tr>
<tr>
<td>PUSCH Number of Symbols</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:SYMBol:LENGTH &lt;integer&gt;</td>
</tr>
<tr>
<td>PUSCH Power Boosting (Auto/Manual)</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:POWer:AUTO OFF</td>
</tr>
<tr>
<td>PUSCH Power Boosting</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:POWer:BOOSting &lt;rel_power&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:MAPPing:DMRS:APOSition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:DMRS:APOSition &lt;integer&gt;</td>
</tr>
<tr>
<td>PUSCH DM-RS CDM Group Without Data</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:DMRS:CDM 1</td>
</tr>
<tr>
<td>PUSCH PTRS</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:PTRS[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:PTRS:DENSity:TIME 1</td>
</tr>
</tbody>
</table>
### Table 2.5-1  Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUSCH PTRS RE Offset</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:PTRS:OFFSet .00</td>
</tr>
<tr>
<td>PUSCH RBs Allocation Auto Detect</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:RBLock:AUTO 0</td>
</tr>
<tr>
<td>PUSCH RBs Allocation Start RB</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:RBLock:START &lt;integer&gt;</td>
</tr>
<tr>
<td>PUSCH RBs Allocation Number of RBs</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PUSch:RBLock:LENGth &lt;integer&gt;</td>
</tr>
<tr>
<td>Equalizer Use Data</td>
<td>[:SENSe]:EVM:RADio:EQUalizer:DATA 0</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:RADio:EQUalizer:DATA?</td>
</tr>
<tr>
<td>Amplitude Tracking</td>
<td>:CALCulate:EVM:TRACK:AMPLitude[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:AMPLitude[:STATe]?</td>
</tr>
<tr>
<td>Phase Tracking</td>
<td>:CALCulate:EVM:TRACK:PHASE[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:PHASE[:STATe]?</td>
</tr>
<tr>
<td>Timing Tracking</td>
<td>:CALCulate:EVM:TRACK:TIMing[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:TIMing[:STATe]?</td>
</tr>
<tr>
<td>Multicarrier Filter</td>
<td>:CALCulate:EVM:MCARrier:FILTER[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MCARrier:FILTER[:STATe]?</td>
</tr>
<tr>
<td>EVM Window</td>
<td>:CALCulate:EVM:EWINdow[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:EWINdow[:STATe]?</td>
</tr>
<tr>
<td>DC Cancellation</td>
<td>:CALCulate:EVM:DC:CANCEL[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:DC:CANCEL[:STATe]?</td>
</tr>
</tbody>
</table>
### 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 kHz
    - 30 kHz (Default)
    - 60 kHz
  - Standard: NR TDD mmWave Uplink
    - 60 kHz
    - 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 kHz
    - 30 kHz
    - 60 kHz
  - Standard: NR TDD mmWave Uplink
    - 60 kHz
    - 120 kHz

**Example of Use**

To query the setting of subcarrier spacing.
```
RAD:SUBC:SPAC?
```
```
> 30
```
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>51</td>
<td>51</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>52</td>
<td>52</td>
<td>216</td>
<td>216</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>217</td>
<td>217</td>
</tr>
<tr>
<td>66</td>
<td>66</td>
<td>245</td>
<td>245</td>
</tr>
<tr>
<td>78</td>
<td>78</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>79</td>
<td>79</td>
<td>270</td>
<td>270</td>
</tr>
<tr>
<td>93</td>
<td>93</td>
<td>273</td>
<td>273</td>
</tr>
<tr>
<td>106</td>
<td>106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Details

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

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Resource Blocks That Can be Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>25, 52, 79, 106, 133, 160<em>1, 216</em>1, 270*1 (Default)</td>
</tr>
<tr>
<td>30 kHz</td>
<td>11, 24, 38, 51, 65, 78<em>1, 106</em>1, 133<em>1, 162</em>2, 189<em>2, 217</em>2, 245<em>2, 273</em>2 (Default)</td>
</tr>
<tr>
<td>60 kHz MX285051A-061/MX269051A-061</td>
<td>11, 18, 24, 31, 38<em>1, 51</em>1, 65<em>1, 79</em>2, 93<em>2, 107</em>2, 121<em>2, 135</em>2 (Default)</td>
</tr>
<tr>
<td>60 kHz MX285051A-071</td>
<td>66, 132, 264 (Default)</td>
</tr>
<tr>
<td>120 kHz</td>
<td>32, 66, 132 (Default), 264*3</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
<th>&lt;mode&gt;</th>
<th>Number of resource blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>11</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>31</td>
<td>31</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>51</td>
<td>51</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>52</td>
<td>52</td>
<td>216</td>
<td>216</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>217</td>
<td>217</td>
</tr>
<tr>
<td>66</td>
<td>66</td>
<td>245</td>
<td>245</td>
</tr>
<tr>
<td>78</td>
<td>78</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>79</td>
<td>79</td>
<td>270</td>
<td>270</td>
</tr>
<tr>
<td>93</td>
<td>93</td>
<td>273</td>
<td>273</td>
</tr>
<tr>
<td>106</td>
<td>106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Use

To query the number of resource blocks for the measurement target signal.
RAD:RBL:NUMB?
> 273
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / 
MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;integer&gt;</td>
<td>Cell ID</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 1007</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;integer&gt;</td>
<td>Cell ID</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 1007</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

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 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

2.5.5 PUSCH Multiplexing Scheme

:PICALCulate:EVM:PUSCh:MULTiplexing CP|DFT

PUSCH Multiplexing Scheme

Function
This command sets Multiplexing Scheme of PUSCH.

Command
:PICALCulate:EVM:PUSCh:MULTiplexing <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Multiplexing Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP</td>
<td>CP-OFDM (Default)</td>
</tr>
<tr>
<td>DFT</td>
<td>DFT-s-OFDM</td>
</tr>
</tbody>
</table>

Example of Use
To set Multiplexing Scheme of PUSCH to CP-OFDM.

CALC:EVM:PUSC:MULT CP

:PICALCulate:EVM:PUSCh:MULTiplexing?

PUSCH Multiplexing Scheme Query

Function
This command queries Multiplexing Scheme of PUSCH.

Query
:PICALCulate:EVM:PUSCh:MULTiplexing?

Response

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Multiplexing Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP</td>
<td>CP-OFDM</td>
</tr>
<tr>
<td>DFT</td>
<td>DFT-s-OFDM</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To set PUSCH/DM-RS in Slot 1 to Included.
CALC:EVM:SLOT1:PUSC ON
2.5 Setting System Parameters

MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink /
MX285051A-071 NR TDD mmWave Uplink Modulation Analysis

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PUSC?

> 1
Chapter 2  SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PUSC:APOR 1001
Chapter 2  SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the setting of PUSCH/DM-RS antenna port in Slot 1.
CALC:EVM:SLOT1:PUSC:APOR?
> 1001
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PUSCH/DM-RS antenna port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>1000 (Default)</td>
</tr>
<tr>
<td>1001</td>
<td>1001</td>
</tr>
<tr>
<td>1002</td>
<td>1002</td>
</tr>
<tr>
<td>1003</td>
<td>1003</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PUSC:MOD 256Q
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PUSCH modulation scheme in Slot 1.
CALC:EVM:SLOT1:PUSC:MOD?
> 256Q
### Chapter 2  SCPI Device Message Details

**: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Modulation scheme to analyze PUSCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI2Bpsk</td>
<td>PI/2-BPSK</td>
</tr>
<tr>
<td>QPSK</td>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
<td>16QAM</td>
</tr>
<tr>
<td>64Qam</td>
<td>64QAM</td>
</tr>
<tr>
<td>256Qam</td>
<td>256QAM</td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic judgment of input signal modulation scheme (Default)</td>
</tr>
</tbody>
</table>

#### 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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can Be Specified</th>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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.

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</tr>
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<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PUSCH Mapping Type in Slot 1.
CALC:EVM:SLOT1:PUSC:MAFP:TYPE?
> A
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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.

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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PUSC:SYMB:STAR 1
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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.

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</tr>
</tbody>
</table>

Example of Use

To query the PUSCH start symbol in Slot 1.

CALC:EVM:SLOT1:PUSC:SYMB:STAR?

> 1
Chapter 2  SCPI Device Message Details

: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.

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</tr>
<tr>
<td>120 kHz</td>
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</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PUSC:SYMB:LENG 3
Chapter 2  SCPI Device Message Details

: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.

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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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>  
OFF|0       Auto (On), Manual (Off)
ON|1        Manual

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.

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<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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.

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<th>Subcarrier Spacing</th>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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.

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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

CALC:EVM:SLOT1:PUSC:POW:BOOS 3.00DB
Chapter 2  SCPI Device Message Details

: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.

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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To query the PUSCH boosting level in Slot 1.
CALC:EVM:SLOT1:PUSC:POW:BOOS?
> 3.00
Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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:EVMe: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.

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</tr>
</tbody>
</table>

**Example of Use**

To set the PUSCH DM-RS typeA-pos in Slot 1 to 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:APOSition?`

**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.

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**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.

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Example of Use

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

CALC:EVM:SLOT1:PUSC:DMRS:APOS 3
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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.

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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PUSCH DM-RS CDM Group Without Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1, 2</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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?

#### 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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<td>30 kHz</td>
<td>0 to 19</td>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

#### 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

#### 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

**Command**

:CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:PTRS[:STATE] OFF|ON|0|1

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
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<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

CALC:EVM:SLOT1:PUSC:PTRS?

> 1
Chapter 2  SCPI Device Message Details

:PULICulate:EVM:PUSCh:PTRS[:STATe] OFF|ON|0|1
PUSCH PT-RS

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

Command
:PULICulate: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

**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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

```
```
Chapter 2  SCPI Device Message Details


PUSCH PTRS Time Density Query

Function

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

Query


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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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


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 Setting System Parameters

2.5.21 PUSCH PTRS Freq. Density

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

Command

```
```

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

To set the PUSCH PTRS Freq. Density in Slot 1 to 2.
```
```
Chapter 2  SCPI Device Message Details

PUSCH PTRS Freq. Density Query

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

Query

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PUSC:PTRS:OFFS 01
Chapter 2  SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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

**Command**

:CALCulate:EVM:SLOT[0]|1|...|79:PUSCh:RBLock:AUTO 0|1|ON|OFF

**Function**

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

**Parameter**

- `<switch>`
  - `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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

**Example of Use**

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

CALC:EVM:SLOT1:PUSC:RB:LOCK:AUTO OFF
Chapter 2  SCPI Device Message Details

: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)

<table>
<thead>
<tr>
<th>OFF</th>
<th>0</th>
<th>Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
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<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
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<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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<tbody>
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</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Range</th>
<th>0 to Number Of RBs – 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

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 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

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
Chapter 2  SCPI Device Message Details

: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.

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 kHz</td>
<td>0 to 9</td>
</tr>
<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
<tr>
<td>60 kHz</td>
<td>0 to 39</td>
</tr>
<tr>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use
To query the number of RBs that are allocated to PUSCH in slot 1.

CALC:EVM:SLOT1:PUSC:RBL:LENG?
> 1
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

: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>  
0|OFF  
1|ON

Data subcarriers are included (On), not included (Off)
Not included (Default)
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>  
0
1

Data subcarriers are included (On), not included (Off)
Not included
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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Phase Tracking Enabled (On) or Disabled (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
</tr>
</thead>
</table>

| 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 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

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>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erase Warm Up Message</td>
<td>:DISPlay:ANNotation:WUP:ERASe</td>
</tr>
<tr>
<td>Display Title</td>
<td>:DISPlay:ANNotation:TITLe[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:ANNotation:TITLe[:STATe]?</td>
</tr>
<tr>
<td>Title Entry</td>
<td>:DISPlay:ANNotation:TITLe:DATA &lt;string&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:ANNotation:TITLe:DATA?</td>
</tr>
</tbody>
</table>
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:ERAS

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>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Measurement</td>
<td>:INITiate:CONTinuous OFF</td>
</tr>
<tr>
<td></td>
<td>:INITiate:CONTinuous?</td>
</tr>
<tr>
<td></td>
<td>:INITiate:MODE:CONTinuous</td>
</tr>
<tr>
<td>Single Measurement</td>
<td>:INITiate:MODE:SINGLE</td>
</tr>
<tr>
<td>Initiate</td>
<td>:INITiate[:IMMediate]</td>
</tr>
<tr>
<td>Calculate</td>
<td>:INITiate:CALCulate</td>
</tr>
<tr>
<td>Save Captured Data</td>
<td>:MMEMory:STORe:IQData &lt;filename&gt;,&lt;device&gt;</td>
</tr>
<tr>
<td>Cancel Execute</td>
<td>:MMEMory:STORe:IQData:CANCe</td>
</tr>
<tr>
<td>Output Rate for Data</td>
<td>:MMEMory:STORe:IQData:RATE?</td>
</tr>
<tr>
<td>Save Captured Data</td>
<td>:TRIGger[:SEQUence][:STaTe] ON</td>
</tr>
<tr>
<td>Trigger Switch</td>
<td>:TRIGger[:SEQUence][:STaTe]?</td>
</tr>
<tr>
<td>Trigger Source</td>
<td>:TRIGger[:SEQUence]:SOURce EX</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence]:SOURce?</td>
</tr>
<tr>
<td>Trigger Slope</td>
<td>:TRIGger[:SEQUence]:SLOPe POSitive</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence]:SLOPe?</td>
</tr>
<tr>
<td>Trigger Delay</td>
<td>:TRIGger[:SEQUence]:DELa</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence]:DE</td>
</tr>
<tr>
<td>Video Trigger</td>
<td>:TRIGger[:SEQUence]:VIDeo:LEVe</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence]:VIDeo:LEVe[:LOGarithmic]?</td>
</tr>
<tr>
<td>Wide IF Trigger Level</td>
<td>:TRIGger[:SEQUence]:WIF</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence]:WIF</td>
</tr>
</tbody>
</table>

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
2.7 Common Measurement Function

: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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;freq&gt;</td>
<td>Output rate</td>
</tr>
<tr>
<td>Range</td>
<td>50 to 1300 MHz</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None. Value is returned in Hz units.</td>
</tr>
</tbody>
</table>

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|RF Burst|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|RF Burst 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)
IMM Free run
WIF|RFBurst Wideband IF detection (Wide IF Video)
VIDeo Video detection (Video)
FRAME Frame period trigger (Only MS2850A)

(Only when MS269xA-020 is installed)

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**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Trigger detection mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSitive</td>
<td>Triggers are detected at the rising edge. (Default).</td>
</tr>
<tr>
<td>NEGative</td>
<td>Triggers are detected at the falling edge.</td>
</tr>
</tbody>
</table>

**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>

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Trigger detection mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>POS</td>
<td>Triggers are detected at the rising edge.</td>
</tr>
<tr>
<td>NEG</td>
<td>Triggers are detected at the falling edge.</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the trigger detection mode.

```
TRIG:SLOP?
> POS
```
2.7 Common Measurement Function

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>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure</td>
<td>:CONFigure:EVM</td>
</tr>
<tr>
<td>Initiate</td>
<td>:INITiate:EVM</td>
</tr>
<tr>
<td>Fetch</td>
<td>:FETCH:EVM[n]?</td>
</tr>
<tr>
<td>Read/Measure</td>
<td>:READ:EVM[n]?</td>
</tr>
<tr>
<td></td>
<td>:MEASure:EVM[n]?</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>(n)</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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) [s]  
14. Time Offset (Maximum) [s]  
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) [s]  
20. IQ Skew (Maximum) [s]  
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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>36. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37. PDSCH 256QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>38. PDSCH 256QAM EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39. PDSCH 256QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40. PDSCH 256QAM EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41. PDSCH 256QAM EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42. PDSCH 256QAM EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>43. PDCCH EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44. PDCCH EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45. PDCCH EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46. PDCCH EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47. PDCCH EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>48. PDCCH EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>49. PDCCH EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50. DM-RS(PDSCH) EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51. DM-RS(PDSCH) EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>52. DM-RS(PDSCH) EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53. DM-RS(PDSCH) EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>54. DM-RS(PDSCH) EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55. DM-RS(PDSCH) EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>56. DM-RS(PDSCH) EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>57. DM-RS(PDCCH) EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>58. DM-RS(PDCCH) EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>59. DM-RS(PDCCH) EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60. DM-RS(PDCCH) EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61. DM-RS(PDCCH) EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62. DM-RS(PDCCH) EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63. DM-RS(PDCCH) EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>64. DM-RS(PBCH) EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65. DM-RS(PBCH) EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>66. DM-RS(PBCH) EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67. DM-RS(PBCH) EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68. DM-RS(PBCH) EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>69. DM-RS(PBCH) EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70. DM-RS(PBCH) EVM peak Subcarrier Number</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>71. P-SS EVM result valid (1 = valid / 0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>72. P-SS EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>73. P-SS EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>74. P-SS EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75. P-SS EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76. P-SS EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77. P-SS EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>78. S-SS EVM result valid (1 = valid / 0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79. S-SS EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80. S-SS EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>81. S-SS EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>82. S-SS EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83. S-SS EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>84. S-SS EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85. PBCH EVM result valid (1 = valid / 0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>86. PBCH EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87. PBCH EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>88. PBCH EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>89. PBCH EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>90. PBCH EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91. PBCH EVM peak Subcarrier Number</td>
</tr>
</tbody>
</table>

**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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 3 | A/B         | Responses are returned with comma-separated value formats in the following order:  
1. to 2 x N Constellation  
2. I-phase data of the 0th subcarrier  
3. I-phase data of the 1st subcarrier  
4. Q-phase data of the 1st subcarrier  
...  
2 x N-1. I-phase data of the (N-1)th subcarrier  
2 x 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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 7  | A/B         | Responses are returned with comma-separated value formats in the following order:  
|    |             | 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. 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. 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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></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</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</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.
### 2.8 Modulation Measurement Function

**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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
|    |             | 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** |
|    |             | 15 kHz | 9 |
|    |             | 30 kHz | 19 |
|    |             | 60 kHz | 39 |
|    |             | 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.

| n  | Result Mode | 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] |
|----|-------------|--------------------------------------------------|------------------|
| 22 |             | 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] |
### Table 2.8-3  Responses to MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink /MX285051A-071 NR TDD mmWave Uplink Modulation Measurement Results

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or omitted</td>
<td>A/B</td>
<td>Responses are returned with comma-separated value formats in the following order:&lt;br&gt;1. Frequency Error (Average) [Hz]&lt;br&gt;2. Frequency Error (Maximum) [Hz]&lt;br&gt;3. Transmit Power (Average) [dBm]&lt;br&gt;4. Transmit Power (Maximum) [dBm]&lt;br&gt;5. EVM rms (Average)&lt;br&gt;6. EVM rms (Maximum)&lt;br&gt;7. EVM peak (Average)&lt;br&gt;8. EVM peak (Maximum)&lt;br&gt;9. EVM peak Symbol Number&lt;br&gt;10. EVM peak Subcarrier Number&lt;br&gt;11. Origin Offset (Average) [dB]&lt;br&gt;12. Origin Offset (Maximum) [dB]&lt;br&gt;13. Time Offset (Average) [s]&lt;br&gt;14. Time Offset (Maximum) [s]&lt;br&gt;15. Frequency Error PPM (Average) [ppm]&lt;br&gt;16. Frequency Error PPM (Maximum) [ppm]&lt;br&gt;17. Symbol Clock Error (Average) [ppm]&lt;br&gt;18. Symbol Clock Error (Maximum) [ppm]&lt;br&gt;19. IQ Skew (Average) [s]&lt;br&gt;20. IQ Skew (Maximum) [s]&lt;br&gt;21. IQ Imbalance (Average) [dB]&lt;br&gt;22. IQ Imbalance (Maximum) [dB]&lt;br&gt;23. IQ Quadrature Error (Average) [degree]&lt;br&gt;24. IQ Quadrature Error (Maximum) [degree]&lt;br&gt;25. OFDM Symbol Tx Power (Average) [dBm]&lt;br&gt;26. OFDM Symbol Tx Power (Maximum) [dBm]</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>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</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>43. DM-RS(PUSCH) EVM result valid (1 = Valid/0 = Invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44. DM-RS(PUSCH) EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45. DM-RS(PUSCH) EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46. DM-RS(PUSCH) EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47. DM-RS(PUSCH) EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>48. DM-RS(PUSCH) EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>49. DM-RS(PUSCH) EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50. PUSCH PI/2 BPSK EVM result valid (1 = Valid/0 = Invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51. PUSCH PI/2 BPSK EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>52. PUSCH PI/2 BPSK EVM rms (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53. PUSCH PI/2 BPSK EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>54. PUSCH PI/2 BPSK EVM peak (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55. PUSCH PI/2 BPSK EVM peak Symbol Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>56. PUSCH PI/2 BPSK EVM peak Subcarrier Number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Responses are returned with comma-separated value formats in the following order:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 2 × N Constellation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. I-phase data of the 0th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Q-phase data of the 0th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. I-phase data of the 1st subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Q-phase data of the 1st subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 × N–1. I-phase data of the (N–1)th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 × N. Q-phase data of the (N–1)th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The constellation data for the symbol set by Symbol Number is returned.</td>
</tr>
<tr>
<td>3</td>
<td>A/B</td>
<td>Responses are returned with comma-separated value formats in the following order:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to N EVM vs Subcarrier (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. EVM (rms) of the 0th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. EVM (rms) of the 1st subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. EVM (rms) of the (N–1)th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> Executable even when EVM vs Subcarrier is not selected for Graph window.</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 5  | A/B         | Responses are returned with comma-separated value formats in the following order:  
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. 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. 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. 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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 10 | A/B         | Responses are returned with comma-separated value formats in the following order:  
1. to N Spectral flatness phase  
2. Spectral flatness phase of the 0th 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

| 13 | A/B         | 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  
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.  |
## 2.8 Modulation Measurement Function

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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 14 | A/B         | 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** |
|    | 15 kHz      | 9        |
|    | 30 kHz      | 19       |
|    | 60 kHz      | 39       |
|    | 120 kHz     | 79       |

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  

**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.

| 22 | A/B | 1. PUSCH Power (Average) [dBm]  
|    |     | 2. DM-RS(PUSCH) Power (Average) [dBm] |

48 | A/B | Responses are returned with comma-separated value formats in the following order:  
|    |     | 1 to 4 × N Frequency 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] |
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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Mode</td>
<td>[:SENSe]:EVM:AVERage[:STATE] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:AVERage[:STATE]?</td>
</tr>
<tr>
<td>Storage Count</td>
<td>[:SENSe]:EVM:AVERage:COUNT &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:AVERage:COUNT?</td>
</tr>
<tr>
<td>Scale · EVM Unit</td>
<td>:DISPLAY:EVM[:VIEW]:WINDow2</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:EVM[:VIEW]:WINDow2</td>
</tr>
<tr>
<td>Scale · EVM</td>
<td>:DISPLAY:EVM[:VIEW]:WINDow2</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:EVM[:VIEW]:WINDow2</td>
</tr>
<tr>
<td>Scale · Flatness</td>
<td>:DISPLAY:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel &lt;scale&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel?</td>
</tr>
<tr>
<td>Trace Mode</td>
<td>:DISPLAY:EVM[:VIEW]:SEl ect EVSubcarrier</td>
</tr>
<tr>
<td></td>
<td>:DISPLAY:EVM[:VIEW]:SEl ect?</td>
</tr>
<tr>
<td>Flatness Type</td>
<td>:CALCulate:EVM:WINDow4:TYPE AMPLitude</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow4:TYPE?</td>
</tr>
<tr>
<td>Graph View Setting</td>
<td>:CALCulate:EVM:WINDow2:MODE EACH</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow2:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow2:GVie w RMS</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow2:GVie w?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow3:MODE EACH</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow3:MODE?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow3:GVie w RMS</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow3:GVie w?</td>
</tr>
<tr>
<td>Marker · Symbol Number</td>
<td>:CALCulate:EVM:WINDow1</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow1</td>
</tr>
<tr>
<td>Marker · Subcarrier Number</td>
<td>:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer?</td>
</tr>
<tr>
<td>Slot Number</td>
<td>:CALCulate:EVM:WINDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow5</td>
</tr>
<tr>
<td>Resource Block Number</td>
<td>:CALCulate:EVM:WINDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow5</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker Position Number</td>
<td>:CALCulate:EVM:MARKer:SUBCarrier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:SUBCarrier?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:SYMbol &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:SYMbol?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:RElement &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:RElement?</td>
</tr>
<tr>
<td>Marker Value</td>
<td>:CALCulate:EVM:MARKer:X?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:Y[:RMS]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:Y[:PEAK]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:EVM[:RMS]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:EVM:PEAK?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:MARKer:POWer:ABSolute?</td>
</tr>
<tr>
<td>Peak Search</td>
<td>:CALCulate:MARKer:MAXimum</td>
</tr>
<tr>
<td>Next Peak Search</td>
<td>:CALCulate:MARKer:MAXimum:NEXT</td>
</tr>
<tr>
<td>Dip Search</td>
<td>:CALCulate:MARKer:MINimum</td>
</tr>
<tr>
<td>Next Dip Search</td>
<td>:CALCulate:MARKer:MINimum:NEXT</td>
</tr>
</tbody>
</table>
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
Chapter 2   SCPI Device Message Details

: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>  
OFF|0  Storage Mode  
ON|1  Off (Default)  
AMAXimum|2  Average  

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>  
0  Storage Mode  
1  Off  
2  Average  

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

The command sets the unit for EVM of measurement results.

**Command**

:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing <mode>

**Parameter**

- **<mode>**
  - LINear: % scale
  - LOGarithmic: dB scale
  - PERC: % 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?

This command queries the scale unit for EVM.

**Query**

:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing?

**Response**

```
<mode>
```

**Parameter**

- **<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

:\text{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

:\text{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%.

\text{DISP:EVM:WIND2:TRAC:Y:RLEV 10}
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]:WINDow|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

**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
  - 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
```

### 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?
```

**Parameter**

- `<scale>`
  - Range of vertical axis scale when Flatness Type = Amplitude
    - Range: 1, 3, 10
  - 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

:SALCulate:EVM:WINDow4:TYPE?

Spectral Flatness Type Query

Function

This command queries the display type of the spectral flatness graph.

Query

:SALCulate: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>

Averaging of EVM vs Subcarrier

EACH

Unaveraged EVM vs Subcarrier is displayed.

AVERAGE

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
2.8 Modulation Measurement Function

: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.
   RPEak 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
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: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.
RPEak
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


Function
This command sets the symbol number to be displayed in a constellation of graph.

Command

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


Marker - Symbol Number Query

Function
This command queries the symbol number displayed in a constellation of graph.

Query

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>

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?

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:NUM 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
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**: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**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Symbol number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1119</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

**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>

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Symbol number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0 to 1119</td>
</tr>
<tr>
<td>Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

**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
2.8 Modulation Measurement Function

: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
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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 marker 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

<table>
<thead>
<tr>
<th>When EVM Unit is set to %:</th>
<th>Unit: %</th>
</tr>
</thead>
<tbody>
<tr>
<td>When EVM Unit is set to dB:</td>
<td>Unit: dB</td>
</tr>
</tbody>
</table>

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
2.8 Modulation Measurement Function

: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 Modulation Measurement Function

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?
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: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**

**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>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure</td>
<td>:CONFigure:CAGG</td>
</tr>
<tr>
<td>Initiate</td>
<td>:INITiate:CAGG</td>
</tr>
<tr>
<td>Fetch</td>
<td>:FETCh:CAGG[n]?</td>
</tr>
<tr>
<td>Read/Measure</td>
<td>:READ:CAGG[n]?</td>
</tr>
<tr>
<td></td>
<td>:MEASure:CAGG[n]?</td>
</tr>
</tbody>
</table>
Table 2.9-2 lists 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

<table>
<thead>
<tr>
<th>(n)</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
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</tr>
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<td>A/B</td>
<td>Responses are returned with comma-separated value formats in the following order:</td>
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<td></td>
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<td>37. CC#6 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>38. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42. Time Difference [ns]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>43. CC#7 Measurement status</td>
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<tr>
<td></td>
<td></td>
<td>44. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>48. Time Difference [ns]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>49. Total Tx Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50. Tx Power Flatness [dB]</td>
</tr>
<tr>
<td>n</td>
<td>Result Mode</td>
<td>Response</td>
</tr>
<tr>
<td>----</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>2</td>
<td>A/B</td>
<td>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</td>
</tr>
</tbody>
</table>
### 2.9 Carrier Aggregation Measurement Function

Table 2.9-2  Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
|    | 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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>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</td>
</tr>
</tbody>
</table>
Table 2.9-2  Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>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</td>
</tr>
</tbody>
</table>
## 2.9 Carrier Aggregation Measurement Function

Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
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<th>n</th>
<th>Result Mode</th>
<th>Response</th>
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<tbody>
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<td>Responses are returned with comma-separated value formats in the following order:</td>
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<td>491. CC#5 Total EVM result valid (1 = valid/0 = invalid)</td>
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<tr>
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<td>492. Total EVM rms</td>
</tr>
<tr>
<td></td>
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<td>493. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>494. Total EVM peak (Average)</td>
</tr>
<tr>
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<td></td>
<td>495. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>496. Total EVM peak symbol position</td>
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<tr>
<td></td>
<td></td>
<td>497. Total EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>498. PDSCH ALL EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
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<td>499. PDSCH ALL EVM rms (Average)</td>
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<tr>
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<td>500. Reserved</td>
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<tr>
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<td>501. PDSCH ALL EVM peak (Average)</td>
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<td>502. Reserved</td>
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<td>503. PDSCH ALL EVM peak symbol position</td>
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<tr>
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<td>504. PDSCH ALL EVM peak subcarrier position</td>
</tr>
<tr>
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<td></td>
<td>505. PDSCH QPSK EVM result valid (1 = valid/0 = invalid)</td>
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<tr>
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<td>506. PDSCH QPSK EVM rms (Average)</td>
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<td></td>
<td>507. Reserved</td>
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<tr>
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<td>508. PDSCH QPSK EVM peak (Average)</td>
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<tr>
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<td>509. PDSCH QPSK EVM peak (max)</td>
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<td>511. PDSCH QPSK EVM peak subcarrier position</td>
</tr>
<tr>
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<td></td>
<td>512. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid)</td>
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<tr>
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<td></td>
<td>513. PDSCH 16QAM EVM rms (Average)</td>
</tr>
<tr>
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<td>514. Reserved</td>
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<td>515. PDSCH 16QAM EVM peak (Average)</td>
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<td>516. Reserved</td>
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<td>517. PDSCH 16QAM EVM peak symbol position</td>
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<td>518. PDSCH 16QAM EVM peak subcarrier position</td>
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<td>519. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid)</td>
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<td>520. PDSCH 64QAM EVM rms (Average)</td>
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<td>522. PDSCH 64QAM EVM peak (Average)</td>
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<td>524. PDSCH 64QAM EVM peak symbol position</td>
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<td>526. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)</td>
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<td>529. PDSCH 256QAM EVM peak (Average)</td>
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<td>531. PDSCH 256QAM EVM peak symbol position</td>
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<td>532. PDSCH 256QAM EVM peak subcarrier position</td>
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<td>533. to 588. Reserved</td>
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</tbody>
</table>
Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
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<tr>
<th>n</th>
<th>Result Mode</th>
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<td>A/B</td>
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<td>Responses are returned with comma-separated value formats in the following order:</td>
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<td>592. Total EVM peak (Average)</td>
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<td>602. PDSCH ALL EVM peak subcarrier position</td>
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<td>612. Reserved</td>
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<tr>
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<td>613. PDSCH 16QAM EVM peak (Average)</td>
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<td>614. Reserved</td>
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<td>615. PDSCH 16QAM EVM peak symbol position</td>
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<td>616. PDSCH 16QAM EVM peak subcarrier position</td>
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<td>618. PDSCH 64QAM EVM rms (Average)</td>
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<td>619. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>620. PDSCH 64QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>621. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>622. PDSCH 64QAM EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>623. PDSCH 64QAM EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>624. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>625. PDSCH 256QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>626. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>627. PDSCH 256QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>628. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>629. PDSCH 256QAM EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>630. PDSCH 256QAM EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>631. to 686. Reserved</td>
</tr>
</tbody>
</table>
### 2.9 Carrier Aggregation Measurement Function

#### Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A/B</td>
<td>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</td>
</tr>
</tbody>
</table>
Table 2.9-2  Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 11 | A/B         | 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  
|    |             |  
|    |             | **Subcarrier Spacing** | **Number of Slots** |
|    |             | 120 kHz | 79 |
|    |             | 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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 12  | A/B         | For CC#2 measurement results, responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block  

\[
x = \text{Number of RBs} \\
y = 0 \\
z = \text{Number of Slots}
\]

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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 \times 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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 13 | A/B         | 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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                                                                                                                      |
|    |             | 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</table>
### Table 2.9-2  Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 15 | A/B         | 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 16 | A/B          | 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 17 | A/B         | For CC#7 measurement results, responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block  
\( x = \text{Number of RBs} \)  
\( y = 0 \)  
\( z = \text{Number of Slots} \)  

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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 \( \times \) 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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<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:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to m (= x × y) Power vs Resource Block</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x = Number of RBs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The unit of the response is always dBm.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If Storage Mode is set to Average or Average&amp;Max, the result of the last measurement is returned.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The response of the carrier not to be measurement target is one –999.0.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</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
Table 2.9-2 Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<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:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to m (= x × y) Power vs Resource Block</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x = Number of RBs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subcarrier Spacing Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Power of resource block 0 in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Power of resource block 1 in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x. Power of resource block (x−1) in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x+1. Power of resource block 0 in slot y+1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 × x. Power of resource block (x−1) in slot y+1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>m. Power of resource block (x−1) in slot y+z</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 24 | A/B         | For CC#4 measurement results, responses are returned with comma-separated value formats in the following order: 
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>
<thead>
<tr>
<th>Subcarrier Spacing</th>
<th>Number of Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 kHz</td>
<td>79</td>
</tr>
</tbody>
</table>
Table 2.9-2  Responses to MX285051A-011/MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>A/B</td>
<td>For CC#5 measurement results, responses are returned with comma-separated value formats in the following order:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to m (= x × y) Power vs Resource Block</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x = Number of RBs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Subcarrier Spacing</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Power of resource block 0 in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Power of resource block 1 in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x. Power of resource block (x−1) in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x+1. Power of resource block 0 in slot y+1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 × x. Power of resource block (x−1) in slot y+1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>m. Power of resource block (x−1) in slot y+z</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<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:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to m ( = x × y) Power vs Resource Block</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x = Number of RBs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>y = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Subcarrier Spacing</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
</tbody>
</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.
## 2.9 Carrier Aggregation Measurement Function

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>A/B</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Subcarrier Spacing</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale - EVM Unit</td>
<td>:DISPlay:CAGG[:VIEW]:WINDow5</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:CAGG[:VIEW]:WINDow5</td>
</tr>
<tr>
<td>Scale - EVM</td>
<td>:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEvel &lt;scale&gt;</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEvel?</td>
</tr>
<tr>
<td>Trace Mode</td>
<td>:DISPlay:CAGG[:VIEW]:SELect PVRB</td>
</tr>
<tr>
<td>Carrier Number</td>
<td>:CALCulate:CAGG:WNDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:WNDow5</td>
</tr>
<tr>
<td>Slot Number</td>
<td>:CALCulate:CAGG:WNDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:WNDow5</td>
</tr>
<tr>
<td>ResourceBlock Number</td>
<td>:CALCulate:CAGG:WNDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:WNDow5</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker Position Number</td>
<td>:CALCulate:CAGG:MARKer:CARRier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MARKer:CARRier?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MARKer:SLOT &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MARKer:SLOT?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MARKer:RBLock &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MARKer:RBLock?</td>
</tr>
<tr>
<td>Marker Value</td>
<td>:CALCulate:CAGG:MARKer:EVM[:RMS]?</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MARKer:POWer:[ABSolute]?</td>
</tr>
<tr>
<td>Peak Search</td>
<td>:CALCulate:MARKer:MAXimum</td>
</tr>
<tr>
<td>Next Peak Search</td>
<td>:CALCulate:MARKer:MAXimum:NEXT</td>
</tr>
<tr>
<td>Dip Search</td>
<td>:CALCulate:MARKer:MINimum</td>
</tr>
<tr>
<td>Next Dip Search</td>
<td>:CALCulate:MARKer:MINimum:NEXT</td>
</tr>
</tbody>
</table>
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,…
Chapter 2  SCPI Device Message Details

: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> 
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> 
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>

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

<table>
<thead>
<tr>
<th>&lt;scale&gt;</th>
<th>Range of vertical axis scale when EVM Unit = %</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0 to 20%</td>
</tr>
<tr>
<td>10</td>
<td>0 to 10%</td>
</tr>
<tr>
<td>5</td>
<td>0 to 5% (Default)</td>
</tr>
<tr>
<td>2</td>
<td>0 to 2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt;scale&gt;</th>
<th>Range of vertical axis scale when EVM Unit = dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>–40</td>
<td>–80 to –40 dB (Default)</td>
</tr>
<tr>
<td>–20</td>
<td>–80 to –20 dB</td>
</tr>
<tr>
<td>0</td>
<td>–80 to 0 dB</td>
</tr>
</tbody>
</table>

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?

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]:SELeet PVRB|EVRB|SUMMary

Trace Mode

Function
This command sets the result type to be displayed on the graph window.

Command
:DISPlay:CAGG[:VIEW]:SELeet <mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Displayed result type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVRB</td>
<td>Displays Power vs Resource Block.</td>
</tr>
<tr>
<td>EVRB</td>
<td>Displays EVM vs Resource Block.</td>
</tr>
<tr>
<td>SUMM</td>
<td>Displays Summary. (Default)</td>
</tr>
</tbody>
</table>

Example of Use

To display the EVM vs Resource Block to the graph window.
DISP:CAGG:SEL EVRB

:DISPlay:CAGG[:VIEW]:SELeet?

Trace Mode Query

Function
This command queries the result type displayed on the graph window.

Command
:DISPlay:CAGG[:VIEW]:SELeet?

Response

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 Carrier Aggregation Measurement Function

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
2.9 Carrier Aggregation Measurement Function

: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
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: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
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[: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

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?
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: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 Power vs Time Measurement Function

This section describes the device messages related to Power vs Time measurement.

Table 2.10-1 lists the device messages used for execution and result query of Power vs Time measurement.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure</td>
<td>:CONFigure:PVTtime</td>
</tr>
<tr>
<td>Initiate</td>
<td>:INITiate:PVTtime</td>
</tr>
<tr>
<td>Fetch</td>
<td>:FETCh:PVTtime[n]?</td>
</tr>
<tr>
<td>Read/Measure</td>
<td>:READ:PVTtime[n]?</td>
</tr>
<tr>
<td></td>
<td>:MEASure:PVTtime[n]?</td>
</tr>
</tbody>
</table>
Table 2.10-2 list the responses to parameter \([n]\) of the device messages in Table 2.10-1

### Table 2.10-2 Responses to Power vs Time Measurement Results

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or omitted</td>
<td>A/B</td>
<td>Responses are returned with comma-separated value formats in the following order:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Summary · On Power ([\text{dBm}])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Summary · On Power ([\text{mW}])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Summary · Off Power ([\text{dBm}]) (Depends on Off Power Unit setting)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Summary · Off Power ([\text{mW}])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Summary · On/Off Ratio ([\text{dB}])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Summary · Judge (0: PASS, 1: FAIL, –1: Invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Summary · Block Size</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suffix code None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>–999.0 is returned when no measurement is made.</td>
</tr>
<tr>
<td>2</td>
<td>A/B</td>
<td>Returns the numerical results per block, separated by commas (,).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One block is composed of 10 numerical results.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Block#0 · State (0: Off Block, 1: On Block, –1: Invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Block#0 · Start Symbol Number ([\text{symbol}])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Block#0 · Number of Symbols ([\text{symbol}])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Block#0 · Power ([\text{dBm}]) (Resolution 0.01 dB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Block#0 · Ramp up time ([\mu\text{s}]) (Resolution 0.001 (\mu\text{s}))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Block#0 · Ramp down time ([\mu\text{s}]) (Resolution 0.001 (\mu\text{s}))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Block#0 · Judge (0: PASS, 1: FAIL, –1: Invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Block#0 · Reserved “–999.0”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Block#0 · Reserved “–999.0”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. Block#0 · Reserved “–999.0”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11. to 20: Block#1 (Same as 1 to 10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21. to 30: Block#2 (Same as 1 to 10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>791. to 800: Block#79 (Same as 1 to 10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>#: Indicates Block Index and is in the range of 0 to 79.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suffix code None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>–999.0 is returned when no measurement is made.</td>
</tr>
</tbody>
</table>

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 2.10-3 lists device messages for setting parameters for Power vs Time measurement.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
</table>
| Storage Mode              | [:SENSe]:PVTime:AVERage[:STATe] OFF|ON|0|1 [:SENSe]:PVTime:AVERage[:STATe]?
| Storage Count             | [:SENSe]:PVTime:AVERage:COUNt <integer> [:SENSe]:PVTime:AVERage:COUNt? |
| Filter Type               | [:SENSe]:PVTime:FILTer:TYPE <type> [:SENSe]:PVTime:FILTer:TYPE? |
| Filter Bandwidth          | [:SENSe]:PVTime:FILTer:BANDwidth[:RESolution] <bandwidth> [:SENSe]:PVTime:FILTer:BANDwidth[:RESolution]?
| Filter Roll-off Factor    | [:SENSe]:PVTime:FILTer:ROFF <real> [:SENSe]:PVTime:FILTer:ROFF? |
| Standard Settings         | INITiate:PVTime:FILTer:LSSettings                                             |
| Block Number              | [:SENSe]:PVTime:BLOCk:NUMBer <integer> [:SENSe]:PVTime:BLOCk:NUMBer?            |
| Frame Sync                | [:SENSe]:PVTime:FRAMe:SYNC OFF|ON|0|1 [:SENSe]:PVTime:FRAMe:SYNC? |
| Judge                     | [:SENSe]:PVTime:JUDGe OFF|ON|0|1 [:SENSe]:PVTime:JUDGe? |
Table 2.10-4 lists the device messages for setting the marker and reading out the value at the marker position for Power vs Time measurement.

### Table 2.10-4  Device Messages Related to Marker for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker - ON/OFF</td>
<td>:CALCulate:PVTime:MARKer[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:PVTime:MARKer[:STATe]?</td>
</tr>
<tr>
<td>Marker - Active Trace</td>
<td>:CALCulate:PVTime:MARKer:ACTive MAIN</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:PVTime:MARKer:ACTive?</td>
</tr>
<tr>
<td>Main Trace - Marker X Axis</td>
<td>:CALCulate:PVTime:WINDOW[1]:MARKer:X &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:PVTime:WINDOW[1]:MARKer:X?</td>
</tr>
<tr>
<td>Main Trace - Marker Y Axis</td>
<td>:CALCulate:PVTime:WINDOW[1]:MARKer:Y?</td>
</tr>
<tr>
<td>Sub Trace - Marker X Axis</td>
<td>:CALCulate:PVTime:WINDOW2:MARKer:X &lt;real&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:PVTime:WINDOW2:MARKer:X?</td>
</tr>
</tbody>
</table>
Table 2.10-5 lists device messages for Block setting for Power vs Time measurement.

### Table 2.10-5 Device Messages for Block Setting for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block Size Auto</td>
<td>[:SENSe]:PVTime:BLOCK:SIZE:AUTO OFF</td>
</tr>
<tr>
<td>Block Size</td>
<td>[:SENSe]:PVTime:BLOCK:SIZE &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:BLOCK:SIZE?</td>
</tr>
<tr>
<td>Block Setup Item - State</td>
<td>CALCulate:PVTime:BLOCK:ITEM[n][:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>CALCulate:PVTime:BLOCK:ITEM[n][:STATe]?</td>
</tr>
<tr>
<td>Block Setup Item - Start Symbol</td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:STARTt &lt;StartSym&gt;</td>
</tr>
<tr>
<td></td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:STARTt?</td>
</tr>
<tr>
<td>Block Setup Item - Number of Symbols</td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:LENGTH &lt;Symbols&gt;</td>
</tr>
<tr>
<td></td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:LENGTH?</td>
</tr>
<tr>
<td>Block Setup Item Leading Transient Period</td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:TPERiod:LEADING &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:TPERiod:LEADING?</td>
</tr>
<tr>
<td>Block Setup Item Lagging Transient Period</td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:TPERiod:LAGGing &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:TPERiod:LAGGing?</td>
</tr>
<tr>
<td>Block Setup Item Inter On Symbol of Transient Period</td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:TPERiod:INTer &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>CALCulate:PVTime:BLOCK:ITEM[n]:TPERiod:INTer?</td>
</tr>
<tr>
<td>Block Setup Preset</td>
<td>CALCulate:PVTime:BLOCK:PRESet &lt;mode&gt;</td>
</tr>
</tbody>
</table>
Table 2.10-6 lists device messages for Mask setting for Power vs Time measurement.

### Table 2.10-6  Device Messages for Mask Setting for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mask Setup - Ramp up</td>
<td>[:SENSe]:PVTime:MASK:TIME:RUP &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:MASK:TIME:RUP?</td>
</tr>
<tr>
<td>Mask Setup - Ramp down</td>
<td>[:SENSe]:PVTime:MASK:TIME:RDOWn &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:MASK:TIME:RDOWn?</td>
</tr>
<tr>
<td>Mask Setup - Off Power Detector</td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:DETector</td>
</tr>
<tr>
<td></td>
<td>MAXimum</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:DETector?</td>
</tr>
<tr>
<td>Mask Setup - Off Power Unit</td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:UNIT DBM</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:UNIT?</td>
</tr>
<tr>
<td>Mask Setup - Off Power limit</td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute &lt;level&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute?</td>
</tr>
<tr>
<td>Mask Setup - Off Power limit (dBm/MHz)</td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute:MHZ &lt;level&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute:MHZ?</td>
</tr>
</tbody>
</table>

Table 2.10-7 lists device messages for Smoothing setting for Power vs Time measurement.

### Table 2.10-7  Device Messages for Smoothing Setting for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoothing</td>
<td>[:SENSe]:PVTime:SMooothing[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:SMooothing[:STATe]?</td>
</tr>
<tr>
<td>Smoothing Length</td>
<td>[:SENSe]:PVTime:SMothing:LENGth &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:SMothing:LENGth?</td>
</tr>
</tbody>
</table>
Table 2.10-8 lists device messages for Wide Dynamic Range setting for Power vs Time measurement.

Table 2.10-8 Device Messages for Wide Dynamic Range Setting for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide Dynamic Range</td>
<td>[:SENSe]:PVTime:WDRange[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:WDRange[:STATe]?</td>
</tr>
<tr>
<td>Noise Correction</td>
<td>[:SENSe]:PVTime:WDRange:CORRection:NOISe OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:WDRange:CORRection:NOISe?</td>
</tr>
<tr>
<td>Pre-Amp Mode</td>
<td>[:SENSe]:PVTime:WDRange:GAIN[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:WDRange:GAIN[:STATe]?</td>
</tr>
</tbody>
</table>

2.10 Power vs Time Measurement Function
Table 2.10-9 lists device messages for Limiter Mode setting for Power vs Time measurement.

Table 2.10-9  Device Messages for Limiter Mode Setting for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limiter Mode</td>
<td>[:SENSe]:PVTime:LMODE[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:LMODE[:STATe]?</td>
</tr>
<tr>
<td>Off Power Pre-Amp</td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:GAIN[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:GAIN[:STATe]?</td>
</tr>
<tr>
<td>Off Power Attenuator</td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:ATTenuation &lt;rel_ampl&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:ATTenuation?</td>
</tr>
<tr>
<td>Off Power Offset</td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:OFFSet:STATe OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:OFFSet:STATe?</td>
</tr>
<tr>
<td>Off Power Offset Value</td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:OFFSet &lt;rel_power&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:LMODE:OFFPower:OFFSet?</td>
</tr>
<tr>
<td>Calculate Noise, Off Power, On Power</td>
<td>:INITiate:PVTm:LMODE:CONTinue NCORrection</td>
</tr>
<tr>
<td>Keep Results</td>
<td>[:SENSe]:PVTime:LMODE:RESult:KEEP OFF</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:PVTime:LMODE:RESult:KEEP?</td>
</tr>
<tr>
<td>Limiter Mode Status</td>
<td>:INITiate:PVTm:LMODE:STATe?</td>
</tr>
</tbody>
</table>

Table 2.10-10  Responses to Limiter Mode Status for Power vs Time Measurement

<table>
<thead>
<tr>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/B</td>
<td>Responses are returned with comma-separated value formats in the following order:</td>
</tr>
<tr>
<td></td>
<td>1. Measurement status (Noise measurement)</td>
</tr>
<tr>
<td></td>
<td>2. Measurement status (Off Power measurement)</td>
</tr>
<tr>
<td></td>
<td>3. Measurement status (On Power measurement)</td>
</tr>
<tr>
<td></td>
<td>Response to 1. to 3.</td>
</tr>
<tr>
<td></td>
<td>0: No results, Measurement is not performed.</td>
</tr>
<tr>
<td></td>
<td>1: Completed, Measurement is completed.</td>
</tr>
<tr>
<td></td>
<td>–1: In any of the following</td>
</tr>
<tr>
<td></td>
<td>• Measurement error occurred.</td>
</tr>
<tr>
<td></td>
<td>• Analysis Mode is other than Power vs Time.</td>
</tr>
</tbody>
</table>
### 2.10.1 Measure

**:CONFigure:PVTime**

**Configure Function**

This command selects the Power vs Time measurement function.

**Command**

```
:CONFigure:PVTime
```

**Details**

This command only selects the measurement function and does not start measurement.

**Example of Use**

To select the Power vs Time measurement function.

```
CONF:PVT
```

**:INITiate:PVTime**

**Initiate Function**

This command starts Power vs Time measurement.

**Command**

```
:INITiate:PVTime
```

**Example of Use**

To start Power vs Time measurement.

```
INIT:PVT
```

**:FETCh:PVTime[n]?**

**Fetch Query Function**

This command queries the result of Power vs Time measurement.

**Query**

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

**Response**

See Table 2.10-2.

**Details**

−999.0 is returned when measurement is not performed or an error has occurred.

**Example of Use**

To query the result of Power vs Time measurement.

```
FETC:PVT?
> -13.52,0.044423647225,-59.73,0.000001063066,46.21,0,20
```
:READ:PVTime[n]?
Read/Measure Query

Function
This command performs Power vs Time measurement once (single measurement) with the current settings, and then queries the measured result.

Query
:READ:PVTime[n]?

Response
See Table 2.10-2.

Example of Use
To perform Power vs Time measurement and queries the measured result.
READ:PVT?

Related Command
This command functions the same as the following command.
:MEASure:PVT[n]? 

:MEASure:PVTime[n]?
Read/Measure Query

Function
This command performs Power vs Time measurement once (single measurement) with the current settings, and then queries the measured result.

Query
:MEASure:PVTime[n]?

Response
See Table 2.10-2.

Example of Use
To perform Power vs Time measurement and query the measurement result.
MEAS:PVT?

Related Command
This command functions the same as the following command.
READ:PVT[n]?
2.10.2 Storage Mode

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

Storage Mode

Function
This command sets the storage mode.

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

Parameter

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

Example of Use
To set the storage mode to Average.

PVT:AVER ON

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

Storage Mode Query

Function
This command queries the storage mode.

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

Response
<mode>

Parameter

- <mode> Storage Mode
  - 0 Off
  - 1 Average

Example of Use
To query the storage mode.

PVT:AVER?
> 1
2.10.3 Storage Count

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

Storage Count

Function
This command sets the storage count.

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

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

Example of Use
To set the storage count to 20.
PVT:AVER:COUN 20

[:SENSe]:PVTime:AVERage:COUNt?

Storage Count Query

Function
This command queries the storage count.

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

Response
<integer>

Parameter
<integer> Storage Count
  Range 2 to 9999
  Resolution 1

Example of Use
To query the storage count.
PVT:AVER:COUN?
> 20
2.10 Power vs Time Measurement Function

2.10.4 Filter Type

[:SENSe]:PVTime:FILTer:TYPE <type>

Filter Type

Function
This command sets the Filter Type for Power vs Time measurement.

Command
[:SENSe]:PVTime:FILTer:TYPE <type>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Filter Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOWPass</td>
<td>Low pass filter (Default)</td>
</tr>
</tbody>
</table>

Details
This command is invalid, because the value is fixed.

Example of Use

To set the Filter Type to Low pass filter.

PVT:FILT:TYPE LOWP

[:SENSe]:PVTime:FILTer:TYPE?

Filter Type Query

Function
This command queries the Filter Type for Power vs Time measurement.

Query
[:SENSe]:PVTime:FILTer:TYPE?

Response

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Filter Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOWPass</td>
<td>Low pass filter</td>
</tr>
</tbody>
</table>

Example of Use

To query the Filter Type.

PVT:FILT:TYPE?

> LOWP
2.10.5 Filter Bandwidth

[:SENSe]:PVTime:FILTer:BANDwidth[:RESolution] <bandwidth>

Filter Bandwidth

Function
This command sets the Filter Bandwidth for Power vs Time measurement.

Command
[:SENSe]:PVTime:FILTer:BANDwidth[:RESolution] <bandwidth>

Parameter

<table>
<thead>
<tr>
<th>&lt;bandwidth&gt;</th>
<th>Filter Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to Span Hz</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Default</td>
<td>Depends on Channel Bandwidth setting.</td>
</tr>
<tr>
<td>Suffix code</td>
<td>Hz, KH, KZ, MH, MZ</td>
</tr>
</tbody>
</table>

Hz is used when omitted.

Details
The setting range is limited depending on the options installed.

Example of Use
To set the Filter Bandwidth to 20 MHz.
PVT:FILT:BAND 20MHZ

[:SENSe]:PVTime:FILTer:BANDwidth[:RESolution]?

Filter Bandwidth Query

Function
This command queries the Filter Bandwidth for Power vs Time measurement.

Query
[:SENSe]:PVTime:FILTer:BANDwidth[:RESolution]?

Response

<table>
<thead>
<tr>
<th>&lt;bandwidth&gt;</th>
</tr>
</thead>
</table>

Parameter

<table>
<thead>
<tr>
<th>&lt;bandwidth&gt;</th>
<th>Filter Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Unit</td>
<td>Hz</td>
</tr>
</tbody>
</table>

Details
The setting range is limited depending on the options installed.

Example of Use
To query the Filter Bandwidth.
PVT:FILT:BAND?
> 20000000
2.10.6 Filter Roll-off Factor

[:SENSe]:PVTime:FILTER:ROFF <real>

Filter Roll-off Factor

Function

This command sets the Roll-off Factor for Power vs Time measurement.

Command

[:SENSe]:PVTime:FILTER:ROFF <real>

Parameter

<real> Roll-off Factor
  Range 0.1 to 1
  Resolution 0.01
  Default 1

Details

This command is invalid, because the value is fixed.

Example of Use

To set the Roll-off Factor to 1.00.

PVT:FILT:ROFF 1.00

[:SENSe]:PVTime:FILTER:ROFF?

Filter Roll-off Factor Query

Function

This command queries the Roll-off Factor for Power vs Time measurement.

Query

[:SENSe]:PVTime:FILTER:ROFF?

Response

<real>

Parameter

<real> Roll-off Factor
  Range 0.1 to 1
  Resolution 0.01

Example of Use

To query the Roll-off Factor.

PVT:FILT:ROFF?

> 1
2.10.7 Filter Load Standard Settings

:INITiate:PVTime:FILTer:LSSettings

Filter Load Standard Settings

Function

This command sets the filter type for Power vs Time measurement to the type compliant with the measurement standard.

Command

:INITiate:PVTime:FILTer:LSSettings

Example of Use

To set the filter type for Power vs Time measurement to the type compliant with the measurement standard.

INIT:PVT:FILT:LSS
2.10.8 Block Number

[:SENSe]:PVTime:BLOCk:NUMBer <integer>

Block Number

Function

This command sets the Block Number.

Command

[:SENSe]:PVTime:BLOCk:NUMBer <integer>

Parameter

<integer> Block Number

Range 0 to 79
Resolution 1
Default 0

Details

The setting range of Block Number is limited by the number of valid blocks.
Refer to 2.10.18 “Block Size”.

Example of Use

To set the Block Number to 3.
PVT:BLOC:NUMB 3

[:SENSe]:PVTime:BLOCk:NUMBer?

Block Number Query

Function

This command queries the Block Number.

Query

[:SENSe]:PVTime:BLOCk:NUMBer?

Response

<integer>

Parameter

<integer> Block Number

Range 0 to 79
Resolution 1

Example of Use

To query the Block Number.
PVT:BLOC:NUMB?
> 3
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2.10.9  Frame Sync
[:SENSe]:PVTime:FRAMe:SYNC OFF|ON|0|1

Frame Sync

Function
This command sets the Frame Sync.

Command
[:SENSe]:PVTime:FRAMe:SYNC <mode>

Parameter
<mode>  Frame Sync
    OFF|0   Off (Default)
    ON|1    On

Example of Use
To set the Frame Sync to On.
PVT:FRAM:SYNC ON

[:SENSe]:PVTime:FRAMe:SYNC?

Frame Sync Query

Function
This command queries the Frame Sync.

Query
[:SENSe]:PVTime:FRAMe:SYNC?

Response
<mode>

Parameter
<mode>  Frame Sync
    0    Off
    1    On

Example of Use
To query the Frame Sync.
PVT:FRAM:SYNC?
    > 1
2.10.10 Judge

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

Judge Function

This command sets whether to use the measurement result judgment function.

Command

[:SENSe]:PVTime:JUDGe <mode>

Parameter

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

Example of Use

To turn Off the measurement result judgment function.

PVT:JUDG OFF

[:SENSe]:PVTime:JUDGe?

Judge Query Function

This command queries the setting of the measurement result judgment function.

Query

[:SENSe]:PVTime:JUDGe?

Response

<mode>

Parameter

<mode> Judge
  0 Off
  1 On

Example of Use

To query the setting of the measurement result judgment function.

PVT:JUDG?

> 0
2.10.11 Marker - On/Off

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

Marker - On/Off

Function

This command sets the marker On/Off for Power vs Time measurement function.

Command

:CALCulate:PVTime:MARKer[:STATe] <switch>

Parameter

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

Example of Use

To set the Marker to On.
CALC:PVT:MARK ON

:CALCulate:PVTime:MARKer[:STATe]?

Marker - On/Off Query

Function

This command queries the marker On/Off for Power vs Time measurement function.

Query

:CALCulate:PVTime:MARKer[:STATe]?

Response

<switch>

Parameter

<switch> Marker On/Off
0 Off
1 On

Example of Use

To query the Marker On/Off.
CALC:PVT:MARK?
> 1


2.10.12 Marker - Active Trace

```
:CALCulate:PVTime:MARKer:ACTive MAIN|SUB
```

**Marker - Active Trace**

**Function**

This command sets the active trace of the marker for Power vs Time measurement.

**Command**

```
:CALCulate:PVTime:MARKer:ACTive <mode>
```

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN</td>
<td>Main Trace (Default)</td>
</tr>
<tr>
<td>SUB</td>
<td>Sub Trace</td>
</tr>
</tbody>
</table>

**Example of Use**

To set the active trace of the marker to Sub Trace.

```
CALC:PVT:MARK:ACT SUB
```

```
:CALCulate:PVTime:MARKer:ACTive?
```

**Marker - Active Trace Query**

**Function**

This command queries the active trace of the marker for Power vs Time measurement.

**Query**

```
:CALCulate:PVTime:MARKer:ACTive?
```

**Response**

```
<mode>
```

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN</td>
<td>Main Trace</td>
</tr>
<tr>
<td>SUB</td>
<td>Sub Trace</td>
</tr>
</tbody>
</table>

**Example of Use**

To query the active trace of the marker.

```
CALC:PVT:MARK:ACT?
> SUB
```
### 2.10.13 Main Trace - Marker X Axis

:CALCulate:PVTime:WINDow[1]:MARKer:X <real>

#### Main Trace - Marker X Axis

**Function**

This command sets the marker position for Main Trace graph in Ts units.

**Command**

:CALCulate:PVTime:WINDow[1]:MARKer:X <real>

**Parameter**

<real>  
Marker position

- **Range**: Refer to Table 3.23-1 of the *MX285051A-011 Operation Manual (Operation)*.
- **Resolution**: 1
- **Unit**: Ts
- **Suffix code**: None
- **Default**: 0

#### Details

The display range of Main Trace is affected by Block Number, but this command can be used without being affected by Block Number.

**Example of Use**

To set the marker position for Main Trace graph to 100 Ts.

```
CALC:PVT:WIND1:MARK:X 100
```

:CALCulate:PVTime:WINDow[1]:MARKer:X?

#### Main Trace - Marker X Axis Query

**Function**

This command queries the marker position for Main Trace graph in Ts units.

**Query**

:CALCulate:PVTime:WINDow[1]:MARKer:X?

**Response**

<real>

**Parameter**

<real>  
Marker position

Refer to :CALCulate:PVTime:WINDow[1]:MARKer:X.

#### Example of Use

To query the marker position for Main Trace graph.

```
CALC:PVT:WIND1:MARK:X?
> 100
```
2.10.14 Main Trace - Marker Y Axis

:CALCulate:PVTime:WINDow[1]:MARKer:Y?

Main Trace - Marker Y Axis Query

Function

This command queries the Y coordinate value of marker for Main Trace graph.

Query

:CALCulate:PVTime:WINDow[1]:MARKer:Y?

Response

<real>

Parameter

<real> Y coordinate value of marker for graph

Resolution 0.01 dB
Unit dBm

Details

The display range of Main Trace is affected by Block Number, but this command can be used without being affected by Block Number.

Example of Use

To query the Y coordinate value of marker for Main Trace graph.
CALC:PVT:WIND1:MARK:Y?
> -60.01
2.10.15 Sub Trace - Marker X Axis

:CALCulate:PVTime:WINDow2:MARKer:X <real>

Sub Trace - Marker X Axis

Function

This command sets the marker position for Sub Trace graph in Symbol units.

Command

:CALCulate:PVTime:WINDow2:MARKer:X <real>

Parameter

<real> Marker position

Range Refer to Table 3.24·1 of the MX285051A-011 Operation Manual (Operation).

Resolution 1

Unit symbol

Suffix code None

Default 0

Example of Use

To set the marker position for Sub Trace graph to 90th symbol.

CALC:PVT:WIND2:MARK:X 90

:CALCulate:PVTime:WINDow2:MARKer:X?

Sub Trace - Marker X Axis Query

Function

This command queries the marker position for Sub Trace graph in Symbol units.

Query

:CALCulate:PVTime:WINDow2:MARKer:X?

Response

<real>

Parameter

<real> Marker position

Refer to :CALCulate:PVTime:WINDow2:MARKer:X

Example of Use

To query the marker position for Sub Trace graph.

CALC:PVT:WIND2:MARK:X?

> 90
2.10.16 Sub Trace - Marker Y Axis

:CALCulate:PVTime:WINDow2:MARKer:Y?

Sub Trace - Marker Y Axis Query

Function

This command queries the Y coordinate value of marker for Sub Trace graph.

Query

:CALCulate:PVTime:WINDow2:MARKer:Y?

Response

<real>

Parameter

<real> Y coordinate value of marker for graph
Resolution 0.01 dB
Unit dBm

Example of Use

To query the Y coordinate value of marker for Sub Trace graph.
CALC:PVT:WIND2:MARK:Y?
> -59.69
2.10.17 Block Size Auto

[:SENSe]:PVTime:BLOCK:SIZE:AUTO OFF|ON|0|1

**Block Size Auto**

**Function**
This command sets whether to use the automatic setting of block information.

**Command**
[:SENSe]:PVTime:BLOCK:SIZE:AUTO <mode>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Block Size Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

**Example of Use**
To turn On the automatic setting of block information.
PVT:BLOCK:SIZE:AUTO ON

[:SENSe]:PVTime:BLOCK:SIZE:AUTO?

**Block Size Auto Query**

**Function**
This command queries the On/Off status of automatic setting of block information.

**Query**
[:SENSe]:PVTime:BLOCK:SIZE:AUTO?

**Response**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Block Size Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>On</td>
</tr>
</tbody>
</table>

**Example of Use**
To query the On/Off status of automatic setting of block information.
PVT:BLOCK:SIZE:AUTO?
> 1
2.10.18 Block Size

[:SENSe]:PVTime:BLOCk:SIZE <integer>

Block Size

Function

This command sets the number of valid blocks.

Command

[:SENSe]:PVTime:BLOCk:SIZE <integer>

Parameter

<integer> Block Size
Range 1 to 80
Resolution 1
Default 1

Example of Use

To set the number of valid blocks to 4.
PVT:BLOC:SIZE 4

[:SENSe]:PVTime:BLOCk:SIZE?

Block Size Query

Function

This command queries the number of valid blocks.

Query

[:SENSe]:PVTime:BLOCk:SIZE?

Response

<integer>

Parameter

<integer> Block Size
Range 1 to 80
Resolution 1

Details

For the number of blocks when Block Size Auto is “On”, see “Block Size” on Table 2.10-2.

Example of Use

To query the number of valid blocks.
PVT:BLOC:SIZE?
> 4
2.10.19 Block Setup Item - State

:CALCulate:PVTime:BLOCk:ITEM[n][:STATe] OFF|ON|0|1

Block Setup Item - State

Function

This command sets the On/Off status for signal per block.

Command

:CALCulate:PVTime:BLOCk:ITEM[n][:STATe] <switch>

Parameter

<n> Block Item Index

<switch> Block Item State

0|OFF Off (The signal is set to Off section.)
1|ON On (The signal is set to On section.)

Example of Use

To set Block #2 to the signal On section.

CALC:PVT:BLOC:ITEM2:STAT ON

:CALCulate:PVTime:BLOCk:ITEM[n][:STATe]?

Block Setup Item - State Query

Function

This command queries the On/Off status of signal per block.

Query

:CALCulate:PVTime:BLOCk:ITEM[n][:STATe]?

Response

<switch>

Parameter

<n> Block Item Index

<switch> Block Item State

0 Signal Off section
1 Signal On section

Details

For the Block State when Block Size Auto is “On”, see "State" on Table 2.10-2.

Example of Use

To query the On/Off status of Block #2 signal.

CALC:PVT:BLOC:ITEM2:STAT?

> 1
2.10.20 Block Setup Item - Start Symbol

:CALCulate:PVTime:BLOCk:ITEM[n]:STARt <StartSym>

Function
This command sets the number of the symbol at which the block starts for individual blocks.

Command
:CALCulate:PVTime:BLOCk:ITEM[n]:STARt <StartSym>

Parameter
<n> Block Item Index
Range 0 to 79
<StartSym> Start Symbol Number
Range 0 to Maximum symbol number – 1

Example of Use
To set the start symbol number of Block #1 to 2.
CALC:PVT:BLOC:ITEM1:STAR 2

:CALCulate:PVTime:BLOCk:ITEM[n]:STARt?

Block Setup Item - Start Symbol Query

Function
This command queries the number of the symbol at which the block starts for individual blocks.

Query
:CALCulate:PVTime:BLOCk:ITEM[n]:STARt?

Response
<StartSym>

Parameter
<n> Block Item Index
Range 0 to 79
<StartSym> Start Symbol Number
Range 0 to Maximum symbol number – 1

Details
For the “Start Symbol Number” when Block Size Auto is “On”, see “Start Symbol Number” on Table 2.10-2.

Example of Use
To query the start symbol number of Block #1.
CALC:PVT:BLOC:ITEM1:STAR?
> 2
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2.10.21 Block Setup Item - Number of Symbols

:CALCulate:PVTime:BLOCk:ITEM[n]:LENGth <Symbols>

Block Setup Item - Number of Symbols

Function
This command sets the number of symbols for individual blocks.

Command
:CALCulate:PVTime:BLOCk:ITEM[n]:LENGth <Symbols>

Parameter
<n> Block Item Index
Range 0 to 79
Symbols Number of Symbols
Range 1 to Maximum symbol number

Example of Use
To set the number of symbols in Block #1 to 12.
CALC:PVT:BLOC:ITEM1:LENG 12

:CALCulate:PVTime:BLOCk:ITEM[n]:LENGth?

Block Setup Item - Number of Symbols Query

Function
This command queries the number of symbols for individual blocks.

Query
:CALCulate:PVTime:BLOCk:ITEM[n]:LENGth?

Response
<Symbols>

Parameter
<n> Block Item Index
Range 0 to 79
Symbols Number of Symbols
Range 1 to Maximum symbol number

Details
For Number of Symbols when Block Size Auto is “On”, see “Number of Symbols” on Table 2.10-2.

Example of Use
To query the number of symbols in Block #1.
CALC:PVT:BLOC:ITEM1:LENG?
> 12
2.10.22 Block Setup Item Leading Transient Period

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LEADing <time>

Block Setup Item Leading Transient Period

Function

This command sets the Leading Transient Period for Power measurement.

Command

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LEADing <time>

Parameter

<n> Block Item Index
Range 0 to 79
<time> Leading Transient Period
Range 0 to 100 µs
Resolution 1 ns
Suffix code NS, US, MS, S, s is used when omitted.
Default 10 µs

Example of Use

To set the Leading Transient Period of Block #1 to 20 µs.

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LEADing?

Block Setup Item Leading Transient Period Query

Function

This command queries the Leading Transient Period for Power measurement in µs unit.

Query

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LEADing?

Response

<time>

Parameter

<n> Block Item Index
Range 0 to 79
<time> Leading Transient Period
Range 0 to 100 µs
Resolution 1 ns
Suffix code None

Example of Use

To query the Leading Transient Period of Block #1.
CALC:FVT:BLOC:ITEM1:TPER:LEAD?
> 20.000
2.10.23 Block Setup Item Lagging Transient Period

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LAGGing <time>

Block Setup Item Lagging Transient Period

Function

This command sets the Lagging Transient Period for Power measurement.

Command

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LAGGing <time>

Parameter

<time>  Lagging Transient Period
  Range  0 to 100 µs
  Resolution  1 ns
  Suffix code  NS, US, MS, S, s is used when omitted.
  Default  10 µs

Example of Use

To set the Lagging Transient Period of Block #1 to 30 µs.

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LAGGing?

Block Setup Item Lagging Transient Period Query

Function

This command queries the Lagging Transient Period for Power measurement in µs unit.

Query

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:LAGGing?

Response

<time>

Parameter

<n>  Block Item Index
  Range  0 to 79
<time>  Lagging Transient Period
  Range  0 to 100 µs
  Resolution  1 ns
  Suffix code  None

Example of Use

To query the Lagging Transient Period of Block #1.
CALC:PVT:BLOC:ITEM1:TPER:LAGG?
> 30.000
2.10 Power vs Time Measurement Function

2.10.24 Block Setup Item Inter On Symbol of Transient Period

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:INTer <time>

Block Setup Item Inter On Symbol of Transient Period

Function

This command sets the Inter on symbol of Transient Period for Power measurement.

Command

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:INTer <time>

Parameter

<n> Block Item Index
Range 0 to 79
<time> Inter on symbol of Transient Period
Range 0 to 100 µs
Resolution 1 ns
Suffix code NS, US, MS, S, s is used when omitted.
Default 0 µs

Example of Use

To set the Inter on symbol of Transient Period of Block #1 to 2 µs.

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:INTer?

Block Setup Item Inter On Symbol of Transient Period Query

Function

This command queries the Inter on symbol of Transient Period for Power measurement in µs unit.

Query

:CALCulate:PVTime:BLOCk:ITEM[n]:TPERiod:INTer?

Response

<time>

Parameter

<n> Block Item Index
Range 0 to 79
<time> Inter on symbol of Transient Period
Range 0 to 100 µs
Resolution 1 ns
Suffix code None

Example of Use

To query the Inter on symbol of Transient Period of Block #1.
CALC:FVT:BLOC:ITEM1:TPER:INT?
> 2.000
2.10.25 Block Setup Preset

:CALCulate:PVTime:BLOCk:PRESet <mode>

Block Setup Preset

Function

This command sets the Block Setup at once.

Command

:CALCulate:PVTime:BLOCk:PRESet <mode>

Parameter

<mode> Block Setup Preset
EVERY_SUB_FRAME Every SubFrame
ONLY_SUB_FRAME_0 SubFrame #0 Only
EVERY_SLOT Every Slot
ONLY_SLOT_0 Slot #0 Only
INVERT_STATE Invert State

Details

Refer to Table 3.6.3.4-2 and Table 3.6.3.4-3 of the MX285051A-011 Operation Manual (Operation).

Example of Use

To set the Block Setup to Every SubFrame.

CALC:PVT:BLOC:PRES EVERY_SUB_FRAME
2.10.26 Mask Setup - Ramp up

[:SENSe]:PVTime:MASK:TIME:RUP <time>

Mask Setup - Ramp up

Function

This command sets the Ramp up limit.

Command

[:SENSe]:PVTime:MASK:TIME:RUP <time>

Parameter

<time> 
Ramp up
Range 0 to 100 µs
Resolution 1 ns
Suffix code NS, US, MS, s, is used when omitted.
Default 10 µs

Details

If the limit is exceeded, the judgment result is “FAIL”.

Example of Use

To set Ramp up limit to 20 µs.
PVT:MASK:TIME:RUP 20US

[:SENSe]:PVTime:MASK:TIME:RUP?

Mask Setup - Ramp up Query

Function

This command queries the Ramp up limit in s units.

Query

[:SENSe]:PVTime:MASK:TIME:RUP?

Response

<time>

Parameter

<time> 
Ramp up
Range 0 to 100 µs
Resolution 1 ns
Suffix code None

Example of Use

To query the Ramp up limit.
PVT:MASK:TIME:RUP?
> 0.00002
2.10.27 Mask Setup - Ramp down

[:SENSe]:PVTime:MASK:TIME:RDOWn <time>

Mask Setup - Ramp down

Function

This command sets the Ramp down limit.

Command

[:SENSe]:PVTime:MASK:TIME:RDOWn <time>

Parameter

<time>  Ramp down
Range    0 to 100 µs
Resolution 1 ns
Suffix code NS, US, MS, S, s is used when omitted.
Default   10 µs

Details

If the limit is exceeded, the judgment result is “FAIL”.

Example of Use

To set the Ramp down limit to 30 µs.
PVT:MASK:TIME:RDOW 30US

[:SENSe]:PVTime:MASK:TIME:RDOWn?

Mask Setup - Ramp down Query

Function

This command queries the Ramp down limit in s units.

Query

[:SENSe]:PVTime:MASK:TIME:RDOWn?

Response

<time>

Parameter

<time>  Ramp down
Range    0 to 100 µs
Resolution 1 ns
Suffix code None

Example of Use

To query the Ramp down limit.
PVT:MASK:TIME:RDOW?
> 0.00003
2.10.28 Mask Setup - Off Power Detector

[SENSe]:PVTime:MASK:LIMIT:OFFPower:DEToector MAXimum|AVERage

Mask Setup - Off Power Detector

Function
This command sets the Off Power detector.

Command
[SENSe]:PVTime:MASK:LIMIT:OFFPower:DEToector <det>

Parameter
<det> Detector
   MAXimum Maximum within the Off Power calculation range
   AVERage Average within the Off Power calculation range
   Default MAXimum

Example of Use
To set the Off Power detector to Average.
PVT:MASK:LIM:OFFP:DET AVER

[SENSe]:PVTime:MASK:LIMIT:OFFPower:DEToector?

Mask Setup - Off Power Detector Query

Function
This command queries the Off Power detector.

Query
[SENSe]:PVTime:MASK:LIMIT:OFFPower:DEToector?

Response
<det>

Parameter
<det> Detector
   MAXimum Maximum within the Off Power calculation range
   AVERage Average within the Off Power calculation range

Example of Use
To query the Off Power detector.
PVT:MASK:LIM:OFFP:DET?
> AVER
2.10.29 Mask Setup - Off Power Unit

[:SENSe]:PVTime:MASK:LIMit:OFFPower:UNIT DBM|DBMMHz

Mask Setup - Off Power Unit

Function
This command sets the display and judgement unit for Off Power.

Command
[:SENSe]:PVTime:MASK:LIMit:OFFPower:UNIT <unit>

Parameter

<table>
<thead>
<tr>
<th>&lt;unit&gt;</th>
<th>Off Power Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBM</td>
<td>dBm</td>
</tr>
<tr>
<td>DBMMHz</td>
<td>dBm/MHz</td>
</tr>
<tr>
<td>Default</td>
<td>DBMMHz</td>
</tr>
</tbody>
</table>

Example of Use
To set the display and judgement unit for Off Power to dBm/MHz.
PVT:MASK:LIM:OFFP:UNIT DBMM

[:SENSe]:PVTime:MASK:LIMit:OFFPower:UNIT?

Mask Setup - Off Power Unit Query

Function
This command queries the display and judgement unit for Off Power.

Query
[:SENSe]:PVTime:MASK:LIMit:OFFPower:UNIT?

Response

<table>
<thead>
<tr>
<th>&lt;unit&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off Power Unit</td>
</tr>
<tr>
<td>DBM</td>
</tr>
<tr>
<td>DBMMHz</td>
</tr>
</tbody>
</table>

Example of Use
To query the display and judgement unit for Off Power.
PVT:MASK:LIM:OFFP:UNIT?
> DBMM
2.10 Power vs Time Measurement Function

2.10.30 Mask Setup - Off Power limit

[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute <level>

Mask Setup - Off Power limit

Function

This command sets the Off Power limit.

Command

[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute <level>

Parameter

[level] Off Power limit
  Range –200.00 to 200.00 dBm
  Resolution 0.01 dB
  Suffix code None
  Default –50.00 dBm

Details

This limit affects the following:
  • Ramp up/Ramp down measurement results
  • Off Power judgment processing

Example of Use

To set Off Power limit to –40 dBm.

PVT:MASK:LIM:OFFP:ABS -40

[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute?

Mask Setup - Off Power limit Query

Function

This command queries the Off Power limit in dBm units.

Query

[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute?

Response

<level>

Parameter

<level> Off Power limit
  Range –200.00 to 200.00 dBm
  Resolution 0.01 dB

Example of Use

To query Off Power limit.

PVT:MASK:LIM:OFFP:ABS?

> -40
2.10.31 Mask Setup - Off Power limit (dBm/MHz)
[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute:MHZ <level>

Function
This command sets the Off Power limit in dBm/MHz unit.

Command
[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute:MHZ <level>

Parameter
[level] Off Power limit
Range –200.00 to 200.00 dBm/MHz
Resolution 0.01 dB
Suffix code None
Default –85.00 dBm/MHz

Details
This limit affects the following:
• Ramp up/Ramp down measurement results
• Off Power judgment processing

Example of Use
To set Off Power limit to –40 dBm/MHz.

[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute:MHZ?

Function
This command queries the Off Power limit in dBm/MHz units.

Query
[:SENSe]:PVTime:MASK:LIMit:OFFPower:ABSolute:MHZ?

Response
[level]

Parameter
[level] Off Power limit
Range –200.00 to 200.00 dBm/MHz
Resolution 0.01 dB

Example of Use
To query the Off Power limit.
PVT:MASK:LIM:OFFP:ABS:MHZ?
> -40
2.10.32 Mask Setup - Load Standard Settings

:INITiate:PVT:MASK:LSSettings

Mask Setup - Load Standard Settings

Function
This command sets the limit to standard value at once.

Command
:INITiate:PVT:MASK:LSSettings

Parameter
None

Details
Refer to Table 3.6.3.5-1 of the *MX285051A-011 Operation Manual (Operation)*.

Example of Use
To set the limit to standard value at once.
INIT:PVT:MASK:LSS
2.10.33 Smoothing
[:SENSe]:PVTime:SMOothing[:STATe] OFF|ON|0|1

Smoothing

Function
This command sets the Smoothing On/Off for measurement waveform.

Command
[:SENSe]:PVTime:SMOothing[:STATe] <switch>

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

Example of Use
To set the Smoothing to Off.
PVT:SMO OFF

[:SENSe]:PVTime:SMOothing[:STATe]?
Smoothing Query

Function
This command queries the Smoothing On/Off for measurement waveform.

Query
[:SENSe]:PVTime:SMOothing[:STATe]?

Response
<switch>

Parameter
<switch>  Smoothing
  0   Off
  1   On

Example of Use
To query the Smoothing On/Off.
PVT:SMO?
> 0
2.10.34 Smoothing Length
[:SENSe]:PVTime:SMoothing:LENGth <integer>

Function
This command sets the Smoothing Length.

Command
[:SENSe]:PVTime:SMoothing:LENGth <integer>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Range</th>
<th>Resolution</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;integer&gt;</td>
<td>Length</td>
<td>1 to 90</td>
<td>1</td>
<td>/N µs (N = Sub Carrier Spacing [kHz] / 15)</td>
</tr>
<tr>
<td>Default</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of Use
To set the Smoothing Length to 10.
PVT:SMO:LENG 10

[:SENSe]:PVTime:SMoothing:LENGth?

Function
This command queries the Smoothing Length.

Query
[:SENSe]:PVTime:SMoothing:LENGth?

Response
<integer>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Range</th>
<th>Resolution</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;integer&gt;</td>
<td>Length</td>
<td>1 to 90</td>
<td>1</td>
<td>/N µs (N = Sub Carrier Spacing [kHz] / 15)</td>
</tr>
</tbody>
</table>

Example of Use
To query the Smoothing Length.
PVT:SMO:LENG?
> 10
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2.10.35  Wide Dynamic Range
[:SENSe]:PVTime:WDRRange[:STATe] OFF|ON|0|1

Wide Dynamic Range

Function
This command sets the Wide Dynamic Range On/Off.

Command
[:SENSe]:PVTime:WDRRange[:STATe] <switch>

Parameter
<switch>  Wide Dynamic Range
  0|OFF   Off (Default)
  1|ON    On

Details
Limiter Mode is not available when Wide Dynamic Range is set to On.

Example of Use
To set the Wide Dynamic Range to On.
PVT:WDR ON

[:SENSe]:PVTime:WDRRange[:STATe]?
Wide Dynamic Range Query

Function
This command queries the Wide Dynamic Range On/Off.

Query
[:SENSe]:PVTime:WDRRange[:STATe]?

Response
<switch>

Parameter
<switch>  Wide Dynamic Range
  0        Off
  1        On

Example of Use
To query the Wide Dynamic Range On/Off.
PVT:WDR?
> 1
2.10.36 Noise Correction

[:SENSe]:PVTime:WDRRange:CORRection:NOISe OFF|ON|0|1

Noise Correction

Function

This command sets the Noise Correction On/Off when the Wide Dynamic Range is set to On.

Command

[:SENSe]:PVTime:WDRRange:CORRection:NOISe <switch>

Parameter

<switch> Noise Correction

0|OFF Off (Default)
1|ON On

Details

Available only when Wide Dynamic Range is set to On.

Example of Use

To set the Noise Correction to Off.
PVT:WDR:CORR:NOIS ON

[:SENSe]:PVTime:WDRRange:CORRection:NOISe?

Noise Correction

Function

This command queries the Noise Correction On/Off when the Wide Dynamic Range is set to On.

Query

[:SENSe]:PVTime:WDRRange:CORRection:NOISe?

Response

<switch>

Parameter

<switch> Noise Correction

0 Off
1 On

Example of Use

To query the Noise Correction On/Off.
PVT:WDR:CORR:NOIS?
> 1
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2.10.37 Pre-Amp Mode

[:SENSe]:PVTime:WDRange:GAIN[:STATe] OFF|ON|0|1

Pre-Amp Mode

Function

This command sets the Pre-Amp Mode On/Off when the Wide Dynamic Range is set to On.

Command

[:SENSe]:PVTime:WDRange:GAIN[:STATe] <switch>

Parameter

<switch>  
  0 | OFF  
  1 | ON

Details

Available only when Wide Dynamic Range is set to On.
Available for MS269xA only when MS269xA-008/108 is installed.
Available for MS2850A only when MS2850A-068/168 is installed.

Example of Use

To set the Pre-Amp Mode to On.
PVT:WDR:GAIN ON

[:SENSe]:PVTime:WDRange:GAIN[:STATe]?

Pre-Amp Mode Query

Function

This command queries the Pre-Amp Mode On/Off when the Wide Dynamic Range is set to On.

Query

[:SENSe]:PVTime:WDRange:GAIN[:STATe]?

Response

<switch>

Parameter

<switch>  
  0 | Off  
  1 | On

Example of Use

To query the Pre-Amp Mode On/Off.
PVT:WDR:GAIN?
> 1
2.10.38 Limiter Mode

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

Limiter Mode

Function

This command sets the Limiter Mode On/Off.

Command

[:SENSe]:PVTime:LMODe[:STATe] <switch>

Parameter

<switch>  Limiter Mode
          0|OFF   Off (Default)
          1|ON    On

Details

Wide Dynamic Range is not available when Limiter Mode is set to On.

Example of Use

To set the Limiter Mode to On.
PVT:LMOD ON

[:SENSe]:PVTime:LMODe[:STATe]?

Limiter Mode Query

Function

This command queries the Limiter Mode On/Off.

Query

[:SENSe]:PVTime:LMODe[:STATe]?

Response

<switch>

Parameter

<switch>  Limiter Mode
          0   Off
          1   On

Example of Use

To query the Limiter Mode On/Off.
PVT:LMOD?
> 1
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2.10.39  Off Power Pre-Amp

[:SENSe]:PVTime:LMODe:OFFPower:GAIN[:STATe] OFF|ON|0|1

Off Power Pre-Amp

Function

This command sets the Pre-Amp On/Off for Off Power measurement.

Command


Parameter

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

Details

Available only when Limiter Mode is set to On.
Available for MS269xA only when MS269xA-008/108 is installed.
Available for MS2850A only when MS2850A-068/168 is installed.

Example of Use

To set the Pre-Amp for Off Power measurement to On.

PVT:LMOD:OFFP:GAIN ON

[:SENSe]:PVTime:LMODe:OFFPower:GAIN[:STATe]?

Off Power Pre-Amp Query

Function

This command queries the Pre-Amp On/Off for Off Power measurement.

Query


Response

<switch>

Parameter

<switch>  Pre-Amp
0  Off
1  On

Example of Use

To query the Pre-Amp for Off Power measurement.

PVT:LMOD:OFFP:GAIN?

> 1
2.10.40 Off Power Attenuator

[:SENSe]:PVTime:LMODE:OFFPower:ATTenuation <rel_ampl>

Function
This command sets the attenuator for the Noise measurement and Off Power measurement.

Command
[:SENSe]:PVTime:LMODE:OFFPower:ATTenuation <rel_ampl>

Parameter
<rel_ampl> Attenuation
Range 0 to 60 dB
Resolution 2 dB
Suffix code DB, dB is used when omitted.
Default 2 dB

Details
Available only when Limiter Mode is set to On.
This command is not available when the Replay function is executed.

Example of Use
To set the attenuation to 10 dB.
PVT:LMOD:OFFP:ATT 10

[:SENSe]:PVTime:LMODE:OFFPower:ATTenuation?

Off Power Attenuator Query

Function
This command queries the attenuator setting for the Noise measurement and Off Power measurement.

Query
[:SENSe]:PVTime:LMODE:OFFPower:ATTenuation?

Response
<real>

Parameter
<real> Attenuation
Range 0 to 60 dB
Resolution 2 dB
Unit dB

Example of Use
To query the attenuation.
PVT:LMOD:OFFP:ATT?
> 10
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2.10.41  Off Power Offset

[SENSe]:PVTime:LMODe:OFFPower:OFFSet:STATe OFF|ON|0|1

Off Power Offset

Function

This command sets the offset On/Off for Off Power measurement results. The off power offset is used for correcting the level rise and fall caused by cables, attenuator, amplifier, etc. in the Off Power measurement path.

Command

[SENSe]:PVTime:LMODe:OFFPower:OFFSet:STATe <switch>

Parameter

<switch>  Off Power Offset
0|OFF  Off (Default)
1|ON  On

Example of Use

To set the Off Power Offset to On.
PVT:LMOD:OFFP:OFFS:STAT ON

[SENSe]:PVTime:LMODe:OFFPower:OFFSet:STATe?

Off Power Offset Query

Function

This command queries the offset On/Off for Off Power measurement results.

Query

[SENSe]:PVTime:LMODe:OFFPower:OFFSet:STATe?

Response

<switch>

Parameter

<switch>  Off Power Offset
0  Off
1  On

Example of Use

To query the setting for Off Power Offset.
PVT:LMOD:OFFP:OFFS:STAT?
> 1
2.10.42 Off Power Offset Value

[:SENSe]:PVTime:LMODE:OFFPower:OFFSet <rel_power>

Off Power Offset Value

Function

This command sets the offset value for Off Power measurement results.

Command

[:SENSe]:PVTime:LMODE:OFFPower: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 in Off Power measurement to +10 dB.
PVT:LMOD:OFFP:OFFS 10

[:SENSe]:PVTime:LMODE:OFFPower:OFFSet?

Off Power Offset Value Query

Function

This command queries the offset value for Off Power measurement results.

Query

[:SENSe]:PVTime:LMODE:OFFPower: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 in Off Power measurement.
PVT:LMOD:OFFP:OFFS?
> 10.00
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2.10.43 Calculate Noise, Off Power, On Power

:INITiate:PVTime:LMODE:CONTinue NCORrection|OFFPower|ONPower

Calculate Noise, Off Power, On Power

Function

This command executes each measurement in Limiter Mode.

Command

:INITiate:PVTime:LMODE:CONTinue <type>

Parameter

<table>
<thead>
<tr>
<th>&lt;type&gt;</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCORrection</td>
<td>Noise measurement</td>
</tr>
<tr>
<td>OFFPower</td>
<td>Off Power measurement</td>
</tr>
<tr>
<td>ONPower</td>
<td>On Power measurement</td>
</tr>
</tbody>
</table>

Details

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

Example of Use

To start Noise measurement.

INIT:PV:LMOD:CONT  NCOR
2.10.44 Keep Results

[:SENSe]:PVTime:LMODe:RESult:KEEP OFF|ON|0|1

Keep Results Function

This command sets whether to keep the measurement results of Noise measurement, Off Power measurement, and On Power measurement of Limiter Mode.

Command

[:SENSe]:PVTime:LMODe:RESult:KEEP <switch>

Parameter

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

Example of Use

To keep the measurement results.
PVT:LMOD:RES:KEEP ON

[:SENSe]:PVTime:LMODe:RESult:KEEP?

Keep Results Query Function

This command queries the setting of keeping the measurement results of Noise measurement, Off Power measurement, and On Power measurement of Limiter Mode.

Query

[:SENSe]:PVTime:LMODe:RESult:KEEP?

Response

<switch>

Parameter

<switch>  
0  Off  
1  On

Example of Use

To query whether the measurement results are kept.
PVT:LMOD:RES:KEEP?
> 1
2.10.45 Limiter Mode Status
:INITiate:PVT:LMODE:STATe?
Limiter Mode Status Query

Function
This command queries whether the Noise measurement, Off Power measurement, and On Power measurement of Limiter Mode have been completed.

Query
:INITiate:PVT:LMODE:STATe?

Response
<state1>,<state2>,<state3>

Parameter
<state1> Noise measurement status
<state2> Off Power measurement status
<state3> On Power measurement status
  0 No results, Measurement is not performed.
  1 Completed, Measurement is completed.
  -1 In any of the following
    • Measurement error occurred.
    • Analysis Mode is other than Power vs Time.

Example of Use
To query the status when only Noise measurement is completed.
INIT:PVT:LMODE:STAT?
> 1,0,0
2.11 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>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP</td>
<td>:CONFigure[:SWEPt]:ACP</td>
</tr>
<tr>
<td>Channel Power</td>
<td>:CONFigure[:SWEPt]:CHPower</td>
</tr>
<tr>
<td>OBW</td>
<td>:CONFigure[:SWEPt]:OBWidth</td>
</tr>
<tr>
<td>SEM</td>
<td>:CONFigure[:SWEPt]:SEMask</td>
</tr>
<tr>
<td>Standard</td>
<td>[[:SENSe]:ASETting:STANdard[:SElec</td>
</tr>
<tr>
<td></td>
<td>[[:SENSe]:ASETting:STANdard[:SElec]?]</td>
</tr>
</tbody>
</table>
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: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
2.11 Spectrum Measurement Functions

:CONFigure[:SWEP]:OBWidth
OBW

Function
This command selects the OBW measurement function.

Command
:CONFigure[:SWEP]: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[:SWEP]:SEMask
SEM

Function
This command selects the SEM measurement function.

Command
:CONFigure[:SWEP]: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] CONDuced|RADiated

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>

CONDuced 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
This command queries the parameter type of the spectrum analyzer function where the parameters of this application are handed over.

**Query**

[:SENSe]:ASETting:STANdard[:SElAct]?

**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
2.12 Measurement Result Saving Function

Table 2.12-1 lists device messages for saving measurement results.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save All Results</td>
<td>:MMEMory:STORe:RESult [&lt;filename&gt;,&lt;device&gt;]</td>
</tr>
<tr>
<td>Save as Type</td>
<td>:MMEMory:STORe:RESult:MODE XML</td>
</tr>
<tr>
<td></td>
<td>:MMEMory:STORe:RESult:MODE?</td>
</tr>
</tbody>
</table>
: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
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: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>  
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>  
XML  xml format
CSV  csv format

Example of Use

To query the type of the file to be saved.

MMEM:STOR:RES:MODE?
> CSV
### 2.13 Replay Function

Table 2.13-1 lists the device messages for the Replay function.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop Replay</td>
<td>:MMEMory:LOAD:IQData:STOP</td>
</tr>
<tr>
<td>Execute Replay</td>
<td>:MMEMory:LOAD:IQData filename&gt;,&lt;device&gt;,&lt;application&gt;</td>
</tr>
<tr>
<td>Replay File Information Query</td>
<td>:MMEMory:LOAD:IQData:INFormation?</td>
</tr>
<tr>
<td>Replay Execute Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:STATe?</td>
</tr>
<tr>
<td>Replay Filename Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:FILE?</td>
</tr>
<tr>
<td>Replay Device Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:DEVice?</td>
</tr>
<tr>
<td>Replay Application Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:APPLication?</td>
</tr>
<tr>
<td>Replay Level Over Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:CONDition?</td>
</tr>
<tr>
<td>Replay Error Icon Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:ERROR?</td>
</tr>
<tr>
<td>Replay Correction Query</td>
<td>:MMEMory:LOAD:IQData:INFormation:CORRection?</td>
</tr>
</tbody>
</table>
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: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
Suffix code None. 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
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: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?
2.13 Replay Function

: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

Response

Parameter

Parameter
<br /><br />

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

Response

Parameter

Parameter
<br /><br />

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
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>

- **1**: Display of Replay Error Info. icon
  - Replay Error Info. icon is displayed.
- **0**: Normal
  - –999.0 is returned when the Replay function is nor 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.

```plaintext
MMEM:LOAD:IQD:INF:ERR?
> 0
```
Chapter 2  SCPI Device Message Details

: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.

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    :STATus:QUEStionable:CONDition? .................................... 3-5
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    :STATus:QUEStionable:ENABLE? ........................................ 3-6
    :STATus:QUEStionable:NTRansition <integer> ..................... 3-7
    :STATus:QUEStionable:NTRansition? ................................ 3-7
    :STATus:QUEStionable:PTRansition <integer> ..................... 3-8
    :STATus:QUEStionable:PTRansition? ................................ 3-8
    :STATus:QUEStionable:MEASure[:EVENt]? ......................... 3-9
    :STATus:QUEStionable:MEASure:ENABLE <integer> ............. 3-10
    :STATus:QUEStionable:MEASure:ENABLE? .......................... 3-10
    :STATus:QUEStionable:MEASure:NTRansition <integer> ....... 3-11
    :STATus:QUEStionable:MEASure:PTRansition <integer> ...... 3-12
    :STATus:QUEStionable:MEASure:PTRansition? .................. 3-12

3.3  STATus:OPERation Register ............................................................... 3-13
    :STATus:OPERation[:EVENt]? ........................................... 3-14
    :STATus:OPERation:CONDition? ....................................... 3-14
    :STATus:OPERation:ENABLE <integer> ............................. 3-15
    :STATus:OPERation:ENABLE? ......................................... 3-15
    :STATus:OPERation:NTRansition <integer> ....................... 3-16
    :STATus:OPERation:NTRansition? ................................... 3-16
    :STATus:OPERation:PTRansition <integer> ....................... 3-17
    :STATus:OPERation:PTRansition? ................................... 3-17
3.1 Reading Measurement Status

:STATus:ERRor?
Measurement Status Error Query

Function

This command queries a measurement error.

Query

:STATus:ERRor?

Response

<status>

Parameter

<status> Measurement Status

Value = bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6
+ bit7 + bit8 + bit9 + bit10 + bit11 + bit12
+ bit13 + bit14 + bit15

bit0: 2^0 = 1  No measurement
bit1: 2^1 = 2  Level Over
bit2: 2^2 = 4  Signal Abnormal
bit3: 2^3 = 8  (Not Used)
bit4: 2^4 = 16 (Not Used)
bit5: 2^5 = 32 (Not Used)
bit6: 2^6 = 64 (Not Used)
bit7: 2^7 = 128 (Not Used)
bit8: 2^8 = 256 (Not Used)
bit9: 2^9 = 512 (Not Used)
bit10: 2^10 = 1024 (Not Used)
bit11: 2^11 = 2048 (Not Used)
bit12: 2^12 = 4096 (Not Used)
bit13: 2^13 = 8192 (Not Used)
bit14: 2^14 = 16384 (Not Used)
bit15: 2^15 = 32768 (Not Used)

Range 0 to 65535

Details

0 is returned at normal termination.

Usage Example

To query a measurement error.
STAT:ERR?
> 0
3.2 STATus:QUESTionable Register

The hierarchical structure of the QUESTionable Status register is described in Figures 3.2-1 and 3.2-2, and Tables 3.2-1 and 3.2-2.

Table 3.2-1  Bit Definition of QUESTionable Status Register

<table>
<thead>
<tr>
<th>Bit</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB5</td>
<td>Reference Clock Unlock</td>
</tr>
<tr>
<td>DB9</td>
<td>QUESTionable Measure Register Summary</td>
</tr>
</tbody>
</table>

Table 3.2-2  Bit Definition of QUESTionable Measure Register

<table>
<thead>
<tr>
<th>Bit</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB5</td>
<td>Level Over</td>
</tr>
<tr>
<td>DB8</td>
<td>Signal Abnormal</td>
</tr>
</tbody>
</table>
Table 3.2-3 lists the device messages for the QUESTionable Status register.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionable Status Register Event</td>
<td>:STATus:QUESTionable[:EVENt]?</td>
</tr>
<tr>
<td>Questionable Status Register Condition</td>
<td>:STATus:QUESTionable:CONDition?</td>
</tr>
<tr>
<td>Questionable Status Register Enable</td>
<td>:STATus:QUESTionable:ENABle &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:QUESTionable:ENABle?</td>
</tr>
<tr>
<td>Questionable Status Register Negative Transition</td>
<td>:STATus:QUESTionable:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:QUESTionable:NTRansition?</td>
</tr>
<tr>
<td>Questionable Status Register Positive Transition</td>
<td>:STATus:QUESTionable:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:QUESTionable:PTRansition?</td>
</tr>
<tr>
<td>Questionable Measure Register Event</td>
<td>:STATus:QUESTionable:MEASure[:EVENt]?</td>
</tr>
<tr>
<td>Questionable Measure Register Condition</td>
<td>:STATus:QUESTionable:MEASure:CONDition?</td>
</tr>
<tr>
<td>Questionable Measure Register Enable</td>
<td>:STATus:QUESTionable:MEASure:ENABle &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:QUESTionable:MEASure:ENABle?</td>
</tr>
<tr>
<td>Questionable Measure Register Negative Transition</td>
<td>:STATus:QUESTionable:MEASure:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:QUESTionable:MEASure:NTRansition?</td>
</tr>
<tr>
<td>Questionable Measure Register Positive Transition</td>
<td>:STATus:QUESTionable:MEASure:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:QUESTionable:MEASure:PTRansition?</td>
</tr>
</tbody>
</table>
: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
3.2  STATus:QUEStionable Register

: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
Chapter 3  SCPI Status Register

: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
3.2 \textit{STATus:QUESTionable Register}

\textbf{:STATus:QUESTionable:MEASure:NTRansition <integer>}

Questionable Measure Register Negative Transition Function

This command sets transition filter (Negative Transition) of QUESTionable Measure register.

Command

\texttt{:STATus:QUESTionable:MEASure:NTRansition <integer>}

Parameter

\texttt{<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.
\texttt{STAT:QUES:MEAS:NTR 16}

\textbf{:STATus:QUESTionable:MEASure:NTRansition?}

Questionable Measure Register Negative Transition Query

Function

This command queries transition filter (Negative Transition) of QUESTionable Measure register.

Query

\texttt{:STATus:QUESTionable:MEASure:NTRansition?}

Response

\texttt{<integer>}

Parameter

\texttt{<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.
\texttt{STAT:QUES:MEAS:NTR?}
\texttt{> 16}
Chapter 3  SCPI Status Register

: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.

<table>
<thead>
<tr>
<th>Bit</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB0</td>
<td>CAL Executed</td>
</tr>
<tr>
<td>DB1</td>
<td>Warm-up displayed</td>
</tr>
<tr>
<td>DB4</td>
<td>Capture executed (Always 1 at Continuous measurement)</td>
</tr>
<tr>
<td>DB5</td>
<td>Waiting for trigger signal</td>
</tr>
<tr>
<td>DB8</td>
<td>Operating on file</td>
</tr>
</tbody>
</table>

Table 3.3-2 lists the device messages for the OPERation status register.

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Status Register Event</td>
<td>:STATus:OPERation[:EVENT]?</td>
</tr>
<tr>
<td>Operation Status Register Condition</td>
<td>:STATus:OPERation:CONDition?</td>
</tr>
<tr>
<td>Operation Status Register Enable</td>
<td>:STATus:OPERation:ENABLE &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:OPERation:ENABLE?</td>
</tr>
<tr>
<td>Operation Status Register Negative Transition</td>
<td>:STATus:OPERation:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:OPERation:NTRansition?</td>
</tr>
<tr>
<td>Operation Status Register Positive Transition</td>
<td>:STATus:OPERation:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:STATus:OPERation:PTRansition?</td>
</tr>
</tbody>
</table>
Chapter 3  SCPI Status Register

: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
3.3 STATus:OPERation Register

: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
Chapter 3  SCPI Status Register

: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