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
Fifth Edition

• For safety and warning information, please read this manual before attempting to use the equipment.
• Additional safety and warning information is provided within the MS2850A Signal Analyzer Operation Manual (Mainframe Operation) or MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation), MX285051A/MX269051A 5G Standard Measurement Software (Base License) Operation Manual and MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink / MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Operation Manual (Operation). Please also refer to them before using the equipment.
• Keep this manual with the equipment.
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.
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When you dispose of export-controlled items, the products/manuals need to be broken/shredded so as not to be unlawfully used for military purpose.
About This Manual

■ Composition of Operation Manuals
The operation manuals for the
MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink
MX285051A-021 NR TDD mmWave Downlink
MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink
MX285051A-071 NR TDD mmWave Uplink
are comprised as shown in the figure below.

- Signal Analyzer Operation Manual (Mainframe Operation)
- Signal Analyzer Operation Manual (Mainframe Remote Control)
These manuals describe basic operating methods, maintenance procedures, common functions, and common remote control of the signal analyzer mainframe.

- 5G Standard Measurement Software (Base License) Operation Manual
This manual describes operating methods of the 5G Standard (Base License) Measurement Software.
• MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink  
MX285051A-021 NR TDD mmWave Downlink  
MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink  
MX285051A-071 NR TDD mmWave Uplink  
Operation Manual (Operation)  
This manual describes basic operating methods, and functions.  
As for signal analyzer hardware and its basic functions and operation  
outline, refer to MS2850A Signal Analyzer Operation Manual  
(Mainframe Operation) or MS2690A/MS2691A/MS2692A Signal Analyzer  
Operation Manual (Mainframe Operation).  

• MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink  
MX285051A-021 NR TDD mmWave Downlink  
MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink  
MX285051A-071 NR TDD mmWave Uplink  
Operation Manual (Remote Control) <This document>  
This manual describes remote control.  
As for signal analyzer application’s basic remote control functions and its  
definitions of common commands, refer to MS2690A/MS2691A/MS2692A  
and MS2830A/MS2840A/MS2850A Signal Analyzer Operation Manual  
(Mainframe Remote Control).  

Convention Used in This Manual  
Throughout this document, the use of MS2850A is assumed unless  
otherwise specified. If using with MS269x Series, “MX285051A-011 and  
MX285051A-061” should be read as “MX269051A-011 and  
MX269051A-061”.
Table of Contents

About This Manual............................................... I

Chapter 1 Outline .............................................. 1-1
  1.1 Outline............................................................. 1-2
  1.2 Basic Flow of Control........................................ 1-3
  1.3 How to use the Native Mode............................... 1-14
  1.4 Character Programs Available
     for Setting Numeric Program Data........................ 1-18

Chapter 2 SCPI Device Message Details ........ 2-1
  2.1 Selecting Application ........................................ 2-17
  2.2 Setting Basic Parameters ................................... 2-22
  2.3 Setting System Parameters
     (MX285051A-011/MX269051A-011 NR TDD sub-6GHz
     Downlink / MX285051A-021 NR TDD mmWave Downlink
     Modulation Analysis)............................................. 2-35
  2.4 Setting System Parameters (MX285051A-021 NR
     TDD mmWave Downlink Carrier Aggregation
     Analysis) ............................................................ 2-113
  2.5 Setting System Parameters
     (MX285051A-061/MX269051A-061 NR TDD sub-6GHz
     Uplink / MX285051A-071 NR TDD mmWave Uplink
     Modulation Analysis)............................................. 2-212
  2.6 Utility Function ............................................... 2-272
  2.7 Common Measurement Function ........................... 2-276
  2.8 Modulation Measurement Function ........................ 2-287
  2.9 Carrier Aggregation Measurement Function ........... 2-338
  2.10 Measurement Result Saving Function.................... 2-386
  2.11 Replay Function............................................. 2-389

Chapter 3 SCPI Status Register ............... 3-1
  3.1 Reading Measurement Status ............................... 3-2
  3.2 STATus:QUEStionable Register............................ 3-3
  3.3 STATus:OPERation Register ............................... 3-13
This chapter outlines the remote control of the MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink, MX285051A-021 NR TDD mmWave Downlink, MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink, and MX285051A-071 NR TDD mmWave Uplink (hereinafter, referred to as “this application”).

1.1 Outline
1.1.1 Interface
1.1.2 Controlled Application

1.2 Basic Flow of Control
1.2.1 Initialization
1.2.2 Setting of Basic Parameters
1.2.3 Setting of Modulation-Common Parameters
1.2.4 Modulation Measurement

1.3 How to use the Native Mode

1.4 Character Programs Available for
Setting Numeric Program Data
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 of Basic Test Diagram]

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 Basic Flow of Control

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

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
# 1.2 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?`

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

Conversion rule
1. Delete the numeric parameter in the program header of an SCPI mode, and describe the argument corresponding to the numeric parameter as the first argument. If the argument can have only one numeric value and the argument can be omitted, omit it. Describe the argument if it cannot be omitted.

2. Use the first one if multiple nodes can be selected.

3. Delete those layers which can be deleted.

4. Alter all long forms into short forms.

5. Delete the colon mark (“:”) at the head.
Example 1
Convert :CALCulate:MARKer[1]|2[:SET]:CENTer into a Native mode.

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

2.1  Selecting Application ................................................................. 2-17
2.1.1  Loading application................................................................. 2-18
 :SYSTem:APPLication:LOAD BASE5G ................................................. 2-18
 :SYSTem:APPLication:UNLoad BASE5G ........................................... 2-18
2.1.2  Selecting application............................................................... 2-19
 :INStrument[:SELect] BASE5G|CONFIG .................................................. 2-19
 :INStrument[:SELect]? ........................................................................... 2-19
 :INStrument:SYSTem BASE5G,[ACTive]|INACTive|MINimum .................. 2-20
 :INStrument:SYSTem? BASE5G ............................................................... 2-20
2.1.3  Initialization ............................................................................... 2-21
 :INStrument:DEFault ........................................................................... 2-21
 :SYSTem:PRESet .................................................................................. 2-21
2.2  Setting Basic Parameters .............................................................. 2-22
2.2.1  Center Frequency ................................................................. 2-23
 [:SENSe]:FREQuency:CENTer <freq> ................................................ 2-23
 [:SENSe]:FREQuency:CENTer? .................................................................. 2-24
2.2.2  RF Spectrum ............................................................................... 2-25
 [:SENSe]:SPECtrum NORMal|REVerse .................................................. 2-25
 [:SENSe]:SPECtrum? ............................................................................ 2-25
2.2.3  Input Level ................................................................................. 2-26
 [:SENSe]:POWer[:RF]:RANGe:ILEVel <real> ....................................... 2-26
 [:SENSe]:POWer[:RF]:RANGe:ILEVel? .................................................. 2-27
 [:SENSe]:POWer[:RF]:RANGe:AUTO ONCE ....................................... 2-27
2.2.4  Attenuator ................................................................................ 2-28
 [:SENSe]:POWer[:RF]:ATTenuation:AUTO ON|OFF|1|0 ....................... 2-28
 [:SENSe]:POWer[:RF]:ATTenuation:AUTO? .......................................... 2-28
2.2.5  Attenuator Value ................................................................. 2-29
 [:SENSe]:POWer[:RF]:ATTenuation <rel_ampl> ................................... 2-29
 [:SENSe]:POWer[:RF]:ATTenuation? ..................................................... 2-29
2.2.6  Level Offset ............................................................................... 2-30
 :DISPlay:WINDow[1]:TRACe:y[:SCAlE]:RLEVel:OFFSet <rel_power> .......... 2-30
 :DISPlay:WINDow[1]:TRACe:y[:SCAlE]:RLEVel:OFFSet? ........................ 2-30
2.2.7  Level Offset State ................................................................. 2-31
 :DISPlay:WINDow[1]:TRACe:y[:SCAlE]:RLEVel:OFFSet:STATe OFF|ON|0|1 .... 2-31
 :DISPlay:WINDow[1]:TRACe:y[:SCAlE]:RLEVel:OFFSet:STATe? ............. 2-31
Chapter 2  SCPI Device Message Details

2.2.8 Pre Amp........................................................................................................... 2-32
[:SENSe]:POWer[:RF]:GAIN[:STATe] OFF|ON[0]|1 ................................................................. 2-32
[:SENSe]:POWer[:RF]:GAIN[:STATe]............................................................................... 2-32
2.2.9 Standard ........................................................................................................... 2-33
[:SENSe]:RADIo:STANdard
NR_TDD_SUB6GHZ_DL|NR_TDD_MMWAVE_DL|NR_TDD_SUB6GHZ_UL |NR_TDD_MMWAVE_UL ........................................................................................................ 2-33
[:SENSe]:RADIo:STANdard? ......................................................................................... 2-34
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis) ........................................................................................................ 2-35
2.3.1 Test Model ........................................................................................................ 2-39
[:SENSe]:RADIo:TMODEl <model> ............................................................................. 2-39
[:SENSe]:RADIo:TMODEl? ......................................................................................... 2-40
2.3.2 Subcarrier Spacing ........................................................................................... 2-41
[:SENSe]:RADIo:SUBCarrier:SPACing 15|30|120 ......................................................... 2-41
[:SENSe]:RADIo:SUBCarrier:SPACing? .................................................................... 2-41
2.3.3 Number of RBs .................................................................................................. 2-42
[:SENSe]:RADIo:RBLock:NUMBer <mode> ................................................................. 2-42
[:SENSe]:RADIo:RBLock:NUMBer? ........................................................................... 2-43
2.3.4 Cell ID .................................................................................................................. 2-44
CALCulate:EVM:CELLid <integer>............................................................................ 2-44
CALCulate:EVM:CELLid? ......................................................................................... 2-44
2.3.5 Synchronization Mode ....................................................................................... 2-45
[:SENSe]:RADIo:SYNChronization:MODE SS|RS .................................................. 2-45
[:SENSe]:RADIo:SYNChronization:MODE? ................................................................ 2-45
2.3.6 Phase Compensation .......................................................................................... 2-46
[:SENSe]:RADIo:PCOMPensation[:STATe] 0|1|ON|OFF .............................................. 2-46
[:SENSe]:RADIo:PCOMPensation[:STATe] ................................................................ 2-46
2.3.7 SS-Block On/Off .................................................................................................. 2-47
::*CALCulate:EVM:SSBLock[:STATe] 0|1|ON|OFF .................................................... 2-47
::*CALCulate:EVM:SSBLock[:STATe] ......................................................................... 2-47
2.3.8 SS-Block Candidate ............................................................................................ 2-48
::*CALCulate:EVM:SSBLock:CANDidate A4|A8|B4|B8|C4|C8|D64 .................................. 2-48
::*CALCulate:EVM:SSBLock:CANDidate? .................................................................. 2-48
2.3.9 SS-Block Subcarrier Offset ................................................................................ 2-49
::*CALCulate:EVM:SSBLock:SUBCarrier:OFFSet <integer> ...................................... 2-49
::*CALCulate:EVM:SSBLock:SUBCarrier:OFFSet? ..................................................... 2-49
2.3.10 SS-Block RB Offset .......................................................................................... 2-50
::*CALCulate:EVM:SSBLock:RBLock:OFFSet <integer> ............................................ 2-50
::*CALCulate:EVM:SSBLock:RBLock:OFFSet? ............................................................ 2-50
2.3.11 SS-Block Periodicity ........................................................................................ 2-51
::*CALCulate:EVM:SSBLock:PERiodicity 10|20 ....................................................... 2-51
::*CALCulate:EVM:SSBLock:PERiodicity? ............................................................... 2-51
2.3.12 SS-Block Analysis Frame Number ..................................................................... 2-53
Chapter 2  SCPI Device Message Details


2.3.13 SS-Block Transmission .......................................................... 2-54

:CALCulate:EVM:SSBLock:INDEX[0]|1…|63:TRANsmission[:STATe] OFF|ON|0|1 .......................................................... 2-54
:CALCulate:EVM:SSBLock:INDEX[0]|1…|63:TRANsmission[:STATe]? .......................................................... 2-54
:CALCulate:EVM:SSBLock:TRANsmission[:STATe] OFF|ON|0|1 ......................................................... 2-55

2.3.14 PDCCH/DM-RS On/Off .......................................................... 2-56

:CALCulate:EVM:SLOT[0]|1…|79:PDCCh[:STATe] OFF|ON|0|1 .......................................................... 2-56
:CALCulate:EVM:SLOT[0]|1…|79:PDCCh[:STATe]? .......................................................... 2-57
:CALCulate:EVM:PDCCh[:STATe] OFF|ON|0|1 .......................................................... 2-58

2.3.15 PDSCH/DM-RS On/Off .......................................................... 2-59

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh[:STATe] OFF|ON|0|1 .......................................................... 2-59
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh[:STATe]? .......................................................... 2-60
:CALCulate:EVM:PDSCh[:STATe] OFF|ON|0|1 .......................................................... 2-61

2.3.16 PDSCH/DM-RS Antenna Port .......................................................... 2-62

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:APORt 1000|1001|1002|1003 .......................................................... 2-62
:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:APORt? .......................................................... 2-63
:CALCulate:EVM:PDSCh:APORt 1000|1001|1002|1003 .......................................................... 2-64

2.3.17 PDSCH Modulation Scheme .......................................................... 2-65

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO .......................................................... 2-65
:CALCulate:EVM:PDSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO .......................................................... 2-67

2.3.18 PDSCH Mapping Type .......................................................... 2-68

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:MAPPing:TYPE A|B .......................................................... 2-68
:CALCulate:EVM:PDSCh:MAPPing:TYPE A|B .......................................................... 2-70

2.3.19 PDSCH Start Symbol .......................................................... 2-71

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:SYMBol:START <integer> .......................................................... 2-71
:CALCulate:EVM:PDSCh:SYMBol:START <integer> .......................................................... 2-73

2.3.20 PDSCH Number of Symbols .......................................................... 2-74

:CALCulate:EVM:PDSCh:SYMBol:LENGTH <integer> .......................................................... 2-75

2.3.21 PDSCH Power Boosting (Auto/Manual) .......................................................... 2-76

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1 .......................................................... 2-76
:CALCulate:EVM:PDSCh:POWer:AUTO OFF|ON|0|1 .......................................................... 2-77

2.3.22 PDSCH Power Boosting .......................................................... 2-78

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:POWer:BOOSTing <rel_power> .......................................................... 2-78
:CALCulate:EVM:PDSCh:POWer:BOOSTing <rel_power> .......................................................... 2-80

2.3.23 PDSCH DM-RS typeA-pos .......................................................... 2-81
Chapter 2  SCPI Device Message Details

2.3.24  PDSCH DM-RS add-pos

2.3.25  PDSCH DM-RS CDM Group Without Data

2.3.26  PDSCH PTRS

2.3.27  PDSCH PTRS Time Density

2.3.28  PDSCH PTRS Freq. Density

2.3.29  PDSCH RBs Allocation Auto Detect

2.3.30  PDSCH RBs Allocation Start RB

2.3.31  PDSCH RBs Allocation Number of RBs

2.3.32  Equalizer Use Data

2.3.33  Amplitude Tracking
Chapter 2  SCPI Device Message Details

2.3.35 Phase Tracking .......................................................... 2-105
   ::CALCulate:EVM:TRACK:AMPLitude[:STATe]?

2.3.36 Timing Tracking .......................................................... 2-107
   ::CALCulate:EVM:TRACK:TIMing[:STATe] OFF|ON|0|1
   ::CALCulate:EVM:TRACK:TIMing[:STATe]?

2.3.37 Number Of Carriers .......................................................... 2-108
   [:SENSe]:EVM:RADIO:NCARRIER <integer>
   [:SENSe]:EVM:RADIO:NCARRIER?

2.3.38 Reference Carrier .......................................................... 2-109
   [:SENSe]:EVM:RADIO:CARRIER <integer>
   [:SENSe]:EVM:RADIO:CARRIER?

2.3.39 Multicarrier Filter ......................................................... 2-110
   ::CALCulate:EVM:MCARRIER:FILTER[:STATe] OFF|ON|0|1
   ::CALCulate:EVM:MCARRIER:FILTER[:STATe]?

2.3.40 Frequency Offset ......................................................... 2-111
   ::CALCulate:EVM:FREQUENCY:OFFSET <rel_frequency_offset_Hz>
   ::CALCulate:EVM:FREQUENCY:OFFSET?

2.3.41 EVM Window ............................................................. 2-112
   ::CALCulate:EVM:EWINdow[:STATe] OFF|ON|0|1
   ::CALCulate:EVM:EWINdow[:STATe]?

2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier
   Aggregation Analysis) .......................................................... 2-113

2.4.1 Number Of Carriers ....................................................... 2-120
   [:SENSe]:CAGG:RADIO:NCARRIER <integer>
   [:SENSe]:CAGG:RADIO:NCARRIER?

2.4.2 Reference Carrier ........................................................... 2-121
   [:SENSe]:CAGG:RADIO:CARRIER <integer>
   [:SENSe]:CAGG:RADIO:CARRIER?

2.4.3 Frequency Offset ........................................................... 2-122
   ::CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:FREQUENCY:OFFSET <rel_frequency_offset_Hz>
   ::CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:FREQUENCY:OFFSET?

2.4.4 Phase Compensation .................................................... 2-123
   [:SENSe]:CAGG:RADIO:PCOMPensation[:STATe] 0|1|ON|OFF
   [:SENSe]:CAGG:RADIO:PCOMPensation[:STATe]?

2.4.5 Test Model ................................................................. 2-124
   [: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?

2.4.6 Subcarrier Spacing ....................................................... 2-126
   [:SENSe]:CAGG:RADIO:SUBCarrier:SPACING 120
   [:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADIO:SUBCarrier:SPACING 120
   [:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADIO:SUBCarrier:SPACING?
Chapter 2  SCPI Device Message Details

2.4.7 Number of RBs

[:SENSe]:CAGG:RADio:RBLock:NUMBer <mode> .............................................................. 2-128
[:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADio:RBLock:NUMBer <mode> ........................................ 2-128
[:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADio:RBLock:NUMBer? ........................................ 2-129

2.4.8 Cell ID

CALCulate:CAGG:CELLid <integer> .................................................................................. 2-130
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:CELLid <integer> ................................................... 2-130
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:CELLid? ................................................................... 2-131

2.4.9 Synchronization Mode

[:SENSe]:CAGG:RADio:SYNChronization:MODE SS|RS .................................................... 2-132
[:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADio:SYNChronization:MODE SS|RS ........................................ 2-132
[:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADio:SYNChronization:MODE? ........................................ 2-133

2.4.10 SS-Block On/Off

CALCulate:CAGG:SSBLock[:STATe] 0|1|ON|OFF ............................................................ 2-134
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock[:STATe] 0|1|ON|OFF ........................................... 2-134
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock[:STATe]? .................................................. 2-135

2.4.11 SS-Block Subcarrier Offset

CALCulate:CAGG:SSBLock:SUBCarrier:OFFSet <integer> ................................................... 2-138
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:SUBCarrier:OFFSet <integer> ..................... 2-138
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:SUBCarrier:OFFSet? .................................. 2-139

2.4.12 SS-Block RB Offset

CALCulate:CAGG:SSBLock:RBLock:OFFSet <integer> ....................................................... 2-140
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:RBLock:OFFSet <integer> ......................... 2-140
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:RBLock:OFFSet? ...................................... 2-141

2.4.13 SS-Block Periodicity

CALCulate:CAGG:SSBLock:PERiodicity 10|20 ................................................................... 2-142
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:PERiodicity 10|20 ........................................... 2-142
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:PERiodicity? .............................................. 2-143

2.4.14 SS-Block Analysis Frame Number

CALCulate:CAGG:SSBLock:ANALysis:FRAME:NUMBer <integer> ..................................... 2-144
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:ANALysis:FRAME:NUMBer <integer> .......... 2-144

2.4.15 PDCCH/DM-RS On/Off

CALCulate:CAGG:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ........................................ 2-146
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDCCh[:STATe] OFF|ON|0|1 ...................... 2-146
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDCh[:STATe] OFF|ON|0|1 ........................................ 2-147
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDCh[:STATe] OFF|ON|0|1? .................................................. 2-147

2.4.16 PDSCH/DM-RS On/Off

CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1 ........................................ 2-149
CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1 ...................... 2-149
Chapter 2  SCPI Device Message Details

2.4.18  PDSCH/DM-RS Antenna Port

2.4.19  PDSCH Modulation Scheme

2.4.20  PDSCH Mapping Type

2.4.21  PDSCH Start Symbol

2.4.22  PDSCH Number of Symbols

2.4.23  PDSCH Power Boosting (Auto/Manual)
2.4.24 PDSCH Power Boosting

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:POWER:BOOSTing <rel_power> ............................... 2-172

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:POWER:BOOSTing <rel_power> ........................................ 2-173

:CALCulate:CAGG:PDSCh:POWER:BOOSTing <rel_power> ................................................................. 2-174


2.4.25 PDSCH DM-RS typeA-pos


:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MAPPING:DMRS:APOSITION <integer> .................... 2-177


2.4.26 PDSCH DM-RS add-pos


:CALCulate:CAGG:PDSCh:DMRS:APOSITION <integer> ................................................................. 2-180

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:APOSITION <integer> ............................................ 2-180


2.4.27 PDSCH DM-RS CDM Group Without Data

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:DMRS:CDM 1|2 .......................................................... 2-182

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:DMRS:CDM 1|2 .......................................................... 2-182

:CALCulate:CAGG:PDSCh:DMRS:CDM 1|2 ...................................................................................... 2-183

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:DMRS:CDM 1|2 ............................................ 2-183


2.4.28 PDSCH PTRS

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:PTRS:[STATE] OFF|ON|0|1 ...................................................... 2-185

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS:[STATE] OFF|ON|0|1 ...................................................... 2-185

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS:[STATE]? .............................................................. 2-186

2.4.29 PDSCH PTRS Time Density


:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS:DENSITY:TIME 1|2|4 ...................................................... 2-188


:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:PDSCh:PTRS:DENSITY:TIME 1|2|4 ...................................................... 2-189


2.4.30 PDSCH PTRS Freq. Density


2.4.31 PDSCH PTRS RE Offset

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:PTRS:OFFSet 00|01|10|11 ................................. 2-194
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS:OFFSet 00|01|10|11 ................................. 2-195
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:OFFSet 00|01|10|11 ................................. 2-195

2.4.32 PDSCH RBs Allocation Auto Detect

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF ............................... 2-197
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:AUTO 0|1|ON|OFF .......................................................................................................................... 2-197
:CALCulate:CAGG:PDSCh:RBLock:AUTO 0|1|ON|OFF .......................................................... 2-198
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:AUTO 0|1|ON|OFF .......................................................... 2-198

2.4.33 PDSCH RBs Allocation Start RB

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer> .................................. 2-200
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STARt <integer>... 2-200
:CALCulate:CAGG:PDSCh:RBLock:STARt <integer> ............................................................. 2-201
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:STARt <integer> ............................................................. 2-201

2.4.34 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> ...................................................... 2-203
:CALCulate:CAGG:PDSCh:RBLock:LENGth <integer> ........................................................... 2-204
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:LENGth <integer> ........................................................... 2-204

2.4.35 Equalizer Use Data

[:SENSe]:CAGG:RADio:EQUalizer:DATA 0|1|ON|OFF ........................................ 2-206
[:SENSe]:CAGG:RADio:EQUalizer:DATA? .............................................................. 2-206

2.4.36 Amplitude Tracking

:CALCulate:CAGG:TRACK:AMPLitude[:STATe] OFF|ON|0|1 .................................................. 2-207
:CALCulate:CAGG:TRACK:AMPLitude[:STATe]? ....................................................... 2-207

2.4.37 Phase Tracking

:CALCulate:CAGG:TRACK:PHASE[:STATe] OFF|ON|0|1 ..................................................... 2-208
:CALCulate:CAGG:TRACK:PHASE[:STATe]? ............................................................. 2-208

2.4.38 Timing Tracking

:CALCulate:CAGG:TRACK:TIMing[:STATe] OFF|ON|0|1 ..................................................... 2-209
:CALCulate:CAGG:TRACK:TIMing[:STATe]? ............................................................. 2-209
Chapter 2  SCPI Device Message Details

2.4.39 Multicarrier Filter

- CALCulate:CAGG:MCARrier:FiLTer[:STATe] OFF|ON|0|1 ........................................... 2-210
- CALCulate:CAGG:MCARrier:FiLTer[:STATe]? ......................................................... 2-210

2.4.40 EVM Window

- CALCulate:CAGG:EWINdow[:STATe] OFF|ON|0|1 ........................................ 2-211
- CALCulate:CAGG:EWINdow[:STATe]? ................................................................. 2-211

2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis) ......................................................... 2-212

2.5.1 Subcarrier Spacing

- [:SENSe]:RADio:SUBCarrier:SPACing 15|30|120 ........................................ 2-215
- [:SENSe]:RADio:SUBCarrier:SPACing? ........................................................... 2-215

2.5.2 Number of RBs

- [:SENSe]:RADio:RBLock:NUMBer <mode> .................................................. 2-216
- [:SENSe]:RADio:RBLock:NUMBer? ................................................................. 2-217

2.5.3 Cell ID

- CALCulate:EVM:CELLid <integer> ................................................................. 2-218
- CALCulate:EVM:CELLid? ............................................................................... 2-218

2.5.4 Phase Compensation

- [:SENSe]:RADio:PCOMpensation[:STATe] 0|1|ON|OFF .................................. 2-219
- [:SENSe]:RADio:PCOMpensation[:STATe]? ............................................... 2-219

2.5.5 PUSCH/DM-RS On/Off

- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe] OFF|ON|0|1 ........................................ 2-220
- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh[:STATe]? ............................................ 2-221
- CALCulate:EVM:PUSCh[:STATe] OFF|ON|0|1 ............................................... 2-222

2.5.6 PUSCH/DM-RS Antenna Port

- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt 1000|1001|1002|1003 .................. 2-223
- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:APORt? ............................................... 2-224
- CALCulate:EVM:PUSCh:APORt 1000|1001|1002|1003 ........................................ 2-225

2.5.7 PUSCH Modulation Scheme

- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO .................................................... 2-226
- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MODulation? ........................................ 2-227
- CALCulate:EVM:PUSCh:MODulation QPSK|16Qam|64Qam|256Qam|AUTO ................. 2-228

2.5.8 PUSCH Mapping Type

- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:MAPPing:TYPE A|B .................................. 2-229
- CALCulate:EVM:PUSCh:MAPPing:TYPE A|B ............................................... 2-231

2.5.9 PUSCH Start Symbol

- CALCulate:EVM:PUSCh:SYMBol:STARt <integer> ........................................ 2-234

2.5.10 PUSCH Number of Symbols

- CALCulate:EVM:SLOT[0]|1|…|79:PUSCh:SYMBol:LENGth <integer> ..................... 2-235
Chapter 2  SCPI Device Message Details

:CALCulate:EVM:PUSCh:SYMBol:LENGth <integer> .............................................................. 2-236

2.5.11 PUSCH Power Boosting (Auto/Manual) ................................................................. 2-237
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:POWer:AUTo OFF|ON|0|1 ........................................ 2-237
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:POWer:AUTO? ....................................................... 2-238
  :CALCulate:EVM:PUSCh:POWer:AUTO OFF|ON|0|1 ............................................................. 2-238

2.5.12 PUSCH Power Boosting ................................................................. 2-239
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:POWer:BOOSTing <rel_power> ............................ 2-239
  :CALCulate:EVM:PUSCh:POWer:BOOSting <rel_power> ................................................... 2-241

2.5.13 PUSCH DM-RS typeA-pos ................................................................. 2-242
  :CALCulate:EVM:PUSCh:MAPPing:DMRS:APOsition <integer> ........................................ 2-243

2.5.14 PUSCH DM-RS add-pos ................................................................. 2-244
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:DMRS:APOsition <integer> ................................. 2-244
  :CALCulate:EVM:PUSCh:DMRS:APOsition <integer> ..................................................... 2-245

2.5.15 PUSCH DM-RS CDM Group Without Data ......................................................... 2-246
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:DMRS:CDM 1|2 .................................................. 2-246
  :CALCulate:EVM:PUSCh:DMRS:CDM 1|2 ........................................................................ 2-247

2.5.16 PUSCH PTRS ................................................................. 2-248
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:PTRS[:STATe] OFF|ON|0|1 .................................. 2-248
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:PTRS[:STATe]? .................................................. 2-249
  :CALCulate:EVM:PUSCh:PTRS[:STATe] OFF|ON|0|1 ....................................................... 2-250

2.5.17 PUSCH PTRS Time Density ................................................................. 2-251

2.5.18 PUSCH PTRS Freq. Density ................................................................. 2-253

2.5.19 PUSCH PTRS RE Offset ................................................................. 2-255
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:PTRS:OFFSet 00|01|10|11 ....................................... 2-255
  :CALCulate:EVM:PUSCh:PTRS:OFFSet 00|01|10|11 ....................................................... 2-256

2.5.20 PUSCH RBs Allocation Auto Detect ................................................................. 2-257
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:RBLock:AUTO 0|1|ON|OFF .................................... 2-257
  :CALCulate:EVM:PUSCh:RBLock:AUTO 0|1|ON|OFF ...................................................... 2-259

2.5.21 PUSCH RBs Allocation Start RB ................................................................. 2-260
  :CALCulate:EVM:SLOT[0]1…79:PUSCh:RBLock:STARt <integer> ................................. 2-260
Chapter 2  SCPI Device Message Details

2.5.22 PUSCH RBs Allocation Number of RBs

2.5.23 Equalizer Use Data

2.5.24 Amplitude Tracking

2.5.25 Phase Tracking

2.5.26 Timing Tracking

2.5.27 Multicarrier Filter

2.5.28 EVM Window

2.6 Utility Function

2.6.1 Erase Warm Up Message

2.6.2 Display Title

2.6.3 Title Entry

2.7 Common Measurement Function

2.7.1 Measurement and control

2.7.2 Trigger Switch
Chapter 2  SCPI Device Message Details

:TRIGger[:SEQuence][:STATE] OFF|ON|0|1 .............................................................................................. 2-282
:TRIGger[:SEQUence][:STATE]? .................................................................................................................. 2-282

2.7.3 Trigger Source .................................................................................................................................... 2-283
:TRIGger[:SEQUence]:SOURce EXTernal|1|2|SG|IMMediate ........................................................................................ 2-283
:TRIGger[:SEQUence]:SOURce? .................................................................................................................. 2-283

2.7.4 Trigger Slope .................................................................................................................................... 2-284
:TRIGger[:SEQUence]:SLOPe POSitive|NEGative ..................................................................................... 2-284
:TRIGger[:SEQUence]:SLOPe? .................................................................................................................. 2-284

2.7.5 Trigger Delay .................................................................................................................................... 2-285
:TRIGger[:SEQUence]:DELay <time> ........................................................................................................ 2-285
:TRIGger[:SEQUence]:DELay? .................................................................................................................. 2-286

2.8 Modulation Measurement Function ................................................................................................. 2-287

2.8.1 Measure............................................................................................................................................... 2-304

:CONFigure:EVM ........................................................................................................................................ 2-304
:INITiate:EVM ............................................................................................................................................. 2-304
:FETCh:EVM[n]? .......................................................................................................................................... 2-305
:READ:EVM[n]? .......................................................................................................................................... 2-305
:MEASure:EVM[n]? ..................................................................................................................................... 2-306

2.8.2 Storage Mode ..................................................................................................................................... 2-307
[:SENSe]:EVM:AVERage[:STATE] OFF|ON|AMAXimum|0|1|2 ........................................................................ 2-307
[:SENSe]:EVM:AVERage[:STATE]? ................................................................................................................ 2-307

2.8.3 Storage Count ..................................................................................................................................... 2-308
[:SENSe]:EVM:AVERage:COUNt <integer> ................................................................................................. 2-308
[:SENSe]:EVM:AVERage:COUNt? .................................................................................................................. 2-308

2.8.4 Scale – EVM Unit ................................................................................................................................. 2-309

:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing LINear|LOGarithmic|PERCent|DB ........................................................................................................................................................................... 2-309
:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:SPACing? ................................................................................................................................. 2-309

2.8.5 Scale – EVM ......................................................................................................................................... 2-310
:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:RLEVel 2|5|10|20|-40|-20|0 ................................................................................................. 2-310
:DISPlay:EVM[:VIEW]:WINDow2|3|5|6|7:TRACe:Y[:SCALe]:RLEVel? ................................................................................................................................. 2-311

2.8.6 Scale – Flatness .................................................................................................................................. 2-312
:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel <scale> ................................................................................................................................. 2-312
:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel? ................................................................................................................................. 2-312

2.8.7 Trace Mode ......................................................................................................................................... 2-313
:DISPlay:EVM[:VIEW]:SELect EVSubcarrier|EVSYmbol|FLATness|PVRB|EVRB|SUMMary ................................................................................................................................. 2-313
:DISPlay:EVM[:VIEW]:SELect? ......................................................................................................................................................... 2-313

2.8.8 Flatness Type ...................................................................................................................................... 2-314
:CALCulate:EVM:WINDow4:TYPE AMPLitude|PHASE ................................................................................................. 2-314
:CALCulate:EVM:WINDow4:TYPE? ......................................................................................................................................................... 2-314

2.8.9 Graph View Setting ............................................................................................................................ 2-315
:CALCulate:EVM:WINDow2:MODE EACH|AVERage ................................................................................................. 2-315
:CALCulate:EVM:WINDow2:MODE? ......................................................................................................................................................... 2-315
:CALCulate:EVM:WINDow2:GVIew RMS|RPEak ......................................................................................... 2-316
Chapter 2  SCPI Device Message Details

- CALCulate:EVM:WIN dow2:GVle? ........................................................................................................ 2-316
- CALCulate:EVM:WIN dow3:MO DE ..EACH|AV ERage ................................................................. 2-317
- CALCulate:EVM:WIN dow3:GVle RMS|RP Eak ........................................................................ 2-318
- CALCulate:EVM:WIN dow3:GVle? .................................................................................................. 2-318

2.8.10 Marker – Symbol Number

2.8.11 Marker – Subcarrier Number
- CALCulate:EVM:WIN dow3:SUBCarrier:NUMBer <integer> .................................................... 2-320

2.8.12 Slot Number
- CALCulate:EVM:WIN dow5|6:SLOT:NUMBer <integer> .......................................................... 2-321

2.8.13 Resource Block Number
- CALCulate:EVM:WIN dow5|6:RBLoc k:NUMBer <integer> ....................................................... 2-322
- CALCulate:EVM:WIN dow5|6:RBLoc k:NUMBer? ......................................................................... 2-322

2.8.14 Marker Position Number
- CALCulate:EVM:MARKer:SUBCarrier <integer> ...................................................................... 2-323
- CALCulate:EVM:MARKer:SUBCarrier? ....................................................................................... 2-324
- CALCulate:EVM:MARKer:SYMBo l <integer> ............................................................................. 2-325
- CALCulate:EVM:MARKer:SYMBo l? .......................................................................................... 2-325
- CALCulate:EVM:MARKer:RELEme nt <integer> ........................................................................ 2-326
- CALCulate:EVM:MARKer:RELEme nt? ....................................................................................... 2-326

2.8.15 Marker Value
- CALCulate:EVM:MARKer:X? ........................................................................................................ 2-327
- CALCulate:EVM:MARKer:Y[RMS]? ............................................................................................. 2-328
- CALCulate:EVM:MARKer:EVM[RMS]? ...................................................................................... 2-331
- CALCulate:EVM:MARKer:EVM:PEAK? ...................................................................................... 2-332

2.8.16 Peak Search
- CALCulate:MARKer:MAXimum ................................................................................................. 2-334
- CALCulate:MARKer:MAXimum:NEXT ..................................................................................... 2-335
- CALCulate:MARKer:MINimum ................................................................................................. 2-336
- CALCulate:MARKer:MINimum:NEXT ..................................................................................... 2-337

2.9 Carrier Aggregation Measurement Function

2.9.1 Measure
- CONFIGure:CAGG ..................................................................................................................... 2-367
- INITIate:CAGG ........................................................................................................................... 2-367
- FETCH:CAGG[n]? .................................................................................................................... 2-368
- READ:CAGG[n]? ...................................................................................................................... 2-369
- MEASURE:CAGG[n]? ............................................................................................................... 2-369

2.9.2 Scale – EVM Unit ............................................................................................................... 2-370
Chapter 2  SCPI Device Message Details

:DISPLAY:CAGG[:VIEW]:WINdow5|6:7:TRACe:Y[:SCALe]:SPACing
  LINear|LOGarithmic|PERCent|DB ................................................................. 2-370
:DISPLAY:CAGG[:VIEW]:WINdow5|6:7:TRACe:Y[:SCALe]:SPACing? ............................. 2-370

2.9.3  Scale – EVM ..................................................................................................................... 2-371
:DISPLAY:CAGG[:VIEW]:WINdow6:TRACe:Y[:SCALe]:RLEvel <scale> ....................... 2-371
:DISPLAY:CAGG[:VIEW]:WINdow6:TRACe:Y[:SCALe]:RLEvel? .................................... 2-372

2.9.4  Trace Mode....................................................................................................................... 2-373
:DISPLAY:CAGG[:VIEW]:SESelect PVRB|EVRB|SUMMary ........................................... 2-373
:DISPLAY:CAGG[:VIEW]:SESelect? ...................................................................................... 2-373

2.9.5  Carrier Number ................................................................................................................. 2-374
:CALCulate:CAGG:WINdow5|6:CARRier:NUMBer <integer> ........................................... 2-374

2.9.6  Slot Number ...................................................................................................................... 2-375
:CALCulate:CAGG:WINdow5|6:SLOT:NUMBer <integer> ................................................. 2-375

2.9.7  Resource Block Number ................................................................................................... 2-376
:CALCulate:CAGG:WINdow5|6:RBLock:NUMBer <integer> .............................................. 2-376
:CALCulate:CAGG:WINdow5|6:RBLock:NUMBer? ............................................................... 2-376

2.9.8  Marker Position Number ................................................................................................ 2-377
:CALCulate:CAGG:MARKer:CARRier <integer> ............................................................... 2-377
:CALCulate:CAGG:MARKer: CARRier? .............................................................................. 2-377
:CALCulate:CAGG:MARKer:SLOT<integer> ................................................................. 2-378
:CALCulate:CAGG:MARKer:RBLock <integer> ............................................................... 2-379

2.9.9  Marker Value .................................................................................................................... 2-380
:CALCulate:CAGG:MARKer:EVM[:RMS]? ........................................................................... 2-380
:CALCulate:CAGG:MARKer:POWer:[ABSolute]? ......................................................... 2-381

2.9.10 Peak Search ..................................................................................................................... 2-382
:CALCulate:MARKer:MAXimum ....................................................................................... 2-382
:CALCulate:MARKer:MAXimum:NEXT ............................................................................ 2-383
:CALCulate:MARKer:MINimum ......................................................................................... 2-384
:CALCulate:MARKer:MINimum:NEXT ............................................................................... 2-385

2.10  Measurement Result Saving Function ............................................................. 2-386
:MMEMory:STORe:RESult [<filename> [,<device>] ]......................................................... 2-387
:MMEMory:STORe:RESult:MODE XML|CSV ................................................................. 2-388
:MMEMory:STORe:RESult:MODE? ..................................................................................... 2-388

2.11  Replay Function ................................................................................................................ 2-389
:MMEMory:LOAD:IQData:STOP ....................................................................................... 2-390
:MMEMory:LOAD:IQData <filename>,<device>,<application> ........................................ 2-390
:MMEMory:LOAD:IQData:INFormation? ......................................................................... 2-391
:MMEMory:LOAD:IQData:INFormation:DEVice? ........................................................... 2-393
Chapter 2  SCPI Device Message Details

2.1 Selecting Application

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Application</td>
<td>:SYSTem:APPLication:LOAD_BASE5G</td>
</tr>
<tr>
<td>Unload Application</td>
<td>:SYSTem:APPLication:UNLoad_BASE5G</td>
</tr>
<tr>
<td>Application Switch</td>
<td>:INSTRument[:SELeet] BASE5G</td>
</tr>
<tr>
<td></td>
<td>:INSTRument[:SELeet]?</td>
</tr>
<tr>
<td>Application Status</td>
<td>:INSTRument:SYSTem BASE5G,[ACTive]</td>
</tr>
<tr>
<td></td>
<td>:INSTRument:SYSTem? BASE5G</td>
</tr>
<tr>
<td>Initialization</td>
<td>:INSTRument:DEFault</td>
</tr>
<tr>
<td></td>
<td>:SYSTem:FRESet</td>
</tr>
</tbody>
</table>
Chapter 2  SCPI Device Message Details

2.1.1 Loading application

:SYSTem:APPLication:LOAD BASE5G
Load Application

Function
This command loads this application.

Command
:SYSTem:APPLication:LOAD BASE5G

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

Example of Use
To load this application.
SYST:APPL:LOAD BASE5G

:SYSTem:APPLication:UNLoad BASE5G
Unload Application

Function
This command exits this application.

Command
:SYSTem:APPLication:UNLoad BASE5G

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

Example of Use
To exit this application.
SYST:APPL:UNL BASE5G
2.1.2 Selecting application

:INSTrument[:SELect] BASE5G|CONFIG

Application Switch

Function

This command selects the application to be controlled.

Command

:INSTrument[:SELect] <apl_name>

Parameter

<apl_name> Application name
  BASE5G This application
  CONFIG Config

Example of Use

To switch the control target to this application.
INST BASE5G

:INSTrument[:SELect]?

Application Switch Query

Function

This command queries the application being controlled currently.

Query

:INSTrument[:SELect]?

Response

<apl_name>

Parameter

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

Details

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

Example of Use

To query the application being controlled.
INST?
> BASE5G
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
<window>  Window status
ACTive    Active
INActive   Inactive
MINimum   Minimized
When omitted Active

Example of Use
To set the window status of this application to be active.
INST:SYST BASE5G,ACT

:INSTrument:SYSTem? BASE5G
Application Switch And Window Status Query

Function
This command queries the window status of this application.

Query
:INSTrument:SYSTem? BASE5G

Response
<status>,<window>

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

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

Example of Use
To query the window status of this application.
INST:SYST BASE5G
> CURR,ACT
2.1.3 Initialization

:INSTrument:DEFault
Preset Current Application

Function

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

Command

:INSTrument:DEFault

Example of Use

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

INST:DEF

:SYSTem:PRESet
Preset Current Application

Function

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

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 2.2-1  Device Messages for Setting Basic Parameters

<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>NR_TDD_SUB6GHZ_UL</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:STANdard?</td>
</tr>
</tbody>
</table>
2.2 Setting Basic Parameters

2.2.1 Center Frequency

[:SENSe]:FREQuency:CENTer <freq>

Function

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

Command

[:SENSe]:FREQuency:CENTer <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 6 GHz</td>
</tr>
<tr>
<td>MS269xA</td>
<td>X</td>
<td>X</td>
<td>✓/X</td>
<td>100 MHz to 6 GHz, 100 MHz to 13.5 GHz</td>
</tr>
<tr>
<td>MS2690A</td>
<td>X</td>
<td>X</td>
<td>✓/X</td>
<td>100 MHz to 26.5 GHz</td>
</tr>
<tr>
<td>MS2691A</td>
<td>✓</td>
<td>✓/X</td>
<td>✓</td>
<td>100 MHz to 26.5 GHz</td>
</tr>
<tr>
<td>MS2692A</td>
<td>✓</td>
<td>✓/X</td>
<td>✓</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>X</td>
<td>X</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>✓/X</td>
<td>100 MHz to 26.5 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>Installed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Not installed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓/X</td>
<td>Installed or Not installed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Resolution 1 Hz

Value is returned in Hz units.

Example of Use

To query the center frequency.

FREQ:CENT?

> 28000000000
2.2 Setting Basic Parameters

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)
  - **REVere** 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>**

  - **Spectrum reverse**
  - **NORM** Measures without IQ spectrum reverse.
  - **REV** Measures with IQ spectrum reverse.

**Example of Use**

To query the spectrum reverse function setting.

SPEC?

> NORM
### 2.2.3 Input Level

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

**Input Level**

**Function**

This command sets the input level of RF signals.

**Command**

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

**Parameter**

<real>  

Input level

Range  

(−60.00 + level offset) to (30.00 + level offset) dBm  
(Pre-Amp Off)

(−80.00 + level offset) to (10.00 + level offset) dBm  
(Pre-Amp On)

Resolution  

0.01 dB

Unit  

1 dBm

Suffix code  

DBM

dBm is used when omitted.

Default  

−10.00 dBm

**Details**

The setting range when Pre Amp is Off is applied if the MS2850A-068/168 Microwave Preamplifier is not installed.

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

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

**Example of Use**

To set the input level to 0 dBm.

:POW:RANG:ILEV 0
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
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>  
<table>
<thead>
<tr>
<th>Automatic attenuation setting function On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

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>  
<table>
<thead>
<tr>
<th>Automatic mode On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

Example of Use
To query the On/Off state of the automatic attenuation setting function.
POW:ATT:AUTO?
> 1
2.2 Setting Basic Parameters

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

Example of Use
To query the attenuator value.
POW:ATT?
> 10
2.2.6 Level Offset

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

Level Offset Value

Function
This command sets the offset value for the input level.

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

Parameter

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

Example of Use
To set the offset value for the input level to +10 dB.

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

Level Offset Value Query

Function
This command queries the offset value of the input level.

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

Response
<rel_power>

Parameter

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

Example of Use
To query the offset value of the input level.
DISP:WIND:TRAC:Y:RLEV:OFFS?
> 10.00
2.2 Setting Basic Parameters

2.2.7 Level Offset State

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

Level Offset State

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

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

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

Example of Use
To enable the input level offset function.
DISP:WIND:TRAC:Y:RLEV:OFFS:STAT ON

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

Level Offset State Query

Function
This command queries the setting whether the input level offset function is enabled.

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

Response
<switch>

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

Example of Use
To query the setting whether the input level offset function is enabled.
> 1
2.2.8 Pre Amp

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

Pre Amp

Function
This command sets Pre-amp On/Off.

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

Parameter

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Pre-amp On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

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

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

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

**Function**

This command sets the 5G Standard.

**Command**

[:SENSe]:RADio:STANdard <mode>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR_TDD_SUB6GHZ_DL</td>
<td>NR TDD sub-6GHz Downlink</td>
</tr>
<tr>
<td>NR_TDD_MMWAVE_DL</td>
<td>NR TDD mmWave Downlink</td>
</tr>
<tr>
<td>NR_TDD_SUB6GHZ_UL</td>
<td>NR TDD sub-6GHz Uplink</td>
</tr>
<tr>
<td>NR_TDD_MMWAVE_UL</td>
<td>NR TDD mmWave Uplink</td>
</tr>
</tbody>
</table>

**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>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>Synchronization Mode</td>
<td>[:SENSe]:RADio:SYNChronization:MODE SS</td>
</tr>
<tr>
<td>Phase Compensation</td>
<td>[:SENSe]:RADio:PCOMPensation[:STATe] 0</td>
</tr>
<tr>
<td>SS-Block On/Off</td>
<td>:CALCulate:EVM:SSBLock[:STATe] 0</td>
</tr>
<tr>
<td>SS-Block Candidate</td>
<td>:CALCulate:EVM:SSBLock:CANDidate A4</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>PDCCH/DM-RS On/Off</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDCCh[:STATe] OFF</td>
</tr>
<tr>
<td>PDSCH/DM-RS On/Off</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[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSCh:APOrt 1000</td>
</tr>
<tr>
<td>PDSCH Modulation Scheme</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:MODulation QPSK</td>
</tr>
<tr>
<td>PDSCH 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:PDSCh:MAPPing:TYPE A</td>
</tr>
<tr>
<td>PDSCH Start Symbol</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:SYMBol:STARt &lt;integer&gt;</td>
</tr>
<tr>
<td>PDSCH Number of Symbols</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:SYMBol:LENGth &lt;integer&gt;</td>
</tr>
<tr>
<td>PDSCH Power Boosting</td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSCh:POWer:AUTO OFF</td>
</tr>
<tr>
<td>PDSCH 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:PDSCh:POWer:BOOSting &lt;rel_power&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:PDSCh:MAPPing:DMRS:APOSition &lt;integer&gt;</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>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: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>
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>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:NCARrier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:RADio:NCARrier?</td>
</tr>
<tr>
<td>Reference Carrier</td>
<td>[:SENSe]:EVM:RADio:CARRier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:EVM:RADio:CARRier?</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>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>EVM Window</td>
<td>:CALCulate:EVM:EWINdow[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:EWINdow[:STATe]?</td>
</tr>
</tbody>
</table>
### 2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

#### 2.3.1 Test Model

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

Test 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>Standard: NR TDD sub-6GHz Downlink</td>
<td></td>
</tr>
<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>
<tr>
<td>Standard: NR TDD mmWave Downlink</td>
<td></td>
</tr>
<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>

**Details**

The selectable Test Model varies depending on the Standard.

**Example of Use**

To set the Test Model to FR1_TM3_1.

RAD:TMOD FR1_TM3_1
[:SENSe]:RADio:TMODel?

Test Model Query

Function

This command queries the setting of Test Model.

Query

[:SENSe]:RADio:TMODel?

Response

<model>

Parameter

<model> Test Model

Standard: NR TDD sub-6GHz Downlink

OFF OFF (Default)
FR1_TM1_1 NR-FR1-TM1.1
FR1_TM1_2 NR-FR1-TM1.2
FR1_TM2 NR-FR1-TM2
FR1_TM2A NR-FR1-TM2a
FR1_TM3_1 NR-FR1-TM3.1
FR1_TM3_1A NR-FR1-TM3.1a
FR1_TM3_2 NR-FR1-TM3.2
FR1_TM3_3 NR-FR1-TM3.3

Standard: NR TDD mmWave Downlink

OFF OFF (Default)
FR2_TM1_1 NR-FR2-TM1.1
FR2_TM2 NR-FR2-TM2
FR2_TM3_1 NR-FR2-TM3.1

Example of Use

To query the setting of Test Model.
RAD:TMOD?
> FR1_TM3_1
### 2.3.2 Subcarrier Spacing

[:SENSe]:RADio:SUBCarrier:SPACing 15|30|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>`: 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
2.3.3 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&lt;sup&gt;1&lt;/sup&gt;, 216&lt;sup&gt;1&lt;/sup&gt;, 270&lt;sup&gt;1&lt;/sup&gt; (Default)</td>
</tr>
<tr>
<td>30 kHz</td>
<td>11, 24, 38, 51, 65, 78&lt;sup&gt;1&lt;/sup&gt;, 106&lt;sup&gt;1&lt;/sup&gt;, 133&lt;sup&gt;1&lt;/sup&gt;, 162&lt;sup&gt;2&lt;/sup&gt;, 189&lt;sup&gt;2&lt;/sup&gt;, 217&lt;sup&gt;2&lt;/sup&gt;, 245&lt;sup&gt;2&lt;/sup&gt;, 273&lt;sup&gt;2&lt;/sup&gt; (Default)</td>
</tr>
<tr>
<td>60 kHz</td>
<td>11, 18, 24, 31, 38&lt;sup&gt;1&lt;/sup&gt;, 51&lt;sup&gt;1&lt;/sup&gt;, 65&lt;sup&gt;1&lt;/sup&gt;, 79&lt;sup&gt;2&lt;/sup&gt;, 93&lt;sup&gt;2&lt;/sup&gt;, 107&lt;sup&gt;2&lt;/sup&gt;, 121&lt;sup&gt;2&lt;/sup&gt;, 135&lt;sup&gt;2&lt;/sup&gt; (Default)</td>
</tr>
<tr>
<td>60 kHz MX285051A-011/MX269051A-011</td>
<td>11, 18, 24, 31, 38&lt;sup&gt;1&lt;/sup&gt;, 51&lt;sup&gt;1&lt;/sup&gt;, 65&lt;sup&gt;1&lt;/sup&gt;, 79&lt;sup&gt;2&lt;/sup&gt;, 93&lt;sup&gt;2&lt;/sup&gt;, 107&lt;sup&gt;2&lt;/sup&gt;, 121&lt;sup&gt;2&lt;/sup&gt;, 135&lt;sup&gt;2&lt;/sup&gt; (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&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup>: For MS269xA, this can be selected when MS269xA-077/177 is installed.
<sup>2</sup>: For MS269xA, this can be selected when MS269xA-078/178 is installed.
<sup>3</sup>: 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
2.3.4 Cell ID

CALCulate:EVM:CELLid <integer>

Cell ID

Function

This command sets the Cell ID for Modulation Analysis.

Command

CALCulate:EVM:CELLid <integer>

Parameter

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

Details

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

Example of Use

To set the Cell ID to 1.
CALC:EVM:CELL 1

CALCulate:EVM:CELLid?

Cell ID Query

Function

This command queries the Cell ID for Modulation Analysis.

Query

CALCulate:EVM:CELLid?

Response

<integer>

Parameter

<integer> Cell ID
  Range 0 to 1007
  Resolution 1

Example of Use

To query the Cell ID.
CALC:EVM:CELL?
> 1
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

2.3.5 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
2.3.6 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

<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

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

2.3.7 SS-Block On/Off

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

SS-Block On/Off

Function

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

Command

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

Parameter

<switch> 
OFF|0 Not included
ON|1 Included (Default)

Example of Use

To set SS-Block to Included.
CALC:EVM:SSBL ON

:CALCulate:EVM:SSBLock[:STATe]?

SS-Block On/Off Query

Function

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

Query

:CALCulate:EVM:SSBLock[:STATe]?

Response

<switch>

Parameter

<switch> 
0 Not included
1 Included

Example of Use

To query the setting for SS-Block.
CALC:EVM:SSBL?
> 1
2.3.8 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
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

:CALCulate:EVM:SSBBlock:CANDidate?

SS-Block Candidate Query

Function

This command queries the setting of SS-Block mapping.

Query

:CALCulate:EVM:SSBBlock: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
### 2.3.9 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**

```plaintext
<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**

```plaintext
<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
2.3.10 SS-Block RB Offset

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

SS-Block RB Offset

Function

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

Command

:CALCulate:EVM:SSBBlock: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:SSBBlock:RBLock:OFFSet?

SS-Block RB Offset Query

Function

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

Query

:CALCulate:EVM:SSBBlock: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
2.3.11 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

<table>
<thead>
<tr>
<th>&lt;period&gt;</th>
<th>SS-Block Periodicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10 ms (Default)</td>
</tr>
<tr>
<td>20</td>
<td>20 ms</td>
</tr>
</tbody>
</table>

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

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

Parameter

<table>
<thead>
<tr>
<th>&lt;period&gt;</th>
<th>SS-Block Periodicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10 ms</td>
</tr>
<tr>
<td>20</td>
<td>20 ms</td>
</tr>
</tbody>
</table>

Example of Use

To query the setting of SS-Block Periodicity.

CALC:EVM:SSBL:PER?

> 20
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 Analysis Frame Number

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

SS-Block Analysis Frame Number

Function

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

Command

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

Parameter

<integer> SS-Block Analysis Frame Number

Range 0 to 1
Default 0

Example of Use

To set the SS-Block Analysis Frame Number to 1.
CALC:EVM:SSBL:ANAL:FRAM:NUMB 1

:CALCulate:EVM:SSBLoCk:ANALysis:FRAMe:NUMBer?

SS-Block Analysis Frame Number Query

Function

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

Query

:CALCulate:EVM:SSBLoCk:ANALysis:FRAMe:NUMBer?

Response

<integer>

Parameter

<integer> SS-Block Analysis Frame Number

Range 0 to 1

Example of Use

To query the setting of SS-Block Analysis Frame Number.
CALC:EVM:SSBL:ANAL:FRAM:NUMB?
> 1
2.3.13 SS-Block Transmission

:CALCulate:EVM:SSBLock:IN Dex[0]|1…|63:TRANsmission[:STATe]
OFF|ON|0|1

SS-Block Transmission

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

Command

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…|63: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…|63:TRANsmission[:STATe]?

Response
<switch>

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

Example of Use
To query the setting of SS-Block in Index 1.
CALC:EVM:SSBL:IND1:TRAN?
> 0
:CALCulate:EVM:SSBLock:TRANsmission[:STATe] OFF|ON|0|1

SS-Block Transmission

Function

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

Command

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

Parameter

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

Example of Use

To disable the SS-Block in all indexes.
CALC:EVM:SSBL:TRAN OFF
2.3.14 PDCCH/DM-RS On/Off

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

PDCCH/DM-RS On/Off

Function

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

Command

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

Parameter

<switch>

PDCCH/DM-RS is included (On), not included (Off)

OFF|0 Not included
ON|1 Included (Default)

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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:SLT1:PDCC 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: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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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
Chapter 2  SCPI Device Message Details

: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

PDCCH/DM-RS is included (On), not included (Off)

<switch>
OFF|0  Not included
ON|1  Included (Default)

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

Example of Use
To set PDCCH/DM-RS in all slots to Included.
CALC:EVM:PDCC ON
2.3.15 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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:PDSC ON
Chapter 2  SCPI Device Message Details

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh[:STATe]?
PDSCH/DM-RS On/Off Query

Function

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

Query

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

Response

<switch>

Parameter

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

Details

Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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?
> 1
2.3 Setting System Parameters (MX285051A-011/MX2869051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

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

PDSCH/DM-RS On/Off

**Function**

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

**Command**

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

**Parameter**

<switch>  
OFF|0  Not included  
ON|1  Included (Default)

**Details**

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

**Example of Use**

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

CALC:EVM:PDSC  ON
2.3.16 PDSCH/DM-RS Antenna Port

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

Command

:CALCulate:EVM: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>

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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

1000 1000
1001 1001
1002 1002
1003 1003

**Details**

Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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:PDSC:APOR?

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

PDSCH/DM-RS Antenna Port

Function

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

Command

:CALCulate:EVM:PDSCh:APORt <mode>

Parameter

<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
2.3.17 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 set the PDSCH modulation scheme in Slot 1 to 256QAM.

CALC:EVM:SLOT1:PDSCh:MOD 256Q
Chapter 2  SCPI Device Message Details

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

Response
<mode>

Parameter
<mode>
<table>
<thead>
<tr>
<th>Modulation scheme to analyze PDSCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPSK</td>
</tr>
<tr>
<td>16Qam</td>
</tr>
<tr>
<td>64Qam</td>
</tr>
<tr>
<td>256Qam</td>
</tr>
<tr>
<td>AUTO</td>
</tr>
</tbody>
</table>

| Automatic judgment of input signal modulation scheme |

Details
Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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>
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<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 PDSCH modulation scheme in Slot 1.
CALC:EVM:SLOT1:PDSC:MOD?
> 256Q
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: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

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:PDS:MOD 256Q
2.3.18 PDSCH Mapping Type


PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in each slot.

Command

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

Parameter

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

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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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<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:PDSCh:MAPP:TYPE A
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:MAPPing:TYPE?

PDSCH Mapping Type Query

Function

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

Query

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

Response

<mode>

Parameter

<mode> PDSCH Mapping Type
A A
B B

Details

Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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>
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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 Mapping Type in Slot 1.
CALC:EVM:SLOT1:PDSCh:MAPP:TYPE?
> A
Chapter 2  SCPI Device Message Details

PDSCH Mapping Type

Function
This command sets the PDSCH Mapping Type in all slots.

Command

Parameter

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

Details
The PDSCH settings in all slots are performed collectively.

Example of Use
To set the PDSCH Mapping Type in all slots to A.
CALC:EVM:PDSC:MAPP:TYPE A
2.3.19 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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PDSCH start symbol</th>
</tr>
</thead>
</table>

Range
PDSCH Mapping Type: typeA
0 to DM-RS typeA-pos
PDSCH Mapping Type: typeB
0 to 12

Default
2

Details
Specify a slot number where the setting is performed at “[0] | 1 | … | 79” in the remote 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 start symbol in Slot 1 to 1.
CALC:EVM:SLOT1:PDSCH:SYMB:STAR 1
Chapter 2  SCPI Device Message Details

: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 a slot number where the setting is queried at “[0]|1…|79” in the remote 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>
<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: SLOT1:PDSC:SYMB:STAR?

> 1
:CALCulate:EVM:PDSCh:SYMBol:STARt <integer>

PDSCH Start Symbol

This command sets the PDSCH start symbol in all slots.

Command

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

Parameter

<integer> PDSCH start symbol

Range

PDSCH Mapping Type: typeA
0 to DM-RS typeA-pos
PDSCH Mapping Type: typeB
0 to 12

Default 2

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

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

CALC:EVM:PDSC:SYMB:STAR 1
2.3.20 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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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>
</thead>
<tbody>
<tr>
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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 set the number of PDSCH mapping symbols in Slot 1 to 3.

CALC:EVM:SLOT1:PDSCh:SYMB:LENG 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:SYMBo: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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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>
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</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 PDSCH mapping symbols in Slot 1.

CALC:EVM:SLOT1:PDSCh: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:PDSCh:SYMB:LENG 3
2.3.21 PDSCH Power Boosting (Auto/Manual)

PDSCH Power Boosting (Auto/Manual)

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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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 boosting level in Slot 1 to Manual.

CALC:EVM:SLOT1:PDSCh:POW:AUTO OFF
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: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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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>
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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:POW: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:POW: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
2.3.22 PDSCH Power Boosting

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

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in each slot.

Command

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

Parameter

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

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 set the PDSCH boosting level in Slot 1 to 3.00 dB.

CALC:EVM:SL0T1:PDSC:POW:BOOS 3.00DB
2.3 Setting System Parameters (MX285051A-011/MX2869051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

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

PDSCH Power Boosting Query

Function

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

Query

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

Response

<rel_power>

Parameter

<rel_power> PDSCH boosting level

Range –20.000 to +20.000 dB
Resolution 0.001 dB
Suffix code Non, Value is returned in dB unit.

Details

Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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>60 kHz</td>
<td>0 to 39</td>
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<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:POWer:BOOSting?
> 3.00
Chapter 2  SCPI Device Message Details

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

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in all slots.

Command

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

Parameter

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

Details

The PDSCH settings in all slots are performed collectively.

Example of Use

To set the PDSCH boosting level in all slots to 3.00 dB.
CALC:EVM:PDSC:POW:BOOS 3.00DB
2.3.23 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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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>
<td>120 kHz</td>
<td>0 to 79</td>
</tr>
</tbody>
</table>

Example of Use

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

CALC:EVM:SLOT1:PDS:MAP:DMRS:APOS 3
**Chapter 2  SCPI Device Message Details**

:**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 a slot number where the setting is queried at “[0]|1…|79” in the remote 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 typeA-pos in Slot 1.

CALC:EVM:SLOT1:PDSC:MAPP:DMRS:APOS?

> 3

:**CALCulate:EVM:PDSCh:MAPPing:DMRS:APOsition <integer>**

PDSCH DM-RS typeA-pos

**Function**

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

**Command**

:**CALCulate:EVM:PDSCh:MAPPing:DMRS:APOsition <integer>**

**Parameter**

<integer>  
PDSCH DM-RS typeA-pos

Range  
2, 3

Default  
2

**Details**

The PDSCH settings in all slots are performed collectively.

**Example of Use**

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

2.3.24 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 add-pos in Slot 1 to 3.

CALC:EVM:SLOT1:PDSC:DMRS:APOS 3
Chapter 2  SCPI Device Message Details

:CALCulate:EVM:SLOT[0]|1…|79:PDSCh:DMRS:APOSition?
PDSCH DM-RS add-pos Query

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

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

Response
<integer>

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

Details
Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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
Range 0, 1, 2, 3
Default 0

Details
The PDSCH settings in all slots are performed collectively.

Example of Use
To set the PDSCH DM-RS add-pos in all slots to 3.
CALC:EVM:PDSCh:DMRS:APOS 3
2.3.25 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 CDM Group Without Data in Slot 1 to 2.

CALC:EVM:SLOT1:PDSCh:DMRS:CDM 2
Chapter 2  SCPI Device Message Details

: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

<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>

**Details**

Specify a slot number where the setting is queried at “[0]|1…|79” in the remote command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

**Example of Use**

To query the PDSCH DM-RS CDM Group Without Data in Slot 1.
```
CALC:EVM:SLOT1:PDSC:DMRS:CDM?
> 2
```

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

PDSCH DM-RS CDM Group Without Data

**Function**

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

**Command**

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

**Parameter**

<mode>  

PDSCH DM-RS CDM Group Without Data

<table>
<thead>
<tr>
<th>Range</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Details**

The PDSCH settings in all slots are performed collectively.

**Example of Use**

To set the PDSCH DM-RS CDM Group Without Data in all slots to 2.
```
CALC:EVM:PDSC:DMRS:CDM 2
```
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

2.3.26 PDSCH PTRS

PDSCH PTRS

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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 PT-RS in Slot 1 to Enabled.

CALC:EVM:SLOT1:PDSCh:PTRS ON
Chapter 2  SCPI Device Message Details

: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 a slot number where the setting is queried at “[0]|1|...|79” in the remote 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>
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<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 PT-RS in Slot 1.
CALC:EVM:SLOT1:PDSC:PTRS?
> 1

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

PDSCH PTRS

Function

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

Command

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

Parameter

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

Details

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

Example of Use

To set the PDSCH PT-RS in all slots to Enabled.
CALC:EVM:PDSC:PTRS ON

2-88
2.3.27 PDSCH PTRS Time Density

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

PDSCH PTRS Time Density

<table>
<thead>
<tr>
<th>Function</th>
<th>This command sets the PDSCH PTRS Time Density in each slot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>&lt;mode&gt; PDSCH PTRS Time Density</td>
</tr>
<tr>
<td></td>
<td>Range 1, 2, 4</td>
</tr>
<tr>
<td></td>
<td>Default 1</td>
</tr>
</tbody>
</table>

Details

Specify a slot number where the setting is performed at “[0]|1…|79” in the remote 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 PTRS Time Density in Slot 1 to 2.

PDSCH PTRS Time Density Query

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

Query

Response

Parameter

Details
Specify a slot number where the setting is queried at “[0]|1…|79” in the remote 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 PTRS Time Density in Slot 1.

CALC:EVM:SLOT1:PDSCh:PTRS:DENS:TIME?
> 2

PDSCH PTRS Time Density

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

Command

Parameter

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:PDSCh:PTRS:DENS:TIME 2
### 2.3.28 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
  - Range: 2, 4
  - Default: 2

**Details**

Specify a slot number where the setting is performed at “[0]|1…|79” in the remote 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 PTRS Freq. Density in Slot 1 to 2.

Chapter 2  SCPI Device Message Details

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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 PTRS Freq. Density in Slot 1.
CALC:EVM:SLOT1:PDSC: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
2.3.29 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>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>00, 01, 10, 11</td>
<td>00</td>
</tr>
</tbody>
</table>

Details

Specify a slot number where the setting is performed at “[0] | 1 | … | 79” in the remote 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 PTRS RE Offset in Slot 1 to 01.

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

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH PTRS RE Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>00, 01, 10, 11</td>
</tr>
</tbody>
</table>

Details
Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 PTRS RE Offset in Slot 1.
CALC:EVM:SLOT1:PDSCh: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

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

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:PDSCh:PTRS:OFFS 01
### 2.3.30 PDSCH RBs Allocation Auto Detect

:CALCulate:EVM:SLOT[0]|1|…|79:PDSCh: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 PDSCH.

**Command**

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

**Parameter**

- **<switch>**
  - OFF|0: Disabled
  - ON|1: Enabled (Default)

**Details**

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 disable the auto detection of the RBs that are allocated to PDSCH in slot 1.

CALC:EVM:SLOT1:PDSC:RBL:_AUTO OFF
**Chapter 2  SCPI Device Message Details**

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

PDSCH RBs Allocation Auto Detect Query

**Function**

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

**Query**

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

**Response**

<switch>

**Parameter**

<switch>  
| OFF| 0 | Disabled |
| ON| 1  | Enabled |

**Details**

Specify a slot number where the setting is queried at “[0]|1|...|79” in the remote 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 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
```
### :CALCulate:EVM:PDSCh:RBLock:AUTO 0|1|ON|OFF

**PDSCH RBs Allocation Auto Detect**

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>This command enables (On) or disables (Off) the auto detection of the RBs that are allocated to PDSCH in all slots.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>:CALCulate:EVM:PDSCh:RBLock:AUTO &lt;switch&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;switch&gt;</td>
</tr>
<tr>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
</tr>
<tr>
<td>Enabled (Default)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>The settings of auto detection are performed collectively in all slots.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>To disable the auto detection of the RBs that are allocated to PDSCH in all slots.</td>
</tr>
<tr>
<td>CALC:EVM:PDSC:RBL:AUTO OFF</td>
</tr>
</tbody>
</table>
2.3.31 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 a slot number where the setting is performed at “[0]|1|...|79” in the remote 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 Start RB of the RBs that are allocated to PDSCH in slot 1 to 1.

CALC:EVM:SLOT1:PDSCh:RBL:STAR 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: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 a slot number where the setting is queried at “[0] |1|…|79” in the remote 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 Start RB of the RBs that are allocated to PDSCH in slot 1.

CALC:EVM:SLOT1:PDSCH:RB: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
2.3.32 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

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Number of RBs that are allocated to PDSCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1 to Number Of RBs – PDSCH Start RB</td>
</tr>
<tr>
<td>Default</td>
<td>Number Of RBs</td>
</tr>
</tbody>
</table>

Details
Specify a slot number where the setting is performed at “[0]|1|...|79” in the remote 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:PDSCh:RBL:LENG 1


Chapter 2  SCPI Device Message Details

:`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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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>
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<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:PDS:RBL:LENG?

> 1
:CALCulate:EVM:PDSCh:RBLock:LENGth <integer>

PDSCH RBs Allocation Number of RBs

Function

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

Command

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

Parameter

<integer> Number of RBs that are allocated to PDSCH

Range 1 to Number Of RBs – PDSCH Start RB

Default Number Of RBs

Details

The settings are performed collectively in all slots.

Example of Use

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

CALC:EVM:PDSC:RBL:LENG 1
2.3.33 Equalizer Use Data

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

Equalizer Use Data

Function

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

Command

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

Parameter

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

Example of Use

To include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.
EVM:RAD:EQU:DATA ON

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

Equalizer Use Data Query

Function

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

Query

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

Response

<switch>

Parameter

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

Example of Use

To query the setting whether to include data subcarriers in the calculation of Channel Estimation for Modulation Analysis.
EVM:RAD:EQU:DATA?
> 1
2.3 Setting System Parameters (MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink / MX285051A-021 NR TDD mmWave Downlink Modulation Analysis)

2.3.34 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
2.3.35 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

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

0|OFF Disabled (Default)
1|ON Enabled

Example of Use

To set the Phase Tracking to Enabled.
CALC:EVM:TRACK:PHAS ON

:CALCulate:EVM:TRACK: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

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

0 Disabled
1 Enabled

Example of Use

To query whether Phase Tracking is Enabled (On) or Disabled (Off).
CALC:EVM:TRACK:PHAS?
> 1
2.3.36 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
2.3.37 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 8
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 8
Resolution 1

Example of Use
To query the setting of Number Of Carriers.
EVM:RAD:NCAR?
> 8
2.3.38 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>&lt;integer&gt;</th>
<th>Reference Carrier</th>
</tr>
</thead>
<tbody>
<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>&lt;integer&gt;</th>
</tr>
</thead>
</table>

Parameter

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>Reference Of Carrier</th>
</tr>
</thead>
<tbody>
<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
### 2.3.39 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  

**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>  
0  
1  

**Example of Use**
To query whether Multicarrier Filter is Enabled (On) or Disabled (Off).
```
CALC:EVM:MCAR:FILT?
> 1
```
2.3.40 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 Table 2.3.40-1 “Frequency Offset”.

**Table 2.3.40-1 Frequency Offset**

<table>
<thead>
<tr>
<th>Option</th>
<th>Center Frequency</th>
<th>Range [MHz]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without MS2850A-033/133</td>
<td>–</td>
<td>–127.5 to +127.5</td>
</tr>
<tr>
<td>With MS2850A-033/133</td>
<td>–</td>
<td>–255 to +255</td>
</tr>
<tr>
<td>With MS2850A-034/134</td>
<td>&lt; 4.2 GHz</td>
<td>–500 to +500</td>
</tr>
<tr>
<td></td>
<td>≥ 4.2 GHz</td>
<td></td>
</tr>
</tbody>
</table>

**Resolution**

10 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 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 Table 2.3.40-1 “Frequency Offset”.

**Resolution**

10 kHz

**Example of Use**

To query the setting of Frequency Offset.

CALC:EVM:FREQ:OFFS?

> 50000000
### 2.3.41 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>  
0|OFF  Disabled (Default)  
1|ON  Enabled

**Example of Use**

To enable the EVM Window.

CALC:EVM:EWIN ON

**:CALCulate:EVM:EWINdow[:STATe]?**

**EVM Window Query**

**Function**

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

**Query**

**:CALCulate:EVM:EWINdow[:STATe]?**

**Response**

<switch>

**Parameter**

<switch>  
0  EVM Window Enabled (On) or Disabled (Off)  
1  Disabled  
2  Enabled

**Example of Use**

To query whether EVM Window is Enabled (On) or Disabled (Off).

CALC:EVM:EWIN?  
> 1
### 2.4 Setting System Parameters (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;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:RADio:NCARrier?</td>
</tr>
<tr>
<td>Reference Carrier</td>
<td>[:SENSe]:CAGG:RADio:CARRier &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:RADio:CARRier?</td>
</tr>
<tr>
<td>Frequency Offset</td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td>Phase Compensation</td>
<td>[:SENSe]:CAGG:RADio:PCOMPensation[:STaTe] 0</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:RADio:PCOMPensation[:STaTe]?</td>
</tr>
<tr>
<td>Test Model</td>
<td>[:SENSe]:CAGG:RADio:TMODEl &lt;model&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td>Subcarrier Spacing</td>
<td>[:SENSe]:CAGG:RADio:SUBCarrier:SPACING 120</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td>Number of RBs</td>
<td>[:SENSe]:CAGG:RADio:RBLOCK:NUMBEr &lt;mode&gt;</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td>Cell ID</td>
<td>:CALCulate:CAGG:CELLid &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>Synchronization Mode</td>
<td>[:SENSe]:CAGG:RADio:SYNChronization:MODE SS</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]: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>SS-Block On/Off</strong></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><strong>SS-Block Candidate</strong></td>
<td>:CALCulate:CAGG:SSBlock:CANDidate D64</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>SS-Block Subcarrier Offset</strong></td>
<td>:CALCulate:CAGG:SSBlock:SUBCarrier:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>SS-Block RB Offset</strong></td>
<td>:CALCulate:CAGG:SSBlock:RBlock:OFFSet &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>SS-Block Periodicity</strong></td>
<td>:CALCulate:CAGG:SSBlock:PERiodicity 10</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>SS-Block Analysis Frame Number</strong></td>
<td>:CALCulate:CAGG:SSBlock:ANALysis:FRAMe:NUMBer &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>PDCCH/DM-RS On/Off</strong></td>
<td>:CALCulate:CAGG:SLOT[0]</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>PDSCH/DM-RS On/Off</td>
<td></td>
</tr>
</tbody>
</table>
:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1  
:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh[:STATe] OFF|ON|0|1  
:CALCulate:CAGG:PDSCh[:STATe] OFF|ON|0|1  
: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: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:SLOT[0]|1|…|79:PDSCh:MODulation?  |
| PDSCH Mapping Type |  
: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:SLOT[0]|1|…|79:PDSCh:MAPPING:TYPE?  |
| PDSCH Start Symbol |  
: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:SLOT[0]|1|…|79:PDSCh:SYMBol:START?  

---

**2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)**
### 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>:CALCulate:CAGG:SLOT[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSCh:SYMBOL:LENGth &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSCh:SYMBOL:LENGth &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG,PDSCh:POWER:AUTO OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>PDSCH Power Boosting</strong></td>
<td>:CALCulate:CAGG:SLOT[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></td>
<td>:CALCulate:CAGG,PDSCh:MAPPING:DMRS:APOSITION &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG,PDSCh:MAPPING:DMRS:APOSITION &lt;integer&gt;</td>
</tr>
</tbody>
</table>
## 2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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 DM-RS</strong></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><strong>PDSCH DM-RS</strong></td>
<td></td>
</tr>
<tr>
<td>CDM Group</td>
<td></td>
</tr>
<tr>
<td>Without Data</td>
<td></td>
</tr>
<tr>
<td></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:DMRS:CDM 1</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>PDSCH PTRS</strong></td>
<td></td>
</tr>
<tr>
<td>Time Density</td>
<td></td>
</tr>
<tr>
<td></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:PTRS[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>PDSCH PTRS</strong></td>
<td></td>
</tr>
<tr>
<td>Freq. Density</td>
<td></td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSCh:PTRS:DENSity:TIME 1</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></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:PDSch:PTRS:OFFSet 00</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>PDSCH RBs Allocation Auto Detect</strong></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:RBLock:AUTO 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><strong>PDSCH RBs Allocation Start RB</strong></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:RBLock:STARt &lt;integer&gt;</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:CC[0]</td>
</tr>
<tr>
<td><strong>PDSCH RBs Allocation Number of RBs</strong></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:RBLock:LENGth &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: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>Equalizer Use Data</td>
<td>[:SENSe]:CAGG:RADIO:EQUalizer:DATA 0</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:CAGG:RADIO:EQUalizer:DATA?</td>
</tr>
<tr>
<td>Amplitude Tracking</td>
<td>:CALCulate:CAGG:TRACK:AMPLitude[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:TRACK:AMPLitude[:STATe]?</td>
</tr>
<tr>
<td>Phase Tracking</td>
<td>:CALCulate:CAGG:TRACK:PHASE[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:TRACK:PHASE[:STATe]?</td>
</tr>
<tr>
<td>Timing Tracking</td>
<td>:CALCulate:CAGG:TRACK:TIMing[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:TRACK:TIMing[:STATe]?</td>
</tr>
<tr>
<td>Multicarrier Filter</td>
<td>:CALCulate:CAGG:MCARrier:FILTer[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:MCARrier:FILTer[:STATe]?</td>
</tr>
<tr>
<td>EVM Window</td>
<td>:CALCulate:CAGG:EWINdow[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:EWINdow[:STATe]?</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 8
  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 8
  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 Table 2.3.40-1 “Frequency Offset”.
Resolution 10 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 Table 2.3.40-1 “Frequency Offset”.
Resolution 10 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>  
0  OFF  Disable  
1  ON  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>  
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
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: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 Subcarrier Spacing

[:SENSe]:CAGG:RADio:SUBCarrier:SPACing 120

Subcarrier Spacing

Function

This command sets the subcarrier spacing of all Component Carriers at once.

Command

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

Parameter

<mode> Subcarrier Spacing
120 120 kHz (Default)

Example of Use

To set the subcarrier spacing to 120 kHz.
CAGG:RAD:SUBC:SPAC 120

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing 120

Subcarrier Spacing

Function

This command sets the subcarrier spacing for the specified Component Carrier.

Command

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing <mode>

Parameter

<mode> Subcarrier Spacing
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
### Subcarrier Spacing Query

**Function**

This command queries the subcarrier spacing for the specified Component Carrier.

**Query**

```plaintext
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SUBCarrier:SPACing?
```

**Response**

```plaintext
<mode>
```

**Parameter**

```plaintext
<mode> Subcarrier Spacing
120 120 kHz
```

**Example of Use**

To query the setting of subcarrier spacing for Component Carrier 2.

```plaintext
CAGG:CC2:RAD:SUBC:SPAC?
```

> 120
2.4.7 Number of RBs  
[:SENSe]:CAGG:RADio:RBLock:NUMBer <mode>

Number of RBs

Function

This command sets the number of resource blocks of the measurement target signal for all Component Carriers at once.

Command

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

Parameter

<mode> Number of Resource Blocks
32 32
66 66
132 132 (Default)
264 264

Example of Use

To set the number of resource blocks for the measurement target signal to 264.
CAGG:RAD:RBL:NUMB 264

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer <mode>

Number of RBs

Function

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

Command

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer <mode>

Parameter

<mode> Number of Resource Blocks
32 32
66 66
132 132 (Default)
264 264

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
Function

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

Query

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:RBLock:NUMBer?

Response

<mode>

Parameter

<mode>          Number of Resource Blocks
32              32
66              66
132             132
264             264

Example of Use

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

CAGG:CC2:RAD:RBL:NUMB?
> 264
Chapter 2  SCPI Device Message Details

2.4.8 Cell ID
CALCulate:CAGG:CELLid <integer>

Cell ID

Function
This command sets the Cell ID of all Component Carriers at once.

Command
CALCulate:CAGG:CELLid <integer>

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

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

Example of Use
To set the Cell ID of all Component Carriers in Carrier Aggregation Analysis measurement to 1.
CALC:CAGG:CELL 1

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid <integer>

Cell ID

Function
This command sets the Cell ID for the specified Component Carrier.

Command
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:CELLid <integer>

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

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

Example of Use
To set the Cell ID for Component Carrier 2 to 2.
CALC:CAGG:CC2:CELL 2
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

Response

Parameter

Parameter

Example of Use

Example of Use

To query the Cell ID for Component Carrier 2.
CALC:CAGG:CC2:CELL?
> 2
2.4.9  Synchronization Mode

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

Synchronization Mode

Function

This command sets the Synchronization Mode of all Component Carriers at once.

Command

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

Parameter

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

Example of Use

To set the Synchronization Mode of all Component Carriers to SS.
CAGG:RAD:SYNC:MODE SS

[:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADio:SYNChronization:MODE SS|RS

Synchronization Mode

Function

This command sets the Synchronization Mode of the specified Component Carrier.

Command

[:SENSe]:CAGG:CC[0]|1|2|3|4|5|6|7:RADio:SYNChronization:MODE <mode>

Parameter

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

Example of Use

To set the Synchronization Mode for the Component Carrier 2 to SS.
CAGG:CC2:RAD:SYNC:MODE SS
[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization:MODE?

Synchronization Mode Query

Function

This command queries the Synchronization Mode for the specified Component Carrier.

Query

[:SENSe]:CAGG:CC[0]|1||2|3|4|5|6|7:RADio:SYNChronization:MODE?

Response

<mode>

Parameter

<mode>  
SS  Synchronization
RS  Reference Signal

Example of Use

To query the Synchronization Mode for the Component Carrier 2.
CAGG:CC2:RAD:SYNC:MODE?
> SS
2.4.10 SS-Block On/Off

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

SS-Block On/Off

Function
This command sets whether to include SS-Block in the measurement target of all Component Carriers (On/Off).

Command
:CALCulate:CAGG:SSBLock[:STATe] <switch>

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

Example of Use
To set SS-Block of all Component Carriers to Included.
CALC:CAGG:SSBL ON

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe] 0|1|ON|OFF

SS-Block On/Off

Function
This command sets whether to include SS-Block in the measurement target of the specified Component Carrier (On/Off).

Command
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock[:STATe] <switch>

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

Example of Use
To set the SS-Block for Component Carrier 2 to Included.
CALC:CAGG:CC2:SSBL ON
SS-Block On/Off Query

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
2.4.11 SS-Block Candidate

:CALCulate:CAGG:SSBLock:CANDidate D64

SS-Block Candidate

Function

This command sets the SS-Block mapping of all Component Carriers.

Command

:CALCulate:CAGG:SSBLock:CANDidate <mode>

Parameter

<mode>  SS-Block Candidate

D64  Maps SS-Block to 64 positions in Case D.

Example of Use

To set the SS-Block Candidate to D64.
CALC:CAGG:SSBL:CAND D64

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate D64

SS-Block Candidate

Function

This command sets the SS-Block mapping of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBLock:CANDidate <mode>

Parameter

<mode>  SS-Block Candidate

D64  Maps SS-Block to 64 positions in Case D.

Example of Use

To set the SS-Block Candidate for Component Carrier 2 to D64.
CALC:CAGG:CC2:SSBL:CAND D64
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: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
2.4.12 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
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: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
2.4.13 SS-Block RB Offset

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

SS-Block RB Offset

Function

This command sets the RB Offset to map the SS Block of all Component Carriers.

Command

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

Parameter

<integer> SS-Block RB Offset

Range

0 to Number of RBs – 20 (SSB Subcarrier Offset = 0)
0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)

Default

Standard: NR TDD sub-6GHz Downlink
126
Standard: NR TDD mmWave Downlink
56

Example of Use

To set SS-Block RB Offset of all Component Carriers to 0.
CALC:CAGG:SSBL:RBL:OFFS 0

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:RBLock:OFFSet <integer>

SS-Block RB Offset

Function

This command sets the RB Offset to map the SS Block for the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SSBLock:RBLock:OFFSet <integer>

Parameter

<integer> SS-Block RB Offset

Range

0 to Number of RBs – 20 (SSB Subcarrier Offset = 0)
0 to Number of RBs – 20 – 1 (SSB Subcarrier Offset > 0)

Default

Standard: NR TDD sub-6GHz Downlink
126
Standard: NR TDD mmWave Downlink
56

Example of Use

To set the SS-Block RB Offset for Component Carrier 2 to 0.
CALC:CAGG:CC2:SSBL:RBL:OFFS 0
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
2.4.14 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
2.4.15 SS-Block Analysis Frame Number

:CALCulate:CAGG:SSBlock:ANALysis:FRAMe:NUMBer <integer>

SS-Block Analysis Frame Number

Function

This command sets the analysis target frame number of all Component Carriers in SS synchronization.

Command

:CALCulate:CAGG:SSBlock:ANALysis:FRAMe:NUMBer <integer>

Parameter

<integer> SS-Block Analysis Frame Number

Range 0 to 1
Default 0

Example of Use

To set the SS-Block Analysis Frame Number of all Component Carriers to 1.
CALC:CAGG:SSBL:ANAL:FRAM:NUMB 1

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBlock:ANALysis:FRAMe:NUMBer <integer>

SS-Block Analysis Frame Number

Function

This command sets the analysis target frame number for the specified Component Carriers in SS synchronization.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SSBlock:ANALysis:FRAMe:NUMBer <integer>

Parameter

<integer> SS-Block Analysis Frame Number

Range 0 to 1
Default 0

Example of Use

To set the SS-Block Analysis Frame Number for Component Carrier 2 to 1.
CALC:CAGG:CC2:SSBL:ANAL:FRAM:NUMB 1
Setting System Parameters

**:CALCulate:CAGG:CC[0][1]|2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer**

SS-Block Analysis Frame Number Query

**Function**

This command queries the setting of analysis target frame number for the specified Component Carriers in SS synchronization.

**Query**

**:CALCulate:CAGG:CC[0][1]|2|3|4|5|6|7:SSBLock:ANALysis:FRAMe:NUMBer?**

**Response**

<integer>

**Parameter**

<integer> SS-Block Analysis Frame Number

Range: 0 to 1

**Example of Use**

To query the setting of SS-Block Analysis Frame Number for Component Carrier 2.

CALC:CAGG:CC2:SSBL:ANAL:FRAM:NUMB?

> 1
2.4.16 PDCCH/DM-RS On/Off

:CALCulate:CAGG:SLOT[0]|1|...|79:PDCCh[:STATe] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

This command sets the parameter (On/Off) whether to include PDCCH/DM-RS in the measurement target in the specified slot of all Component Carriers.

Command

:CALCulate:CAGG:SLOT[0]|1|...|79:PDCCh[:STATe] <switch>

Parameter

<switch>

<table>
<thead>
<tr>
<th>OFF</th>
<th>0</th>
<th>Not included</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
<td>Included (Default)</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

<switch>

<table>
<thead>
<tr>
<th>OFF</th>
<th>0</th>
<th>Not included</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1</td>
<td>Included (Default)</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
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

:CALCulate:CAGG:PDCCh[:STATE] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

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

Command

:CALCulate:CAGG:PDCCh[:STATE] <switch>

Parameter

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

Details

This command sets the setting of PDCCH/DM-RS in all slots of all Component Carriers at once.

Example of Use

To set the PDCCH/DM-RS in all slots of all Component Carriers to Included.
CALC:CAGG:PDCC ON

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDCCh[:STATE] OFF|ON|0|1

PDCCH/DM-RS On/Off

Function

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

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDCCh[:STATE] <switch>

Parameter

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

Example of Use

To set the PDCCH/DM-RS in all slots of Component Carrier 2 to Included.
CALC:CAGG:CC2:PDCC ON
Chapter 2  SCPI Device Message Details

: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  PDCCH/DM-RS is included (On), not included (Off)
1  Not included

Included

Example of Use

To query the setting of PDCCH/DM-RS in slot 1 of Component Carrier 2.
CALC:CAGG:CC2:SLOT1:PDCC?
> 1
2.4.17 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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>PDSCH/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 PDSCH/DM-RS in Slot 1 of all Component Carriers to Included.
CALC:CAGG:SLOT1:PDSCh 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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>PDSCH/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 PDSCH/DM-RS in Slot 1 of Component Carriers 2 to Included.
CALC:CAGG:CC2:SLOT1:PDSCh ON
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:PDSCh[:STATe] OFF|ON|0|1
PDSCH/DM-RS On/Off

Function
This command sets the parameter (On/Off) whether to include PDSCH/DM-RS in the measurement target in all slots of all Component Carriers.

Command
:CALCulate:CAGG:PDSCh[:STATe] <switch>

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

Details
This command sets the setting of PDSCH/DM-RS in all slots of all Component Carriers at once.

Example of Use
To set the PDSCH/DM-RS in all slots of all Component Carriers to Included.
CALC:CAGG:PDSC ON

:CALCulate:CAGG:CC[0]|1]|2|3|4|5|6|7:PDSCh[:STATe] OFF|ON|0|1
PDSCH/DM-RS On/Off

Function
This command sets the parameter (On/Off) whether to include PDSCH/DM-RS in the measurement target in all slots of the specified Component Carrier.

Command
:CALCulate:CAGG:CC[0]|1]|2|3|4|5|6|7:PDSCh[:STATe] <switch>

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

Example of Use
To set the PDSCH/DM-RS in all slots of Component Carrier 2 to Included.
CALC:CAGG:CC2:PDSC ON
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[: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
2.4.18 PDSCH/DM-RS Antenna Port

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

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in the specified slot of all Component Carriers.

Command

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

Parameter

<mode> PDSCH/DM-RS antenna port

1000 1000 (Default)
1001 1001
1002 1002
1003 1003

Example of Use

To set the PDSCH/DM-RS antenna port in Slot 1 of all Component Carriers to 1001.
CALC:CAGG:SLOT1:PDSC:APOR 1001

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt 1000|1001|1002|1003

PDSCH/DM-RS Antenna Port

Function

This command sets the PDSCH/DM-RS antenna port in the specified slot of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:APORt <mode>

Parameter

<mode> PDSCH/DM-RS antenna port

1000 1000 (Default)
1001 1001
1002 1002
1003 1003

Example of Use

To set the PDSCH/DM-RS antenna port in Slot 1 of Component Carrier 2 to 1001.
CALC:CAGG:CC2:SLOT1:PDSC:APOR 1001
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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
1002
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:PDS: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
1002
1003

Example of Use

To set the PDSCH/DM-RS antenna port in all slots of Component Carrier 2 to 1001.
CALC:CAGG:CC2:PDS:APOR 1001
PDSCH/DM-RS Antenna Port Query

Function
This command queries the PDSCH/DM-RS antenna port in the specified slot of the specified Component Carrier.

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

Response
<mode>

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH/DM-RS antenna port</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>

Example of Use
To query the setting of the PDSCH/DM-RS antenna port in Slot 1 of Component Carrier 2.
CALC:CAGG:CC2:SLOT1:PDSC:APOR?
> 1001
2.4.19 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:PDSC:MOD 256Q
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation
QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in the specified slot of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MODulation <mode>

Parameter

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

Example of Use

To set the PDSCH modulation scheme in Slot 1 of Component Carrier 2 to 256QAM.
CALC:CAGG:CC2:SLOT1:PDS:MOD 256Q
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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

PDSCH Modulation Scheme

Function

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

Command

:CALCulate:CAGG:PDSCh:MODulation <mode>

Parameter

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

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH modulation scheme in all slots of all Component Carriers to 256QAM.
CALC:CAGG:PDSCh:MOD 256Q
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MODulation
QPSK|16Qam|64Qam|256Qam|AUTO

PDSCH Modulation Scheme

Function

This command sets the modulation scheme to analyze PDSCH in all slots of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:MODulation
<mode>

Parameter

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

Example of Use

To set the PDSCH modulation scheme in all slots of Component Carrier 2 to 256QAM.
CALC:CAGG:CC2:PDS:MOD 256Q
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:MODulation?
PDSCH Modulation Scheme Query

Function
This command queries the modulation scheme to analyze PDSCH in the specified slot of the specified Component Carrier.

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

Response

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:PDCS:MOD?
> 256Q
2.4.20 PDSCH Mapping Type

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

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in the specified slot of all Component Carriers.

Command

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

Parameter

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

Example of Use

To set the PDSCH Mapping Type in Slot 1 of all Component Carriers to A.
CALC:CAGG:SLOT1:PDSC:MAPP:TYPE A

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE A|B

PDSCH Mapping Type

Function

This command sets the PDSCH Mapping Type in the specified slot of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:MAPPing:TYPE <mode>

Parameter

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

Example of Use

To set the PDSCH Mapping Type in Slot 1 of Component Carrier 2 to A.
CALC:CAGG:CC2:SLOT1:PDSC:MAPP:TYPE A
:CALCulate:CAGG:PDSCh:MAPPing:TYPE A|B

**PDSCH Mapping Type**

**Function**
This command sets the PDSCH Mapping Type in all slots of all Component Carriers.

**Command**
:CALCulate:CAGG:PDSCh:MAPPing:TYPE <mode>

**Parameter**

<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></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 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**

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

**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
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:TY
PE?

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
### 2.4.21 PDSCH Start Symbol

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

**PDSCH Start Symbol**

**Function**

This command sets the PDSCH start symbol in the specified slot of all Component Carriers.

**Command**

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

**Parameter**

<integer>  

- **Range**  
  - PDSCH Mapping Type: typeA
  - 0 to DM-RS typeA-pos
  - PDSCH Mapping Type: typeB
  - 0 to 12

- **Default**  
  
**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|67:SLOT[0]|1…|79:PDSCh:SYMBol:STA Rt <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|67:SLOT[0]|1…|79:PDSCh:SYMBol:STARt <integer>**

**Parameter**

<integer>  

- **Range**  
  - PDSCH Mapping Type: typeA
  - 0 to DM-RS typeA-pos
  - PDSCH Mapping Type: typeB
  - 0 to 12

- **Default**  

**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
Chapter 2  SCPI Device Message Details

: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:PDS: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:PDS:SYMB:STAR 1
Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)


PDSCH Start Symbol Query

Function

This command queries the setting of PDSCH start symbol in the specified slots of the specified Component Carriers.

Query


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:SYMBol:STARt?

> 1
2.4.22 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.
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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.
Chapter 2  SCPI Device Message Details

:PDCSCH:SYMBOL:LENGTH?
PDSCH Number of Symbols Query

Function

This command queries the number of PDSCH mapping symbols in the specified slots of the specified Component Carriers.

Query

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

Response

<integer>

Parameter

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

Example of Use

To query the number of PDSCH mapping symbols in Slot 1 of Component Carrier 2.
CALC:CAGG:CC2:SLOT1:PDSC:SYMB:LENG?
> 3
2.4.23 PDSCH Power Boosting (Auto/Manual)

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

PDSCH Power Boosting (Auto/Manual)

Function

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

Command


Parameter

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

Example of Use

To set the PDSCH boosting level in Slot 1 of all Component Carriers to Manual.
CALC:CAGG:SLOT1:PDSC:POW:AUTO OFF

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:POWer:AUTO OFF|ON|0|1

PDSCH Power Boosting (Auto/Manual)

Function

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

Command

:CALCulate:CAGG:CC[0]|1|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.
Chapter 2  SCPI Device Message Details

: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

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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Setting</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 PDSCH boosting level in all slots of Component Carrier 2 to Manual.
CALC:CAGG:CC2:PDSC:POW:AUTO OFF
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
2.4.24 PDSCH Power Boosting

:CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:POWer:BOOSting <rel_power>

PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in the specified slot of all Component Carriers.

Command

:CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:POWer:BOOSting <rel_power>

Parameter

<rel_power> PDSCH boosting level
  Range –20.000 to +20.000 dB
  Resolution 0.001 dB
  Suffix code DB, dB is used when omitted.
  Default 0.000 dB

Example of Use

To set the PDSCH boosting level in Slot 1 of all Component Carriers to 3.00 dB.

CALC:CAGG:SLOT1:PDSC:POW:BOOS 3.00DB
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: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
Chapter 2  SCPI Device Message Details

:CALCulate:CAGG:PDSCh:POW:BOOSting <rel_power>
PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in all slots of all Component Carriers.

Command

:CALCulate:CAGG:PDSCh:POW:BOOSting <rel_power>

Parameter

<rel_power>  PDSCH boosting level
            Range   \(-20.000\) to \(+20.000\) dB
            Resolution   0.001 dB
            Suffix code DB, dB is used when omitted.
            Default   0.000 dB

Details

This command sets the setting of PDSCH in all slots of all Component Carriers at once.

Example of Use

To set the PDSCH boosting level in all slots of all Component Carriers to 3.00 dB.
CALC:CAGG:PDSC:POW:BOOS 3.00DB

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POW:BOOSting
<rel_power>
PDSCH Power Boosting

Function

This command sets the PDSCH boosting level in all slots of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:POW: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
PDSCH Power Boosting Query

Function

This command queries the PDSCH boosting level in the specified slot of the specified Component Carrier.

Query

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

Response

<rel_power>

Parameter

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

Example of Use

To query the PDSCH boosting level in Slot 1 of Component Carrier 2.
CALC:CAGG:CC2:SLOT1:PDSCh:POW:BOOS?
> 3.000
2.4.25 PDSCH DM-RS typeA-pos


<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


Parameter

<integer> PDSCH DM-RS typeA-pos

Range 2, 3
Default 2

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 of all Component Carriers to 3.


:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>

PDSCH DM-RS typeA-pos

Function

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

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:MAPPing:DMRS:APOSition <integer>

Parameter

<integer> PDSCH DM-RS typeA-pos

Range 2, 3
Default 2

Example of Use

To set the PDSCH DM-RS typeA-pos in Slot 1 of Component Carriers 2 to 3.

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

: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
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.
Chapter 2  SCPI Device Message Details

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

2.4.26 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

<integer> PDSCH DM-RS add-pos

Range 0, 1, 2, 3
Default 0

Example of Use

To set the PDSCH DM-RS add-pos in Slot 1 of all Component Carriers to 3.
CALC:CAGG:SLOT1:PDSC:DMRS:APOS 3

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer>

PDSCH DM-RS add-pos

Function

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

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:DMRS:APOSition <integer>

Parameter

<integer> PDSCH DM-RS add-pos

Range 0, 1, 2, 3
Default 0

Example of Use

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

: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:PDSCH: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.
CALC:CAGG:CC2:PDSCH:DMRS:APOS 3

2-180
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

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
2.4.27 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


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.

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

2.4 :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.
Chapter 2  SCPI Device Message Details

:PCLSCH: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.

> 2
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

2.4.28 PDSCH PTRS

:CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in specified slot of all Component Carriers.

Command

:CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:PTRS[:STATe] <switch>

Parameter

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

Example of Use

To set the PDSCH PT-RS in Slot 1 of all Component Carriers to Enabled.
CALC:CAGG:SLOT1:PDSCh: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:PDSCh:PTRS ON
Chapter 2  SCPI Device Message Details

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

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in all slots of all Component Carriers.

Command

:CALCulate:CAGG:PDSCh:PTRS[:STATe] <switch>

Parameter

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

Details

This command sets the setting of PDSCH PT-RS in all slots of all Component Carriers at once.

Example of Use

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

CALC:CAGG:PDSC:PTRS ON

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS[:STATe] OFF|ON|0|1

PDSCH PTRS

Function

This command enables (On) or disables (Off) the PDSCH PT-RS in all slots of the specified Component Carrier.

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS[:STATe] <switch>

Parameter

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

Example of Use

To set the PDSCH PT-RS in all slots of Component Carrier 2 to Enabled.

CALC:CAGG:CC2:PDSC:PTRS ON
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:PTRS[:STATe]?

PDSCH PTRS Query

Function

This command queries whether PDSCH PT-RS is enabled (On) or disabled (Off) in the specified slot of the specified Component Carrier.

Query

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

Response

<switch>

Parameter

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

0 Disabled

1 Enabled

Example of Use

To query the setting of PDSCH PT-RS in slot 1 of Component Carrier 2.

CALC:CAGG:CC2:SLOT1:PDSCh:PTRS?

> 1
2.4.29 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**

<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 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**

<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 start symbol in Slot 1 of Component Carriers 2 to 2.

:CALCulate:CAGG:PDSch:PTRS:DENSity:TIME 1|2|4
PDSCH PTRS Time Density

Function

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

Command


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.
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

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
2.4.30 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.
Chapter 2  SCPI Device Message Details

PDSCH PTRS Freq. Density

Function
This command sets the PDSCH PTRS Freq. Density in all slots of all Component Carriers.

Command

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH PTRS Freq. Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2, 4</td>
</tr>
<tr>
<td>Default</td>
<td>2</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 Freq. Density in all slots of all Component Carriers to 2.

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:PTRS:DENSity:FREQuency 2|4
PDSCH PTRS Freq. Density

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

Command
:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSch:PTRS:DENSity:FREQuency <mode>

Parameter

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

Example of Use
To set the PDSCH PTRS Freq. Density in all slots of Component Carrier 2 to 2.
:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSITY:FREQuency?
PDSCH PTRS Freq. Density Query

Function
This command queries the setting of PDSCH PTRS Freq. Density in the specified slots of the specified Component Carriers.

Query
:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1…|79:PDSCh:PTRS:DENSITY:FREQuency?

Response
<mode>

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

Example of Use
To query the PDSCH PTRS Freq. Density in slot 1 of Component Carrier 2.
> 2
2.4.31 PDSCH PTRS RE Offset

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

Command


Parameter

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

Example of Use

To set the PDSCH PTRS RE Offset in Slot 1 of all Component Carriers to 01.

CALC:CAGG:SLOT1:PDSC:PTRS:OFFS 01
**:CALCulate:CAGG: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>&lt;mode&gt;</th>
<th>PDSCH PTRS RE Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>00, 01, 10, 11</td>
</tr>
<tr>
<td>Default</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:PDSC:PTRS:OFFS 01**

**:CALCulate:CAGG:CC[0]|1]|2|3|4|5|6|7:PDSch:PTRS:OFFSet** 00|01|10|11

PDSCH PTRS RE Offset

**Function**
This command sets the PDSCH PTRS RE Offset in all slots of the specified Component Carriers.

**Command**
**:CALCulate:CAGG:CC[0]|1]|2|3|4|5|6|7:PDSch:PTRS:OFFSet** <mode>

**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PDSCH PTRS RE Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>00, 01, 10, 11</td>
</tr>
<tr>
<td>Default</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:PDSC: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

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

Response

<mode>

Parameter

<mode> PDSCH PTRS RE Offset

Range 00, 01, 10, 11

Example of Use

To query the PDSCH PTRS RE Offset in slot 1 of Component Carrier 2.
CALC:CAGG:CC2:SLOT1:PDSCH:PTRS:OFFS?
> 01
2.4.32 PDSCH RBs Allocation Auto Detect

:CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

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

Command

:CALCulate:CAGG:SLOT[0]|1|...|79:PDSCh:RBLock:AUTO <switch>

Parameter

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

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH in slot 1 of all Component Carriers.
CALC:CAGG:SLOT1:PDSC:RBL:AUTO OFF

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79:PDSCh:RBLock:AUTO 0|1|ON|OFF

PDSCH RBs Allocation Auto Detect

Function

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

Command

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|...|79: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.
:CALCulate:CAGG:PDSCh:RBLock:AUTO 0|1|ON|OFF
PDSCH RBs Allocation Auto Detect

Function

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

Command

:CALCulate:CAGG:PDSCh:RBLock:AUTO <switch>

Parameter

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

Details

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

Example of Use

To disable the auto detection of the RBs that are allocated to PDSCH collectively in all slots of all Component Carriers.
CALC:CAGG:PDSC:RBL:AUTO OFF

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:AUTO 0|1|ON|OFF
PDSCH RBs Allocation Auto Detect

Function

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

Command

:CALCulate:CAGG:CC[0]|1||2|3|4|5|6|7:PDSCh:RBLock:AUTO <switch>

Parameter

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

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
**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>  
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
```
2.4.33 PDSCH RBs Allocation Start RB

:CALCulate:CAGG:SLOT[0]|1|…|79:PDSCh:RBLock:STAr <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:STAr <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:PDSCh:RBL:STAR 1

:CALCulate:CAGG:CC[0]|1|2|3|4|5|6|7:SLOT[0]|1|…|79:PDSCh:RBLock:STA Rt <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:STAr <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:PDSCh:RBL:STAR 1
2.4 Setting System Parameters (MX285051A-021 NR TDD mmWave Downlink Carrier Aggregation Analysis)

: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
Chapter 2  SCPI Device Message Details

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

Response

<integer>

Parameter

<integer>  Start RB of the RBs that are allocated to PDSCH

Range  0 to Number Of RBs – 1

Example of Use

To query the Start RB of the RBs that are allocated to PDSCH in slot 1 of
Component Carrier 2.
CALC:CAGG:CC2:SLOT1:PDSC:RBL:STAr?
> 1
### 2.4.34 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>`

**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:PDSCh:RBL:LENG 1

---

### 2.4.34 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>**

**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>`

**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:PDSCh:RBL:LENG 1
Chapter 2  SCPI Device Message Details

: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
PDSCH RBs Allocation Number of RBs Query

**Function**

This command queries the number of RBs that are allocated to PDSCH in the specified slot of the specified Component Carrier.

**Query**

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

**Response**

<integer>

**Parameter**

<integer> Number of RBs that are allocated to PDSCH

**Range**

1 to Number Of RB – PDSCH Start RB

**Example of Use**

To query the number of RBs that are allocated to PDSCH in slot 1 of Component Carrier 2.

CALC:CAGG:CC2:SLOT1:PDSC:RBL:LENG?
> 1
2.4.35 Equalizer Use Data

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

Equalizer Use Data

Function

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

Command

[:SENSe]:CAGG:RADio:EQUalizer:DATA <switch>

Parameter

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

Example of Use

To include data subcarriers in the calculation of Channel Estimation for Carrier Aggregation Analysis.
CAGG:RAD:EQU:DATA ON

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

Equalizer Use Data Query

Function

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

Query

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

Response

<switch>

Parameter

<switch>  Data subcarriers are Included (On), Not included (Off)
0 | OFF    Not included
1 | ON     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
2.4.36 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>  
0|OFF  
1|ON  
Amplitude Tracking Enabled (On) or Disabled (Off)

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

Example of Use

To query whether Amplitude Tracking is Enabled (On) or Disabled (Off).
CALC:CAGG:TRACK:AMPL?
> 1
2.4.37 Phase Tracking

:CALCulate:CAGG:TRACK:PHAS[:STATe] OFF|ON|0|1

Phase Tracking

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

Command
:CALCulate:CAGG: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:CAGG:TRACK:PHAS ON

:CALCulate:CAGG:TRACK:PHAS[:STATe]?

Phase Tracking Query

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

Query
:CALCulate:CAGG:TRACK:PHAS[: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
### 2.4.38 Timing Tracking

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

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

**Command**
**:CALCulate:CAGG:TRACK:TIMing[:STATe] <switch>**

**Parameter**

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

**Example of Use**
To set the Timing Tracking to Enabled.
```
CALC:CAGG:TRACK:TIM ON
```

**:CALCulate:CAGG:TRACK:TIMing[:STATe]??**

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

**Query**
**:CALCulate:CAGG:TRACK:TIMing[:STATe]??**

**Response**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Timing Tracking Enabled (On) or Disabled (Off)</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 Timing Tracking is Enabled (On) or Disabled (Off).
```
CALC:CAGG:TRACK:TIM?
> 1
```
2.4.39 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

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

<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 Multicarrier Filter is Enabled (On) or Disabled (Off).
CALC:CAGG:MCAR:FILT?
> 1
2.4.40 EVM Window

:CALCulate:CAGG:EWINdow[:STATe] OFF|ON|0|1

EVM Window

Command

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

:CALCulate:CAGG:EWINdow[:STATe] <switch>

Parameter

<switch>  
0|OFF  
1|ON  

EVM Window Enabled (On) or Disabled (Off)
Disabled (Default)

Example of Use

To enable the EVM Window.
CALC:CAGG:EWIN ON

:EVALuate:CAGG:EWINdow [:STATe]?

EVM Window Query

Query

This command queries if the EVM Window is Enabled (On) or Disabled (Off).

:CALCulate:CAGG:EWINdow[:STATe]?

Response

<switch>

Parameter

<switch>  
0  
1  

EVM Window Enabled (On) or Disabled (Off)
Disabled

Example of Use

To query if the EVM Window is Enabled (On) or Disabled (Off).
CALC:CAGG:EWIN?
> 1
### 2.5 Setting System Parameters

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

Table 2.5-1 lists the device messages used for the communication system targeted for measurement.

#### Table 2.5-1  Device Messages for Setting System Parameters

<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></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:CELLid?</td>
</tr>
<tr>
<td>Phase Compensation</td>
<td>[:SENSe]:RADio:FCOMPensation[:STATe] 0</td>
</tr>
<tr>
<td></td>
<td>[:SENSe]:RADio:FCOMPensation[:STATe]?</td>
</tr>
<tr>
<td>PUSCH/DM-RS On/Off</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[:STATe] OFF</td>
</tr>
<tr>
<td>Antenna Port</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:APORt 1000</td>
</tr>
<tr>
<td>PUSCH Modulation Scheme</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:MODulation QPSK</td>
</tr>
<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>PUSCH Start Symbol</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:SYMBol:STARt &lt;integer&gt;</td>
</tr>
</tbody>
</table>
### 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  Device Messages for Setting System Parameters (Cont’d)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Device Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUSCH Number of Symbols</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: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>PUSCH DM-RS typeA-pos</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:DMRS:APOSit ion &lt;integer&gt;</td>
</tr>
<tr>
<td>PUSCH DM-RS add-pos</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:APOSit ion &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>
<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>
</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 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>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:AMP литude[:STATe] OFF</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:TRACK:AMP литude[: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>
</tbody>
</table>
2.5 Setting System Parameters (MX285051A-061/MX289051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

2.5.1 Subcarrier Spacing

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

Subcarrier Spacing

Function

This command sets the subcarrier spacing.

Command

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

Parameter

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

Details

The selectable subcarrier spacing varies depending on the Standard.

Example of Use

To set the subcarrier spacing to 30 kHz.
RAD:SUBC:SPAC 30

[:SENSe]:RADio:SUBCarrier:SPACing?

Subcarrier Spacing Query

Function

This command queries the subcarrier spacing.

Query

[:SENSe]:RADio:SUBCarrier:SPACing?

Response

<mode>

Parameter

<mode> Subcarrier spacin
Standard: NR TDD sub-6GHz Uplink
15 15 kHz
30 30 kHz
60 60 kHz
Standard: NR TDD mmWave Uplink
60 60 kHz
120 120 kHz

Example of Use

To query the setting of subcarrier spacing.
RAD:SUBC:SPAC?
> 30
2.5.2 Number of RBs

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

Number of RBs

Function

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

Command

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

Parameter

<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>
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<td>80</td>
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<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>120 kHz MX285051A-071</td>
<td>66, 132, 264 (Default)</td>
</tr>
<tr>
<td>120 kHz MX285051A-071</td>
<td>66, 132, 264 (Default)</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.
2.5 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

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
2.5.3 Cell ID

\texttt{CALCulate:EVM:CELLid <integer>}

**Cell ID**

**Function**

This command sets the Cell ID for Modulation Analysis.

**Command**

\texttt{CALCulate:EVM:CELLid <integer>}

**Parameter**

\begin{itemize}
  \item \texttt{<integer>} \quad \text{Cell ID}
  \item \texttt{Range} \quad 0 to 1007
  \item \texttt{Resolution} \quad 1
  \item \texttt{Suffix code} \quad \text{None}
  \item \texttt{Default} \quad 0
\end{itemize}

**Details**

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

**Example of Use**

To set the Cell ID to 1.
\texttt{CALC:EVM:CELL 1}

\texttt{CALCulate:EVM:CELLid?}

**Cell ID Query**

**Function**

This command queries the Cell ID for Modulation Analysis.

**Query**

\texttt{CALCulate:EVM:CELLid?}

**Response**

\texttt{<integer>}

**Parameter**

\begin{itemize}
  \item \texttt{<integer>} \quad \text{Cell ID}
  \item \texttt{Range} \quad 0 to 1007
  \item \texttt{Resolution} \quad 1
\end{itemize}

**Example of Use**

To query the Cell ID.
\texttt{CALC:EVM:CELL?}
\texttt{> 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**

<table>
<thead>
<tr>
<th>&lt;integer&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 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**

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Description</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
2.5.5 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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

<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>

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
2.5.6 PUSCH/DM-RS Antenna Port

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
  - 1002
  - 1003

**Details**

Specify a slot number where the setting is performed at “[0]|1|...|79” in the remote 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 a slot number where the setting is queried at “[0]|1|...|79” in the remote 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**

<table>
<thead>
<tr>
<th>Function</th>
<th>This command sets the PUSCH/DM-RS antenna port in all slots.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>:CALCulate:EVM:PUSCh:APORt &lt;mode&gt;</td>
</tr>
<tr>
<td>Parameter</td>
<td>&lt;mode&gt; PUSCH/DM-RS antenna port</td>
</tr>
<tr>
<td></td>
<td>1000 1000 (Default)</td>
</tr>
<tr>
<td></td>
<td>1001 1001</td>
</tr>
<tr>
<td></td>
<td>1002 1002</td>
</tr>
<tr>
<td></td>
<td>1003 1003</td>
</tr>
<tr>
<td>Details</td>
<td>The PUSCH/DM-RS settings in all slots are performed collectively.</td>
</tr>
<tr>
<td>Example of Use</td>
<td>To set the PUSCH/DM-RS antenna port in all slots to 1001.</td>
</tr>
<tr>
<td></td>
<td>CALC:EVM:PUSC:APOR 1001</td>
</tr>
</tbody>
</table>
2.5.7 PUSCH Modulation Scheme

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

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
QPSK    QPSK
16Qam   16QAM
64Qam   64QAM
256Qam  256QAM
AUTO    Automatic judgment of input signal modulation scheme (Default)

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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
QPSK QPSK
16Qam 16QAM
64Qam 64QAM
256Qam 256QAM
AUTO Automatic judgment of input signal modulation scheme

Details

Specify a slot number where the setting is queried at “[0] |1|…|79” in the remote 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 QPSK|16Qam|64Qam|256Qam|AUTO
PUSCH Modulation Scheme

Function

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

Command

:CALCulate:EVM:PUSCh:MODulation <mode>

Parameter

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

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH modulation scheme in all slots to 256QAM.
CALC:EVM:PUSC:MOD 256Q
2.5.8 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>`
  - **A**
    - PUSCH Mapping Type
      - A (Default)
  - **B**
    - B

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 Mapping Type in Slot 1.
CALC:EVM:SLOT1:PUSC:MAPP:TYPE?
> A
PUSCH Mapping Type

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

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
```
### 2.5.9 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**

<table>
<thead>
<tr>
<th>&lt;integer&gt;</th>
<th>PUSCH start symbol</th>
</tr>
</thead>
</table>

**Range**

- PUSCH Mapping Type: typeA
  - 0 to DM-RS typeA-pos
- PUSCH Mapping Type: typeB
  - 0 to 12

**Default**

0

**Details**

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 start symbol in Slot 1.
CALC:EVM:SL0T1:PUSC:SYMB:STAR?
> 1
Chapter 2  SCPI Device Message Details

: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
2.5.10 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 PUSCH mapping symbols in Slot 1 to 3.
CALC:EVM:SLOT1:PUSC:SYMB:LEN 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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 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
2.5.11 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>

<table>
<thead>
<tr>
<th>OFF</th>
<th>Auto (On), Manual (Off)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Manual</td>
</tr>
<tr>
<td>0</td>
<td>Auto (Default)</td>
</tr>
</tbody>
</table>

Details

Specify a slot number where the setting is performed at “[0]|1…|79” in the remote 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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</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 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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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>
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<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 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 Setting System Parameters (MX285051A-061/MX269051A-061 NR TDD sub-6GHz Uplink / MX285051A-071 NR TDD mmWave Uplink Modulation Analysis)

2.5.12 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

<table>
<thead>
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<th>Subcarrier Spacing</th>
<th>Range of Slot Number That Can be Specified</th>
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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 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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 PUSCH boosting level in Slot 1.
CALC:EVM:SLOT1:PUSC:POW:BOOS?
> 3.00
:CALCulate:EVM:PUSCh:POWer:BOOSting <rel_power>

PUSCH Power Boosting

Function

This command sets the PUSCH boosting level in all slots.

Command

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

Parameter

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

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH boosting level in all slots to 3.00 dB.
CALC:EVM:PUSC:POW:BOOS 3.00DB
2.5.13 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:APOSitio
n <integer>

Parameter

<integer> PUSCH DM-RS typeA-pos

Range  2, 3
Default  2

Details

Specify a slot number where the setting is performed at “[0]|1…|79” in the remote 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 DM-RS typeA-pos in Slot 1 to 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: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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 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
2.5.14 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

<table>
<thead>
<tr>
<th>Range</th>
<th>0, 1, 2, 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
</tbody>
</table>

Details

Specify a slot number where the setting is performed at “[0]|1…|79” in the remote 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 DM-RS add-pos in Slot 1 to 3.

CALC:EVM:SLOT1:PUSC:DMRS:APOS 3
:CALCulate:EVM:SLOT[0]|1…|79:PUSCh:DMRS:APOSition?

PUSCH DM-RS add-pos Query

Function

This command queries the PUSCH DM-RS add-pos in each slot.

Query

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

Response

<integer>

Parameter

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

Details

Specify a slot number where the setting is queried at “[0]|1|…|79” in the remote 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>
<th>Range of Slot Number That Can Be Specified</th>
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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
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
2.5.15 PUSCH DM-RS CDM Group Without Data

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

PUSCH DM-RS CDM Group Without Data

Function

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

Command

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

Parameter

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

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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>
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<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
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:CDM?
PUSCH DM-RS CDM Group Without Data Query

Function

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

Query

:CALCulate:EVM:SLOT[0]|1...|79:PUSCh:DMRS:CDM?

Response

<mode>

Parameter

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

Details

Specify a slot number where the setting is queried at “[0]|1|...|79” in the remote 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 PUSCH DM-RS CDM Group Without Data in Slot 1.
CALC:EVM:SLOT1:PUSC:DMRS:CDM?
> 2

:CALCulate:EVM:PUSCh:DMRS:CDM 1|2
PUSCH DM-RS CDM Group Without Data

Function

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

Command

:CALCulate:EVM:PUSCh:DMRS:CDM <mode>

Parameter

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

Details

The PUSCH settings in all slots are performed collectively.

Example of Use

To set the PUSCH DM-RS CDM Group Without Data in all slots to 2.
CALC:EVM:PUSC:DMRS:CDM 2
2.5.16 PUSCH PTRS

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

PUSCH PTRS

Function

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

Command

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

Parameter

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

Details

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote 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 PUSCH PT-RS in Slot 1 to Enabled.

CALC:EVM:SLOT1:PUSC:PTRS 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: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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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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<tbody>
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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 setting of PUSCH PT-RS in Slot 1.

CALC:EVM:SLOT1:PUSC:PTRS?

> 1
Chapter 2  SCPI Device Message Details

:PULSCh:PTRS[:STATe] OFF|ON|0|1
PUSCH PTRS

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

Command
:CALCulate:EVM:PUSCh:PTRS[:STATe] <switch>

Parameter

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

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

Example of Use
To set the PUSCH PT-RS in all slots to Enabled.
CALC:EVM:PUSC:PTRS ON
2.5.17 PUSCH PTRS Time Density


PUSCH PTRS Time Density

**Function**

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

**Command**


**Parameter**

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PUSCH 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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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 Time Density in Slot 1 to 2.

**Chapter 2  SCPI Device Message Details**

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

PUSCH PTRS Time Density Query

**Function**

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

**Query**

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

**Response**

<mode>

**Parameter**

<mode>  

PUSCH PTRS Time Density  

Range  

1, 2, 4

**Details**

Specify a slot number where the setting is queried at “[0]|1…|79” in the remote 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>
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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 query the PUSCH PTRS Time Density in Slot 1.

CALC:EVM:SLOT1:PUSC:PTRS:DENS:TIME?  
> 2

**:CALCulate:EVM:PUSCh:PTRS:DENSity:TIME 1|2|4**

PUSCH PTRS Time Density

**Function**

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

**Command**

**:CALCulate:EVM:PUSCh:PTRS:DENSity:TIME <mode>**

**Parameter**

<mode>  

PUSCH PTRS Time Density  

Range  

1, 2, 4  

Default  

1

**Details**

The PUSCH settings in all slots are performed collectively.

**Example of Use**

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

CALC:EVM:PUSC:PTRS:DENS:TIME 2
2.5.18 PUSCH PTRS Freq. Density


PUSCH PTRS Freq. Density

Function

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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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

Parameter

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PUSCH PTRS Freq. Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2, 4</td>
</tr>
</tbody>
</table>

Details
Specify a slot number where the setting is queried at “[0]|1…|79” in the remote 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>
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<tbody>
<tr>
<td>15 kHz</td>
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<tr>
<td>30 kHz</td>
<td>0 to 19</td>
</tr>
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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 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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>PUSCH PTRS Freq. Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2, 4</td>
</tr>
<tr>
<td>Default</td>
<td>2</td>
</tr>
</tbody>
</table>

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 Setting System Parameters

2.5.19 PUSCH PTRS RE Offset

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 a slot number where the setting is performed at “[0]|1…|79” in the remote 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

2-255
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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 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

2-256
2.5.20 PUSCH RBs Allocation Auto Detect

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

PUSCH RBs Allocation Auto Detect

**Function**

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

**Command**

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

**Parameter**

<switch>

<table>
<thead>
<tr>
<th>Enabled (On) or disabled (Off)</th>
<th>Disabled</th>
<th>Enabled (Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Details**

Specify a slot number where the setting is performed at “[0]|1|…|79” in the remote command. The ranges of slot numbers that can be specified at each subcarrier spacing are listed below.

<table>
<thead>
<tr>
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<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 disable the auto detection of the RBs that are allocated to PUSCH in slot 1.

CALC:EVM:SLOT1:PUSC:RBL: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)
OFF|0  Disabled
ON|1  Enabled

Details

Specify a slot number where the setting is queried at “[0]|1|...|79” in the remote 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 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)

:PCLCulate: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**

:PCLCulate:EVM:PUSCh:RBLoCk:AUTO <switch>

**Parameter**

<switch>  
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
### 2.5.21 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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>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 Start RB of the RBs that are allocated to PUSCH in slot 1 to 1.  
CALC:EVM:SLOT1:PUSC:RB: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 a slot number where the setting is queried at “[0]|1|...|79” in the remote 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 Start RB of the RBs that are allocated to PUSCH in slot 1.
CALC:EVM:SLOT1:PUSC:RBL:STAR?
> 1
Chapter 2   SCPI Device Message Details

:CALCulate:EVM:PUSCh:RBLock:STARt <integer>
PUSCH RBs Allocation Start RB

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

Command
   :CALCulate:EVM:PUSCh:RBLock:STARt <integer>

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

Details
   The settings are performed collectively in all slots.

Example of Use
   To set the Start RB of the RBs that are allocated to PUSCH in all slots to 1.
   CALC:EVM:PUSC:RBL:STAR 1
2.5.22 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 a slot number where the setting is performed at “[0]|1|…|79” in the remote 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>
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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 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 a slot number where the setting is queried at “[0]|1|…|79” in the remote 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 RBs that are allocated to PUSCH in slot 1.
CALC:EVM:SLOT1:PUSC:RBL:LENG?
> 1
2.5 Setting System Parameters

**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
2.5.23 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 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  Data subcarriers are included (On), not included (Off)
1  Not 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
2.5.24 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
2.5.25 Phase Tracking

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

### Phase Tracking

**Function**

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

**Command**

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

**Parameter**

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

### Example of Use

To set the Phase Tracking to Enabled

CALC:EVM:TRACK:PHAS ON

**:CALCulate:EVM:TRACK:PHAS[:STATe]?**

### Phase Tracking Query

**Function**

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

**Query**

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

**Response**

```
<switch>
```

**Parameter**

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

### Example of Use

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

CALC:EVM:TRACK:PHAS?

> 1
2.5.26 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
2.5.27 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
2.5.28 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
2.6 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:ERASe

Example of Use
To cancel the warm up message display.
DISP:ANN:WUP:ERAS
2.6.2 Display Title

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

Display Title

Function
This command sets title display On/Off.

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

Parameter

<table>
<thead>
<tr>
<th>switch</th>
<th>Title display On/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 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

<table>
<thead>
<tr>
<th>switch</th>
<th>Title display On/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 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:CANCel</td>
</tr>
<tr>
<td>Save Captured Data</td>
<td>:MMEMory:STORe:IQData:RATE?</td>
</tr>
<tr>
<td>Output Rate for Save Captured Data</td>
<td>:MMEMory:STORe:IQData:RATE?</td>
</tr>
<tr>
<td>Trigger Switch</td>
<td>:TRIGger[:SEQUence][:STATe] ON</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence][:STATe]?</td>
</tr>
<tr>
<td>Trigger Source</td>
<td>:TRIGger[:SEQUence]:SOURce EXTernal[1</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]:DELay &lt;time&gt;</td>
</tr>
<tr>
<td></td>
<td>:TRIGger[:SEQUence]:DELay?</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

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

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

<table>
<thead>
<tr>
<th>&lt;switch&gt;</th>
<th>Measurement mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Single measurement</td>
</tr>
<tr>
<td>1</td>
<td>Continuous measurement</td>
</tr>
</tbody>
</table>

Example of Use
To query the measurement mode.
INIT:CONT?
> 0
Chapter 2  SCPI Device Message Details

: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
2.7 Common Measurement Function

:INITiate: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
**Chapter 2  SCPI Device Message Details**

:MMEMory:STORe:IQData <filename>,<device>

Save Captured Data

**Function**

This command saves the captured waveform data in a file.

**Command**

:MMEMory:STORe:IQData <filename>,<device>

**Parameter**

- `<filename>` Name of the file to be saved. Specify a character string enclosed by single (‘’) or double (””) quotation marks.
- `<device>` Name of the drive to be saved. Drive name such as A, B, D or E.

**Details**

Files are saved to the following directory in the specified drive.
\Anritsu Corporation\Signal Analyzer\User Data\Digitized Data\5GMeasurement

Up to 1000 files can be saved in a folder.

**Example of Use**

To save waveform data into drive D using the file name “DATA”.

```
:MMEM:STOR:IQD "DATA",D
```

:MMEMory:STORe:IQData:CANCel

Cancel Execute Save Captured Data

**Function**

This command cancels saving of the waveform data file.

**Command**

:MMEMory:STORe:IQData:CANCel

**Example of Use**

To cancel digitizing.

```
:MMEM:STOR:IQD:CANC
```
:MMEMory:STORe:IQData:RATE?
Output Rate for Save Captured Data

Function
This command queries the output rate when executing Save Captured Data.

Query
:MMEMory:STORe:IQData:RATE?

Response
<freq>

Parameter
<freq> Output rate
  Range 50 to 1300 MHz
  No suffix code. Value is returned in Hz units.

Example of Use
To query the output rate.
MMEM:STOR:IQD:RATE?
> 1300000000
2.7.2 Trigger Switch

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

Trigger Switch

Function

This command sets the trigger wait state On/Off.

Command

:TRIGger[:SEQUence][:STATe] <switch>

Parameter

<table>
<thead>
<tr>
<th>switch</th>
<th>Trigger wait On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
</tbody>
</table>

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>

<table>
<thead>
<tr>
<th>switch</th>
<th>Trigger wait On/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 query the trigger wait state On/Off.
TRIG?
> 1
2.7 Common Measurement Function

2.7.3 Trigger Source

:TRIGger[:SEQuence]:SOURce EXTernal[1|2]|SG|IMMediate

Trigger Source

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)
  IMMEDIATE Free run

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

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 (Only when MS269xA-020 is installed)
    Free run

Example of Use

To query the trigger signal source.
TRIG:SOUR?
> EXT
2.7.4 Trigger Slope

:\TRIgger[:SEQuence]:SLOPe POSitive|NEGative

Trigger Slope

Function

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

Command

:\TRIgger[:SEQuence]:SLOPe <mode>

Parameter

<mode>

POSitive

Triggers are detected at the rising edge (Default).

NEGative

Triggers are detected at the falling edge.

Details

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

Example of Use

To detect a trigger at the rising edge.

TRIG:SLOP POS

:\TRIgger[:SEQuence]:SLOPe?

Trigger Slope Query

Function

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

Query

:\TRIgger[:SEQuence]:SLOPe?

Response

<mode>

Parameter

<mode>

POS

Triggers are detected at the rising edge.

NEG

Triggers are detected at the falling edge.

Example of Use

To query the trigger detection mode.

TRIG:SLOP?

> POS
2.7.5 Trigger Delay

:TRIGger[:SEQuence]:DELay <time>

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

<table>
<thead>
<tr>
<th>&lt;time&gt;</th>
<th>Trigger delay time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MS2850A</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td></td>
</tr>
<tr>
<td>–6.4 to 6.4 s (MS2850A-032)</td>
<td></td>
</tr>
<tr>
<td>–3.2 to 3.2 s (MS2850A-033/133)</td>
<td></td>
</tr>
<tr>
<td>–1.6 to 1.6 s (MS2850A-034/134)</td>
<td></td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td></td>
</tr>
<tr>
<td>40 ns (MS2850A-032)</td>
<td></td>
</tr>
<tr>
<td>20 ns (MS2850A-033/133)</td>
<td></td>
</tr>
<tr>
<td>10 ns (MS2850A-034/134)</td>
<td></td>
</tr>
</tbody>
</table>

| **MS269xA** | | |
| **Range** | | |
| –2 to +2 s (Without MS269xA-077/177 ) | |
| –500 to +500 ms (With MS269xA-077/177) | |
| **Resolution** | | |
| 20 ns (Without MS269xA-077/177) | |
| 10 ns (With only MS269xA-077/177) | |
| 5 ns (With MS269xA-078/178) | |
| **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
Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>MS2850A</th>
<th>Range</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–6.4 to 6.4 s</td>
<td>40 ns</td>
</tr>
<tr>
<td></td>
<td>–3.2 to 3.2 s</td>
<td>20 ns</td>
</tr>
<tr>
<td></td>
<td>–1.6 to 1.6 s</td>
<td>10 ns</td>
</tr>
<tr>
<td></td>
<td>(MS2850A-032)</td>
<td>(MS2850A-033/133)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MS269xA</th>
<th>Range</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–2 to +2 s</td>
<td>20 ns</td>
</tr>
<tr>
<td></td>
<td>–500 to +500 ms</td>
<td>10 ns</td>
</tr>
<tr>
<td></td>
<td>(Without MS269xA-077/177)</td>
<td>(With MS269xA-077/177)</td>
</tr>
<tr>
<td></td>
<td>(With only MS269xA-077/177)</td>
<td>(With MS269xA-078/178)</td>
</tr>
</tbody>
</table>

Unit  Value is returned in second units.

Example of Use

To query the trigger delay time.

TRIG:DEL?

> 0.02000000


2.8 Modulation Measurement Function

This section describes the device messages related to Modulation measurement.

Table 2.8-1 lists the device messages used for execution and result query of Modulation measurement.

Table 2.8-1  Device Messages for Modulation Measurement Functions

<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>
### 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>
<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. 1 to 2 × N Constellation  
2. Q-phase data of the 0th subcarrier  
3. I-phase data of the 1st subcarrier  
4. Q-phase data of the 1st subcarrier  
...  
2 × N−1. I-phase data of the (N−1)th subcarrier  
2 × N. Q-phase data of the (N−1)th subcarrier  
The constellation data for the symbol set by Symbol Number is returned. |
| 4  | A/B         | Responses are returned with comma-separated value formats in the following order:  
1. 1 to N EVM vs Subcarrier (rms)  
2. EVM (rms) of the 0th subcarrier  
3. 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. 1 to N EVM vs Subcarrier (peak)  
2. EVM (peak) of the 0th subcarrier  
3. 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. 1 to M EVM vs Symbol (rms)  
2. EVM (rms) of the 0th symbol  
3. 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>
<th></th>
</tr>
</thead>
</table>
| 7  | A/B         | Responses are returned with comma-separated value formats in the following order:  
1 to M EVM vs Symbol (peak)  
1. EVM (peak) of the 0th symbol  
2. EVM (peak) of the 1st symbol  
...  
M. EVM (peak) of the (M−1)th symbol  
**Note:**  
Executable even when EVM vs Symbol is not selected for Graph window. |
| 8  | A/B         | Responses are returned with comma-separated value formats in the following order:  
1 to N Spectral flatness amplitude  
1. Spectral flatness amplitude of the 0th subcarrier  
2. Spectral flatness amplitude of the 1st subcarrier  
...  
N. Spectral flatness amplitude of the (N−1)th subcarrier  
**Note:**  
Executable even when Spectral Flatness Amplitude is not selected for Graph window. |
| 10 | A/B         | Responses are returned with comma-separated value formats in the following order:  
1 to N Spectral flatness phase  
1. Spectral flatness phase of the 0th subcarrier  
2. Spectral flatness phase of the 1st subcarrier  
...  
N. Spectral flatness phase of the (N−1)th subcarrier  
**Note:**  
Executable even when Spectral Flatness Phase is not selected for Graph window. |
Table 2.8-2  Responses to MX285051A-011/MX269051A-011 NR TDD sub-6GHz Downlink /MX285051A-021 NR TDD mmWave Downlink Modulation Measurement Results (Cont’d)

<table>
<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>
<tr>
<td>13</td>
<td>A/B</td>
<td>Subcarrier Spacing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. EVM (rms) of resource block 0 in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. EVM (rms) of resource block 1 in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x. EVM (rms) of resource block (x – 1) in slot y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x + 1. EVM (rms) 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. EVM (rms) 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. EVM (rms) of resource block (x – 1) in slot (y + z)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> 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&amp;Max, the result of the last measurement is returned.</td>
</tr>
</tbody>
</table>
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>
<tbody>
<tr>
<td></td>
<td></td>
<td>Responses are returned with comma-separated value formats in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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>15 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
<tr>
<td>14</td>
<td>A/B</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>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong></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</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the last measurement is returned.</td>
</tr>
<tr>
<td>22</td>
<td>A/B</td>
<td>1. Cell ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. P-SS Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. S-SS Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. PBCH Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. PDSCH Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. PDCCH Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. DM-RS(PBCH) Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. DM-RS(PDSCH) Power (Average) [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. DM-RS(PDCCH) Power (Average) [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

<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) [second]  
14. Time Offset (Maximum) [second]  
15. Frequency Error PPM (Average) [ppm]  
16. Frequency Error PPM (Maximum) [ppm]  
17. Symbol Clock Error (Average) [ppm]  
18. Symbol Clock Error (Maximum) [ppm]  
19. IQ Skew (Average) [second]  
20. IQ Skew (Maximum) [second]  
21. IQ Imbalance (Average) [dB]  
22. IQ Imbalance (Maximum) [dB]  
23. IQ Quadrature Error (Average) [degree]  
24. IQ Quadrature Error (Maximum) [degree] |
# 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>
| 2  | A/B         | Responses are returned with comma-separated value formats in the following order:  
1. Total EVM result valid (1 = Valid/0 = Invalid)  
2. Total EVM rms (Average)  
3. Total EVM rms (Maximum)  
4. Total EVM peak (Average)  
5. Total EVM peak (Maximum)  
6. Total EVM peak Symbol Number  
7. Total EVM peak Subcarrier Number  
8. PUSCH ALL EVM result valid (1 = Valid/0 = Invalid)  
9. PUSCH ALL EVM rms (Average)  
10. PUSCH ALL EVM rms (Maximum)  
11. PUSCH ALL EVM peak (Average)  
12. PUSCH ALL EVM peak (Maximum)  
13. PUSCH ALL EVM peak Symbol Number  
14. PUSCH ALL EVM peak Subcarrier Number  
15. PUSCH QPSK EVM result valid (1 = Valid/0 = Invalid)  
16. PUSCH QPSK EVM rms (Average)  
17. PUSCH QPSK EVM rms (Maximum)  
18. PUSCH QPSK EVM peak (Average)  
19. PUSCH QPSK EVM peak (Maximum)  
20. PUSCH QPSK EVM peak Symbol Number  
21. PUSCH QPSK EVM peak Subcarrier Number  
22. PUSCH 16QAM EVM result valid (1 = Valid/0 = Invalid)  
23. PUSCH 16QAM EVM rms (Average)  
24. PUSCH 16QAM EVM rms (Maximum)  
25. PUSCH 16QAM EVM peak (Average)  
26. PUSCH 16QAM EVM peak (Maximum)  
27. PUSCH 16QAM EVM peak Symbol Number  
28. PUSCH 16QAM EVM peak Subcarrier Number  
29. PUSCH 64QAM EVM result valid (1 = Valid/0 = Invalid)  
30. PUSCH 64QAM EVM rms (Average)  
31. PUSCH 64QAM EVM rms (Maximum)  
32. PUSCH 64QAM EVM peak (Average)  
33. PUSCH 64QAM EVM peak (Maximum)  
34. PUSCH 64QAM EVM peak Symbol Number  
35. PUSCH 64QAM EVM peak Subcarrier Number  
36. PUSCH 256QAM EVM result valid (1 = Valid/0 = Invalid)  
37. PUSCH 256QAM EVM rms (Average)  
38. PUSCH 256QAM EVM rms (Maximum)  
39. PUSCH 256QAM EVM peak (Average)  
40. PUSCH 256QAM EVM peak (Maximum)  
41. PUSCH 256QAM EVM peak Symbol Number  
42. PUSCH 256QAM EVM peak Subcarrier Number |
<table>
<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>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>
</tbody>
</table>

| 3   | 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.

| 4   | 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.
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>6</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 M EVM vs Symbol (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. EVM (rms) of the 0th symbol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. EVM (rms) of the 1st symbol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. EVM (rms) of the (M−1)th symbol</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> EXECUTABLE EVEN WHEN EVM VS SYMBOL IS NOT SELECTED FOR GRAPH WINDOW.</td>
</tr>
<tr>
<td>7</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 M EVM vs Symbol (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. EVM (peak) of the 0th symbol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. EVM (peak) of the 1st symbol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. EVM (peak) of the (M−1)th symbol</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> EXECUTABLE EVEN WHEN EVM VS SYMBOL IS NOT SELECTED FOR GRAPH WINDOW.</td>
</tr>
<tr>
<td>8</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 Spectral flatness amplitude</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Spectral flatness amplitude of the 0th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Spectral flatness amplitude of the 1st subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. Spectral flatness amplitude of the (N−1)th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> EXECUTABLE EVEN WHEN SPECTRAL FLATNESS AMPLITUDE IS NOT SELECTED FOR GRAPH WINDOW.</td>
</tr>
<tr>
<td>10</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 Spectral flatness phase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Spectral flatness phase of the 0th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Spectral flatness phase of the 1st subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. Spectral flatness phase of the (N−1)th subcarrier</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> EXECUTABLE EVEN WHEN SPECTRAL FLATNESS PHASE 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>
<tbody>
<tr>
<td></td>
<td>A/B</td>
<td>Responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block. x = Number of RBs, y = 0, z = Number of Slots.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subcarrier Spacing</td>
<td>Number of Slots</td>
</tr>
<tr>
<td></td>
<td>15 kHz</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>30 kHz</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>60 kHz</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>120 kHz</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>1. EVM (rms) of resource block 0 in slot y</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. EVM (rms) of resource block 1 in slot y</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>x. EVM (rms) of resource block (x – 1) in slot y</td>
<td></td>
</tr>
<tr>
<td></td>
<td>x + 1. EVM (rms) of resource block 0 in slot (y + 1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 × x. EVM (rms) of resource block (x – 1) in slot (y + 1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>m. EVM (rms) of resource block (x – 1) in slot (y + z)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td>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&amp;Max, the result of the last measurement is returned.</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>
| 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] |

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>
<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]:SELEcE EVSubcarrier</td>
</tr>
<tr>
<td></td>
<td>:DISPlay:EVM[:VIEW]:SELEcE?</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:GView RMS</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow2:GView?</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:GView RMS</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:EVM:WINDow3:GView?</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
2.8  Modulation Measurement Function

: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]?

SCPI Device Message Details
: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>

<table>
<thead>
<tr>
<th>Storage Mode</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>0</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>AMAXimum</td>
<td>2</td>
</tr>
</tbody>
</table>

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>

<table>
<thead>
<tr>
<th>Storage Mode</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Off</td>
</tr>
<tr>
<td>1</td>
<td>Average</td>
</tr>
<tr>
<td>2</td>
<td>Average &amp; Max</td>
</tr>
</tbody>
</table>

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

This 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
  - PERCent % scale (Default)
  - DB dB scale

**Details**

This command is not available when Trace Mode is set to Spectral Flatness.

**Example of Use**

To set the unit for EVM to dB scale.

```
DISP:EVM:WIND2:TRAC:Y:SPAC DB
```

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

This command queries the scale unit for EVM.

**Query**

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

**Response**

- **<mode>**
  - PERC % scale
  - DB dB scale

**Example of Use**

To query the unit for EVM.

```
DISP:EVM:WIND2:TRAC:Y:SPAC?
> DB
```
2.8.5 Scale – EVM

:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel
2|5|10|20|-40|-20|0

Scale – EVM

Function

This command sets the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit depends on the setting of EVM Unit.

Command

:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel

Parameter

<scale>  Range of vertical axis scale when EVM Unit = %

20  0 to 20%
10  0 to 10%
5   0 to 5% (Default)
2   0 to 2%

<scale>  Range of vertical axis scale when EVM Unit = dB

−40  −80 to −40 dB (Default)
−20  −80 to −20 dB
0    −80 to 0 dB

Details

The selectable arguments depend on the setting of EVM Unit.

Example of Use

To set the vertical axis scale of the result graph to 10%.

DISP:EVM:WIND2:TRAC:Y:RLEV 10
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.

Function

:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel?

Query

:DISPlay:EVM[:VIEW]:WINDow2|3|6:TRACe:Y[:SCALe]:RLEVel?

Response

<scale>

Parameter

<scale> Range of vertical axis scale when EVM Unit = %
- 20  0 to 20%
- 10  0 to 10%
-  5  0 to 5%
-  2  0 to 2%

<scale> Range of vertical axis scale when EVM Unit = dB
- –40 –80 to –40 dB
- –20 –80 to –20 dB
-   0 –80 to 0 dB

Example of Use

To query the vertical axis scale of the result graph.
DISP:EVM:WIND2:TRAC:Y:RLEV?
> 10
2.8.6 Scale – Flatness

:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel <scale>

Scale – Flatness

Function
This command sets the vertical axis scale of the Flatness graph. The unit depends on the setting of Flatness Type.

Command
:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel <scale>

Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range of vertical axis scale when Flatness Type = Amplitude</th>
<th>Range of vertical axis scale when Flatness Type = Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;scale&gt;</td>
<td>Range 1, 3, 10</td>
<td>Range 6, 20, 60</td>
</tr>
<tr>
<td>Suffix code</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Default</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Example of Use
To set the vertical axis scale of the result graph to 10 dB.
DISP:EVM:WIND4:TRAC:Y:RLEV 10

:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel?

Scale – Flatness Query

Function
This command queries the vertical axis scale of the Flatness graph. The unit of the readout value depends on the setting of Flatness Type.

Query
:DISPlay:EVM[:VIEW]:WINDow4:TRACe:Y[:SCALe]:RLEVel?

Response

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range of vertical axis scale when Flatness Type = Amplitude</th>
<th>Range of vertical axis scale when Flatness Type = Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;scale&gt;</td>
<td>Range 1, 3, 10</td>
<td>Range 6, 20, 60</td>
</tr>
</tbody>
</table>

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>

<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> 
  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

:CALCulate:EVM:WINDow4:TYPE?

Response

<mode>

Parameter

<mode> 
  AMPL Amplitude is displayed.
  PHAS Phase is displayed.

Example of Use

To query the display type of the spectral flatness graph.
CALC:EVM:WIND4:TYPE?
> AMPL
2.8.9 Graph View Setting

:CALCulate:EVM:WINDow2:MODE EACH|AVERage

EVM vs Subcarrier View

Function

This command sets whether to display the averaged or unaveraged EVM vs Subcarrier.

Command

:CALCulate:EVM:WINDow2:MODE <mode>

Parameter

<mode>

Averaging of EVM vs Subcarrier

EACH

Displays the unaveraged EVM vs Subcarrier.

AVERAGE

Displays the averaged EVM vs Subcarrier (Default).

Example of Use

To display the averaged EVM vs Subcarrier.

CALC:EVM:WIND2:MODE AVER

:CALCulate:EVM:WINDow2:MODE?

EVM vs Subcarrier View Query

Function

This command queries the setting whether the EVM vs Subcarrier is averaged.

Query

:CALCulate:EVM:WINDow2:MODE?

Response

<mode>

Parameter

<mode>

Averaging of EVM vs Subcarrier

EACH

Unaveraged EVM vs Subcarrier is displayed.

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
Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Display type of EVM vs Subcarrier graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS</td>
<td>Displays the average value.</td>
</tr>
<tr>
<td>RPEak</td>
<td>Displays the average and peak values (Default).</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Display type of EVM vs Subcarrier graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS</td>
<td>The average value is displayed.</td>
</tr>
<tr>
<td>RPEak</td>
<td>The average and peak values are displayed.</td>
</tr>
</tbody>
</table>

Example of Use

To query the display type of the EVM vs Subcarrier graph.
CALC:EVM:WIND2:GVI?
> RMS
2.8 Modulation Measurement Function

: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>
- 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>
- 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
2-318

Chapter 2  SCPI Device Message Details

: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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Display type of EVM vs Symbol graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS</td>
<td>Displays the average value.</td>
</tr>
<tr>
<td>RPEak</td>
<td>Displays the average and peak values (Default).</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>&lt;mode&gt;</th>
<th>Display type of EVM vs Symbol graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS</td>
<td>Average value is displayed.</td>
</tr>
<tr>
<td>RPEak</td>
<td>Average and peak values are displayed.</td>
</tr>
</tbody>
</table>

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


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:WIN1: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:WIN:SYMB:NUMB?
> 110
2.8.11 Marker – Subcarrier Number

:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer <integer>

Marker – Subcarrier Number

Function

This command sets the subcarrier number of the displayed constellation and graph.

Command

:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer <integer>

Parameter

<integer> Subcarrier number

Range 0 to 3275
Resolution 1
Suffix code None
Default 0

Example of Use

To set the display subcarrier number to 110.
CALC:EVM:WIND3:SUBC:NUMB 110

:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer?

Marker – Subcarrier Number Query

Function

This command queries the subcarrier number of displayed constellation and graph.

Query

:CALCulate:EVM:WINDow3:SUBCarrier:NUMBer?

Response

<integer>

Parameter

<integer> Subcarrier number

Range 0 to 3275
Resolution 1

Example of Use

To query the display subcarrier number.
CALC:EVM:WIND3:SUBC:NUMB?
> 110
2.8.12 Slot Number

:CALCulate:EVM:WINDow5|6:SLOT:NUMBer <integer>

Slot Number

Function

This command sets the slot number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

:CALCulate:EVM:WINDow5|6:SLOT:NUMBer <integer>

Parameter

<integer> Slot number to be displayed
Range 0 to 79
Resolution 1
Suffix code None
Default 0

Example of Use

To set the slot number to be displayed for Power vs Resource Block to 1.
CALC:EVM:WIND5:SLOT:NUMB 1

:CALCulate:EVM:WINDow5|6:SLOT:NUMBer?

Slot Number Query

Function

This command queries the slot number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

:CALCulate:EVM:WINDow5|6:SLOT:NUMBer?

Response

<integer>

Parameter

<integer> Slot number to be displayed
Range 0 to 79
Resolution 1

Example of Use

To query the slot number displayed for Power vs Resource Block.
CALC:EVM:WIND5:SLOT:NUMB?
> 1
2.8.13 Resource Block Number

:CALCulate:EVM:WINDow5|6:RBLock:NUMBer <integer>

Resource Block Number

Function

This command sets the Resource Block number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

:CALCulate:EVM:WINDow5|6:RBLock:NUMBer <integer>

Parameter

<integer> Resource Block number to be displayed
  Range  0 to 272
  Resolution  1
  Suffix code  None
  Default  0

Example of Use

To set the Resource Block number to be displayed for Power vs Resource Block to 10.
CALC:EVM:WIND5:RBL:NUMB 10

:CALCulate:EVM:WINDow5|6:RBLock:NUMBe? 

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:NUMBe?

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:NUMBe?
> 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
Chapter 2  SCPI Device Message Details

: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
2.8 Modulation Measurement Function

:CALCulate:EVM:MARKer:SYMBol <integer>
Marker Symbol Number

Function

This command sets the marker position on the constellation or in the graph window as a symbol number.

Command

:CALCulate:EVM:MARKer:SYMBol <integer>

Parameter

<integer> Symbol number
Range 0 to 1119
Resolution 1
Suffix code None
Default 0

Example of Use

To set the marker position to 100.
CALC:EVM:MARK:SYMB 100

:CALCulate:EVM:MARKer:SYMBol?
Marker Symbol Number Query

Function

This command queries the marker position on the constellation or in the graph window as a symbol number.

Command

:CALCulate:EVM:MARKer:SYMBol?

Response

<integer>

Parameter

<integer> Symbol number
Range 0 to 1119
Resolution 1

Details

For Power vs Resource Block and EVM vs Resource Block, the marker position of Constellation is returned in a symbol number.

Example of Use

To query the marker position.
CALC:EVM:MARK:SYMB?
> 100
Chapter 2  SCPI Device Message Details

:CALCulate:EVM:MARKer:RELement <integer>
Marker Resource Element Number

Function

This command sets the marker position of Constellation in a source element number when Trace Mode is set to Power vs Resource Block or EVM vs Resource Block.

Command

:CALCulate:EVM:MARKer:RELement <integer>

Parameter

<integer>  Resource element number
  Range  0 to Number of resource elements detected as PDSCH or PUSCH.
  Resolution  1
  Suffix code  None
  Default  0

Example of Use

To set the marker target of Constellation to 100.
CALC:EVM:MARK:REL 100

:CALCulate:EVM:MARKer:RELement?
Marker Resource Element Number Query

Function

This command queries the marker position of Constellation in a resource element number when Trace Mode is set to Power vs Resource Block or EVM vs Resource Block.

Command

:CALCulate:EVM:MARKer:RELement?

Response

<integer>

Parameter

<integer>  Resource element number
  Range  0 to Number of resource elements detected as PDSCH or PUSCH.
  Resolution  1

Example of Use

To query the marker target of Constellation.
CALC:EVM:MARK:REL?
> 100
2.8.15 Marker Value
:CALCulate:EVM:MARKer:X?
Marker X Axis Value Query

Function
This command queries the X-coordinate value at the marker on the Constellation.

Query
:CALCulate:EVM:MARKer:X?

Response
<real>

Parameter
<real> X-coordinate value at the marker on the Constellation

Details
This command is not available when Trace Mode is set to Summary. -999.0 is returned when measurement is not made or an error has occurred.

Example of Use
To query the X-coordinate value at the marker on the Constellation.
CALC:EVM:MARK:X?
> 0.12345
:CALCulate:EVM:MARKer:Y[:RMS]?
Marker Y Axis Value (RMS) Query

Function
This command queries the RMS value on the Y coordinate at the marker on the target graph.

Query
:CALCulate:EVM:MARKer:Y[:RMS]?

Response
<real>

Parameter
<real> RMS value on Y coordinate at marker 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
2.8 Modulation Measurement Function

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
**Chapter 2  SCPI Device Message Details**

: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
```
2.8 Modulation Measurement Function

:CALCulate:EVM:MARKer:EVM[:RMS]?
Marker EVM Value (RMS) Query

Function

This command queries the RMS value of EVM at the marker position in the corresponding graph.

Query

:CALCulate:EVM:MARKer:EVM[:RMS]?

Response

<real>

Parameter

<real> RMS value of EVM at the marker position in the corresponding graph

When EVM Unit is set to %: Unit: %
When EVM Unit is set to dB: Unit: dB

Details

−999.0 is returned if Trace Mode is not EVM vs Subcarrier, EVM vs Symbol, Power vs RB, or EVM vs RB.
−999.0 is returned when no measurement is made or an error occurs.

Example of Use

To query the RMS value of EVM at the marker position.

CALC:EVM:MARK:EVM?
> -20.00
Chapter 2  SCPI Device Message Details

: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
2.8  Modulation Measurement Function

:CALCulate:EVM:MARKer:POWer:ABSolute?
Marker Absolute Power Value (Peak) Query

Function
This command queries the absolute power value at the marker position in the graph window.

Query
:CALCulate:EVM:MARKer:POWer:ABSolute?

Response
<real>

Parameter
<real>  Absolute power value at the marker position in the corresponding graph
        Unit  dBm

Details
−999.0 is returned if Trace Mode is not Power vs RB or EVM vs RB.
−999.0 is returned when no measurement is made or an error occurs.

Example of Use
To query the absolute power value at the marker position.
CALC:EVM:MARK:POW:ABS?
> −20.00
2.8.16 Peak Search

:CALCulate:MARKer:MAXimum

Peak Search

Function

This command searches for the maximum level point of the active trace and moves the marker point.

Command

:CALCulate:MARKer:MAXimum

Details

This function is available on the following traces:

- EVM vs Subcarrier
- EVM vs Symbol
- Spectral flatness
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the *WAI command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the maximum level point and query the marker value.

```
CALC:MARK:MAX
*WAI
CALC:EVM:MARK:Y?
```
:CALCulate:MARKer:MAXimum:NEXT

Next Peak Search

Function

This command searches for the feature point on the active trace and moves the marker point to the peak point of a level that is lower than the current marker level.

Command

:CALCulate:MARKer:MAXimum:NEXT

Details

This function is available on the following traces:
- EVM vs Subcarrier
- EVM vs Symbol
- Spectral flatness
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the \*WAI command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the next peak point and query the marker value.

```
CALC:MARK:MAX:NEXT
*WAI
CALC:EVM:MARK:Y?
```
Chapter 2  SCPI Device Message Details

:DCLCulate:MARKer:MINimum

Dip Search

Function

This command searches for the minimum level point of the active trace and moves the marker point.

Command

:DCLCulate: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 list the responses to parameter \([n]\) of the device messages in Table 2.9-1

<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. CC#0 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Time Difference [ns]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. CC#1 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12. Time Difference [ns]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13. CC#2 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18. Time Difference [ns]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19. CC#3 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24. Time Difference [ns]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25. CC#4 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28. EVM (rms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29. EVM (peak)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30. Time Difference [ns]</td>
</tr>
<tr>
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<td></td>
<td>31. CC#5 Measurement status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32. Frequency Error [Hz]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33. Transmit Power [dBm]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34. EVM (rms)</td>
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<tr>
<td></td>
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<td>35. EVM (peak)</td>
</tr>
<tr>
<td></td>
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<td>36. Time Difference [ns]</td>
</tr>
</tbody>
</table>
### Table 2.9-2  Responses to MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<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:  
37. CC#6 Measurement status  
38. Frequency Error [Hz]  
39. Transmit Power [dBm]  
40. EVM (rms)  
41. EVM (peak)  
42. Time Difference [ns]  
43. CC#7 Measurement status  
44. Frequency Error [Hz]  
45. Transmit Power [dBm]  
46. EVM (rms)  
47. EVM (peak)  
48. Time Difference [ns]  
49. Total Tx Power [dBm]  
50. Tx Power Flatness [dB] |
### Table 2.9-2 Responses to MX285051A-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:  
1. CC#0 Total EVM result valid (1 = valid/0 = invalid)  
2. Total EVM rms  
3. Reserved  
4. Total EVM peak (Average)  
5. Reserved  
6. Total EVM peak symbol position  
7. Total EVM peak subcarrier position  
8. PDSCH ALL EVM result valid (1 = valid/0 = invalid)  
9. PDSCH ALL EVM rms (Average)  
10. Reserved  
11. PDSCH ALL EVM peak (Average)  
12. Reserved  
13. PDSCH ALL EVM peak symbol position  
14. PDSCH ALL EVM peak subcarrier position  
15. PDSCH QPSK EVM result valid (1 = valid/0 = invalid)  
16. PDSCH QPSK EVM rms (Average)  
17. Reserved  
18. PDSCH QPSK EVM peak (Average)  
19. PDSCH QPSK EVM peak (max)  
20. PDSCH QPSK EVM peak symbol position  
21. PDSCH QPSK EVM peak subcarrier position  
22. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid)  
23. PDSCH 16QAM EVM rms (Average)  
24. Reserved  
25. PDSCH 16QAM EVM peak (Average)  
26. Reserved  
27. PDSCH 16QAM EVM peak symbol position  
28. PDSCH 16QAM EVM peak subcarrier position  
29. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid)  
30. PDSCH 64QAM EVM rms (Average)  
31. Reserved  
32. PDSCH 64QAM EVM peak (Average)  
33. Reserved  
34. PDSCH 64QAM EVM peak symbol position  
35. PDSCH 64QAM EVM peak subcarrier position  
36. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)  
37. PDSCH 256QAM EVM rms (Average)  
38. Reserved  
39. PDSCH 256QAM EVM peak (Average)  
40. Reserved  
41. PDSCH 256QAM EVM peak symbol position  
42. PDSCH 256QAM EVM peak subcarrier position  
43. to 98. Reserved |
Table 2.9-2  Responses to MX285051A-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:  
|     |             | 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-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
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<tr>
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<th>Result Mode</th>
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<td>A/B</td>
<td>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</td>
</tr>
</tbody>
</table>
Table 2.9-2  Responses to 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:  
295. CC#3 Total EVM result valid (1 = valid/0 = invalid)  
296. Total EVM rms  
297. Reserved  
298. Total EVM peak (Average)  
299. Reserved  
300. Total EVM peak symbol position  
301. Total EVM peak subcarrier position  
302. PDSCH ALL EVM result valid (1 = valid/0 = invalid)  
303. PDSCH ALL EVM rms (Average)  
304. Reserved  
305. PDSCH ALL EVM peak (Average)  
306. Reserved  
307. PDSCH ALL EVM peak symbol position  
308. PDSCH ALL EVM peak subcarrier position  
309. PDSCH QPSK EVM result valid (1 = valid/0 = invalid)  
310. PDSCH QPSK EVM rms (Average)  
311. Reserved  
312. PDSCH QPSK EVM peak (Average)  
313. PDSCH QPSK EVM peak (max)  
314. PDSCH QPSK EVM peak symbol position  
315. PDSCH QPSK EVM peak subcarrier position  
316. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid)  
317. PDSCH 16QAM EVM rms (Average)  
318. Reserved  
319. PDSCH 16QAM EVM peak (Average)  
320. Reserved  
321. PDSCH 16QAM EVM peak symbol position  
322. PDSCH 16QAM EVM peak subcarrier position  
323. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid)  
324. PDSCH 64QAM EVM rms (Average)  
325. Reserved  
326. PDSCH 64QAM EVM peak (Average)  
327. Reserved  
328. PDSCH 64QAM EVM peak symbol position  
329. PDSCH 64QAM EVM peak subcarrier position  
330. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)  
331. PDSCH 256QAM EVM rms (Average)  
332. Reserved  
333. PDSCH 256QAM EVM peak (Average)  
334. Reserved  
335. PDSCH 256QAM EVM peak symbol position  
336. PDSCH 256QAM EVM peak subcarrier position  
337. to 392. Reserved |
Table 2.9-2  Responses to MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
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<th>Result Mode</th>
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<td>Response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>393. CC#4 Total EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>394. Total EVM rms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>395. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>396. Total EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>397. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>398. Total EVM peak symbol position</td>
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<tr>
<td></td>
<td></td>
<td>399. Total EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400. PDSCH ALL EVM result valid (1 = valid/0 = invalid)</td>
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<tr>
<td></td>
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<td>401. PDSCH ALL EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>402. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>403. PDSCH ALL EVM peak (Average)</td>
</tr>
<tr>
<td></td>
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<td>404. Reserved</td>
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<tr>
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<td>405. PDSCH ALL EVM peak symbol position</td>
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<tr>
<td></td>
<td></td>
<td>406. PDSCH ALL EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>407. PDSCH QPSK EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
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<td></td>
<td>408. PDSCH QPSK EVM rms (Average)</td>
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<tr>
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<td>409. Reserved</td>
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<td>410. PDSCH QPSK EVM peak (Average)</td>
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<tr>
<td></td>
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<td>411. PDSCH QPSK EVM peak (max)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>412. PDSCH QPSK EVM peak symbol position</td>
</tr>
<tr>
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<td>413. PDSCH QPSK EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>414. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>415. PDSCH 16QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>416. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>417. PDSCH 16QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>418. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>419. PDSCH 16QAM EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>420. PDSCH 16QAM EVM peak subcarrier position</td>
</tr>
<tr>
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<td></td>
<td>421. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid)</td>
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<tr>
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<td>422. PDSCH 64QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
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<td>423. Reserved</td>
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<td>424. PDSCH 64QAM EVM peak (Average)</td>
</tr>
<tr>
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<td>425. Reserved</td>
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<td>426. PDSCH 64QAM EVM peak symbol position</td>
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<td>427. PDSCH 64QAM EVM peak subcarrier position</td>
</tr>
<tr>
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<td></td>
<td>428. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)</td>
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<td>429. PDSCH 256QAM EVM rms (Average)</td>
</tr>
<tr>
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<td>430. Reserved</td>
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<tr>
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<td>431. PDSCH 256QAM EVM peak (Average)</td>
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<td>432. Reserved</td>
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<td>433. PDSCH 256QAM EVM peak symbol position</td>
</tr>
<tr>
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<td>434. PDSCH 256QAM EVM peak subcarrier position</td>
</tr>
<tr>
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<td>435. to 490. Reserved</td>
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</tbody>
</table>
### Table 2.9-2 Responses to MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
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<tr>
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<th>Result Mode</th>
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</thead>
<tbody>
<tr>
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<td>Responses are returned with comma-separated value formats in the following order: 491. CC#5 Total EVM result valid (1 = valid/0 = invalid) 492. Total EVM rms 493. Reserved 494. Total EVM peak (Average) 495. Reserved 496. Total EVM peak symbol position 497. Total EVM peak subcarrier position 498. PDSCH ALL EVM result valid (1 = valid/0 = invalid) 499. PDSCH ALL EVM rms (Average) 500. Reserved 501. PDSCH ALL EVM peak (Average) 502. Reserved 503. PDSCH ALL EVM peak symbol position 504. PDSCH ALL EVM peak subcarrier position 505. PDSCH QPSK EVM result valid (1 = valid/0 = invalid) 506. PDSCH QPSK EVM rms (Average) 507. Reserved 508. PDSCH QPSK EVM peak (Average) 509. PDSCH QPSK EVM peak (max) 510. PDSCH QPSK EVM peak symbol position 511. PDSCH QPSK EVM peak subcarrier position 512. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid) 513. PDSCH 16QAM EVM rms (Average) 514. Reserved 515. PDSCH 16QAM EVM peak (Average) 516. Reserved 517. PDSCH 16QAM EVM peak symbol position 518. PDSCH 16QAM EVM peak subcarrier position 519. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid) 520. PDSCH 64QAM EVM rms (Average) 521. Reserved 522. PDSCH 64QAM EVM peak (Average) 523. Reserved 524. PDSCH 64QAM EVM peak symbol position 525. PDSCH 64QAM EVM peak subcarrier position 526. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid) 527. PDSCH 256QAM EVM rms (Average) 528. Reserved 529. PDSCH 256QAM EVM peak (Average) 530. Reserved 531. PDSCH 256QAM EVM peak symbol position 532. PDSCH 256QAM EVM peak subcarrier position 533. to 588. Reserved</td>
</tr>
</tbody>
</table>
### Table 2.9-2 Responses to 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:  
      |             | 589. CC#6 Total EVM result valid (1 = valid/0 = invalid)  
      |             | 590. Total EVM rms  
      |             | 591. Reserved  
      |             | 592. Total EVM peak (Average)  
      |             | 593. Reserved  
      |             | 594. Total EVM peak symbol position  
      |             | 595. Total EVM peak subcarrier position  
      |             | 596. PDSCH ALL EVM result valid (1 = valid/0 = invalid)  
      |             | 597. PDSCH ALL EVM rms (Average)  
      |             | 598. Reserved  
      |             | 599. PDSCH ALL EVM peak (Average)  
      |             | 600. Reserved  
      |             | 601. PDSCH ALL EVM peak symbol position  
      |             | 602. PDSCH ALL EVM peak subcarrier position  
      |             | 603. PDSCH QPSK EVM result valid (1 = valid/0 = invalid)  
      |             | 604. PDSCH QPSK EVM rms (Average)  
      |             | 605. Reserved  
      |             | 606. PDSCH QPSK EVM peak (Average)  
      |             | 607. PDSCH QPSK EVM peak (max)  
      |             | 608. PDSCH QPSK EVM peak symbol position  
      |             | 609. PDSCH QPSK EVM peak subcarrier position  
      |             | 610. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid)  
      |             | 611. PDSCH 16QAM EVM rms (Average)  
      |             | 612. Reserved  
      |             | 613. PDSCH 16QAM EVM peak (Average)  
      |             | 614. Reserved  
      |             | 615. PDSCH 16QAM EVM peak symbol position  
      |             | 616. PDSCH 16QAM EVM peak subcarrier position  
      |             | 617. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid)  
      |             | 618. PDSCH 64QAM EVM rms (Average)  
      |             | 619. Reserved  
      |             | 620. PDSCH 64QAM EVM peak (Average)  
      |             | 621. Reserved  
      |             | 622. PDSCH 64QAM EVM peak symbol position  
      |             | 623. PDSCH 64QAM EVM peak subcarrier position  
      |             | 624. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)  
      |             | 625. PDSCH 256QAM EVM rms (Average)  
      |             | 626. Reserved  
      |             | 627. PDSCH 256QAM EVM peak (Average)  
      |             | 628. Reserved  
      |             | 629. PDSCH 256QAM EVM peak symbol position  
      |             | 630. PDSCH 256QAM EVM peak subcarrier position  
      |             | 631. to 686. Reserved  |
### Table 2.9-2 Responses to MX285051A-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
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<th>Result Mode</th>
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<tbody>
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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>688. Total EVM rms</td>
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<tr>
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<td></td>
<td>690. Total EVM peak (Average)</td>
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<tr>
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<td>692. Total EVM peak symbol position</td>
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<td>693. Total EVM peak subcarrier position</td>
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<td>694. PDSCH ALL EVM result valid (1 = valid/0 = invalid)</td>
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<td>695. PDSCH ALL EVM rms (Average)</td>
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<td>696. Reserved</td>
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<td>697. PDSCH ALL EVM peak (Average)</td>
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<td>698. Reserved</td>
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<td>699. PDSCH ALL EVM peak symbol position</td>
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<td>700. PDSCH ALL EVM peak subcarrier position</td>
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<td>701. PDSCH QPSK EVM result valid (1 = valid/0 = invalid)</td>
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<td>702. PDSCH QPSK EVM rms (Average)</td>
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<td>703. Reserved</td>
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<td>704. PDSCH QPSK EVM peak (Average)</td>
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<td></td>
<td></td>
<td>705. PDSCH QPSK EVM peak (max)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>706. PDSCH QPSK EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>707. PDSCH QPSK EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>708. PDSCH 16QAM EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>709. PDSCH 16QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>710. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>711. PDSCH 16QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>712. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>713. PDSCH 16QAM EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>714. PDSCH 16QAM EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>715. PDSCH 64QAM EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>716. PDSCH 64QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>717. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>718. PDSCH 64QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>719. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>720. PDSCH 64QAM EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>721. PDSCH 64QAM EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>722. PDSCH 256QAM EVM result valid (1 = valid/0 = invalid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>723. PDSCH 256QAM EVM rms (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>724. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>725. PDSCH 256QAM EVM peak (Average)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>726. Reserved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>727. PDSCH 256QAM EVM peak symbol position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>728. PDSCH 256QAM EVM peak subcarrier position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>729. to 784. Reserved</td>
</tr>
</tbody>
</table>
### Table 2.9-2 Responses to 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-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>11</td>
<td>A/B</td>
<td>For CC#1 measurement results, responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block x = Number of RBs y = 0 z = Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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)</td>
</tr>
</tbody>
</table>

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.
For CC#2 measurement results, responses are returned with comma-separated value formats in the following order:

EVM (rms) vs Resource Block

x = Number of RBs
y = 0
z = Number of Slots

### Table 2.9-2 Responses to 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 = 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-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>
</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.
For CC#4 measurement results, responses are returned with comma-separated value formats in the following order:

- EVM (rms) vs Resource Block
- \( x \) = Number of RBs
- \( y = 0 \)
- \( z = \) Number of Slots

<table>
<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-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  
|    |             | $x = \text{Number of RBs}$  
|    |             | $y = 0$  
|    |             | $z = \text{Number of Slots}$  

<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-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-seperated 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-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>17</td>
<td>A/B</td>
<td>For CC#7 measurement results, responses are returned with comma-separated value formats in the following order: EVM (rms) vs Resource Block x = Number of RBs y = 0 z = Number of Slots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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)</td>
</tr>
</tbody>
</table>

**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-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-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>21</td>
<td>A/B</td>
<td>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</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  

**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-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 22 | A/B         | For CC#2 measurement results, responses are returned with comma-separated value formats in the following order:
1 to m (= x × y) Power vs Resource Block
x = Number of RBs
y = 0
z = Number of Slots

<table>
<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-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 23 | A/B         | For CC#3 measurement results, responses are returned with comma-separated value formats in the following order: 1 to m (= x × y) Power vs Resource Block  
x = Number of RBs  
y = 0  
z = Number of Slots  
   | Subcarrier Spacing | Number of Slots |
|    |             | 120 kHz | 79 |
| 1. | Power of resource block 0 in slot y  
2. | Power of resource block 1 in slot y  
... | Power of resource block (x−1) in slot y  
x+1. | Power of resource block 0 in slot y+1  
... | Power of resource block (x−1) in slot y+1  
... | 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-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 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-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 25 | A/B         | For CC#5 measurement results, responses are returned with comma-separated value formats in the following order: 1 to m ( = x × y) Power vs Resource Block  
   x = Number of RBs  
y = 0  
z = Number of Slots  

<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-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 26 | A/B         | For CC#6 measurement results, responses are returned with comma-separated value formats in the following order: 1 to \( m = x \times y \) 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 \( y+1 \)  
...  
\( 2 \times x \). 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-021 Carrier Aggregation Measurement Results (Cont’d)

<table>
<thead>
<tr>
<th>n</th>
<th>Result Mode</th>
<th>Response</th>
</tr>
</thead>
</table>
| 27  | A/B         | For CC#7 measurement results, responses are returned with comma-separated value formats in the following order:  
|     |             | 1 to m (= x × y) Power vs Resource Block  
|     |             | x = Number of RBs  
|     |             | y = 0  
|     |             | z = Number of Slots  
|     |             |  
|     |             | **Subcarrier Spacing** | **Number of Slots** |
|     |             | 120 kHz | 79 |
|     |             | 1. Power of resource block 0 in slot y  
|     |             | 2. Power of resource block 1 in slot y  
|     |             | ...  
|     |             | x. Power of resource block (x−1) in slot y  
|     |             | x+1. Power of resource block 0 in slot y+1  
|     |             | ...  
|     |             | 2 × x. Power of resource block (x−1) in slot y+1  
|     |             | ...  
|     |             | m. Power of resource block (x−1) in slot y+z  

**Note:**  
The unit of the response is always dBm.  
The value of Resource Block for which Resource Block Result Valid is invalid is regarded as an unmeasured result.  
If Storage Mode is set to Average or Average&Max, the result of the last measurement is returned.  
The response of the carrier not to be measurement target is one −999.0.
Table 2.9-3 lists device messages for setting parameters for Carrier Aggregation measurement.

### Table 2.9-3 Device Messages for Setting Parameters for Carrier Aggregation Measurement

<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></td>
<td>:DISPlay:CAGG[:VIEW]:SElect?</td>
</tr>
<tr>
<td>Carrier Number</td>
<td>:CALCulate:CAGG:WINDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:WINDow5</td>
</tr>
<tr>
<td>Slot Number</td>
<td>:CALCulate:CAGG:WINDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:WINDow5</td>
</tr>
<tr>
<td>ResourceBlock Number</td>
<td>:CALCulate:CAGG:WINDow5</td>
</tr>
<tr>
<td></td>
<td>:CALCulate:CAGG:WINDow5</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 2.9-4  Device Messages Related to Marker 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 Carrier Aggregation Measurement Function

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
Chapter 2  SCPI Device Message Details

: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,…
2.9 Carrier Aggregation Measurement Function

: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]?
Chapter 2  SCPI Device Message Details

2.9.2 Scale – EVM Unit

:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing
LINear|LOGarithmic|PERCent|DB

Scale – EVM Unit

Function

This command sets the unit for EVM of measurement results.

Command

:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing
<mode>

Parameter

<mode>                Scale mode
    LINear            % scale
    LOGarithmic       dB scale
    PERCent           % scale (Default)
    DB                dB scale

Details

This command is not available when Trace Mode is set to Spectral Flatness.

Example of Use

To set the unit for EVM to dB scale.
DISP:CAGG:WIND7:TRAC:Y:SPAC DB

:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing?

Scale – EVM Unit Query

Function

This command queries the scale unit for EVM.

Query

:DISPlay:CAGG[:VIEW]:WINDow5|6|7:TRACe:Y[:SCALe]:SPACing?

Response

<mode>

Parameter

<mode>                Scale mode
    PERC              % scale
    DB                dB scale

Example of Use

To query the unit for EVM.
DISP:CAGG:WIND7:TRAC:Y:SPAC?
> DB
2.9.3 Scale – EVM

:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel <scale>

Scale – EVM

Function

This command sets the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit depends on the setting of EVM Unit.

Command

:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel <scale>

Parameter

<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>

<scale> | Range of vertical axis scale when EVM Unit = dB |
<table>
<thead>
<tr>
<th></th>
<th></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%.

:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel?

Scale – EVM Query

Function

This command queries the vertical axis scale of the graph in which the vertical axis (Y) indicates EVM. The unit of the readout value depends on the setting of EVM Unit.

Query

:DISPlay:CAGG[:VIEW]:WINDow6:TRACe:Y[:SCALe]:RLEVel?

Response

<scale>

Parameter

<scale> Range of vertical axis scale when EVM Unit = %

<table>
<thead>
<tr>
<th>Value</th>
<th>Range</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%</td>
</tr>
<tr>
<td>2</td>
<td>0 to 2%</td>
</tr>
</tbody>
</table>

<scale> Range of vertical axis scale when EVM Unit = dB

<table>
<thead>
<tr>
<th>Value</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>–40</td>
<td>–80 to –40 dB</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>

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]:SELimit PVRB|EVRB|SUMM

Trace Mode

Function

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

Command

:DISPlay:CAGG[:VIEW]:SELimit <mode>

Parameter

- <mode>
  - PVRB: Displays Power vs Resource Block.
  - EVRB: Displays EVM vs Resource Block.
  - SUMM: Displays Summary. (Default)

Example of Use

To display the EVM vs Resource Block to the graph window.

DISP:CAGG:SEL EVRB

:DISPlay:CAGG[:VIEW]:SelecT?

Trace Mode Query

Function

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

Command

:DISPlay:CAGG[:VIEW]:SELimit?

Response

<mode>

Parameter

- <mode>
  - PVRB: Displays Power vs Resource Block.
  - EVRB: Displays EVM vs Resource Block.
  - SUMM: Displays Summary.

Example of Use

To query the result type displayed on the graph window.

DISP:CAGG:SEL?
> EVRB
2.9.5 Carrier Number

:CALCulate:CAGG:WINDow5|6:CARRier:NUMBer <integer>

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 Carrier Aggregation Measurement Function

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:WIND:5: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
Chapter 2  SCPI Device Message Details

2.9.7 Resource Block Number

:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer <integer>

Resource Block Number

Function

This command sets the Resource Block number to be displayed for Power vs Resource Block and EVM vs Resource Block.

Command

:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer <integer>

Parameter

<integer>  Resource Block number to be displayed
  Range     0 to (Number of RBs – 1)
  Resolution 1
  Suffix code None
  Default    0

Example of Use

To set the Resource Block number to be displayed for Power vs Resource Block to 10.
CALC:CAGG:WIND5:RBL:NUMB 10

:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer?

Resource Block Number Query

Function

This command queries the Resource Block number displayed for Power vs Resource Block and EVM vs Resource Block.

Query

:CALCulate:CAGG:WINDow5|6:RBLock:NUMBer?

Response

<integer>

Parameter

<integer>  Resource Block number to be displayed
  Range     0 to (Number of RBs – 1)
  Resolution 1

Example of Use

To query the Resource Block number displayed for Power vs Resource Block.
CALC:CAGG:WIND5:RBL:NUMB?
> 10
2.9.8 Marker Position Number

:CALCulate:CAGG:MARKer:CARRier <integer>

Marker Carrier Number

Function

This command sets the marker position on the graph window by carrier number.

Command

:CALCulate:CAGG:MARKer:CARRier <integer>

Parameter

<integer> Carrier number

Range 0 to 7
Resolution 1
Suffix code None
Default 0

Example of Use

To set the marker position to carrier number 4.
CALC:CAGG:MARK:CARR 4

:CALCulate:CAGG:MARKer: CARRier?

Marker Carrier Number Query

Function

This command queries the marker position on the graph window by carrier number.

Command

:CALCulate:CAGG:MARKer:CARRier?

Response

<integer>

Parameter

<integer> Carrier number

Range 0 to 7
Resolution 1

Example of Use

To query the marker position in carrier number.
CALC:CAGG:MARK:CARR?
> 4
:CALCulate:CAGG:MARKer:SLOT<integer>

Marker Slot Number

Function

This command sets the marker position on the graph window by slot number.

Command

:CALCulate:CAGG:MARKer:SLOT <integer>

Parameter

<integer>   Slot number
Range        0 to 79
Resolution   1
Suffix code  None
Default      0

Example of Use

To set the marker position to slot number 10.
CALC:CAGG:MARK:SLOT 10

:CALCulate:CAGG:MARKer: SLOT?

Marker Slot Number Query

Function

This command queries the marker position on the graph window by slot number.

Command

:CALCulate:CAGG:MARKer:SLOT?

Response

<integer>

Parameter

<integer>   Slot number
Range        0 to 79
Resolution   1

Example of Use

To query the marker position in slot number.
CALC:CAGG:MARK:SLOT?
> 10
:CALCulate:CAGG:MARKer:RBLock <integer>
Marker Resource Block Number

Function
This command sets the marker position by Resource Block number.

Command
:CALCulate:CAGG:MARKer:RBLock <integer>

Parameter
<integer> Resource Block Number
  Range 0 to (Number of RBs – 1)
  Resolution 1
  Suffix code None
  Default 0

Example of Use
To set the marker position to Resource Block 10.
CALC:CAGG:MARK:RBL 10

:CALCulate:CAGG:MARKer:RBLock?
Marker Resource Block Number Query

Function
This command queries the marker position by Resource Block number.

Command
:CALCulate:CAGG:MARKer:RBLock?

Response
<integer>

Parameter
<integer> Resource Block Number
  Range 0 to (Number of RBs – 1)
  Resolution 1

Example of Use
To query the marker position in Resource Block number.
CALC:CAGG:MARK:RBL?
> 10
2.9.9 Marker Value

:CALCulate:CAGG:MARKer:EVM[:RMS]?

Marker EVM Value (RMS) Query

Function

This command queries the RMS value of EVM at the marker position in the corresponding graph.

Query

:CALCulate:CAGG:MARKer:EVM[:RMS]?

Response

<real>

Parameter

<real> RMS value of EVM at the marker position in the corresponding graph

When EVM Unit is set to %: Unit:%
When EVM Unit is set to dB: Unit: dB

Details

−999.0 is returned if Trace Mode is not EVM vs Subcarrier, EVM vs Symbol, Power vs RB, or EVM vs RB.

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

Example of Use

To query the RMS value of EVM at the marker position.

CALC:CAGG:MARK:EVM?

> −20.00
2.9 Carrier Aggregation Measurement Function

: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

**Function**

This command searches for the maximum level point of the active trace and moves the marker point.

**Command**

:CALCulate:MARKer:MAXimum

**Details**

This function is available on the following traces:
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the *WAI command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

**Example of Use**

To move the marker to the maximum level point and query the marker value.

CALC:MARK:MAX

*WAI

CALC:EVM:MARK:Y?
:CALCulate:MARKer:MAXimum:NEXT

Next Peak Search

Function

This command searches for the feature point on the active trace and moves the marker point to the peak point of a level that is lower than the current marker level.

Command

:CALCulate:MARKer:MAXimum:NEXT

Details

This function is available on the following traces:
- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the *WAI command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the next peak point and query the marker value.

```
CALC:MARK:MAX:NEXT
*WAI
CALC:EVM:MARK:Y?
```
:CALCulate:MARKer:MINimum

Dip Search

Function

This command searches for the minimum level point of the active trace and moves the marker point.

Command

:CALCulate:MARKer:MINimum

Details

This function is available when the following traces are active:

• Power vs Resource Block
• EVM vs Resource Block

When reading out a marker value after executing this command, use the *WAI command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

Example of Use

To move the marker to the minimum level point and query the marker value.

CALC:MARK:MIN
*WAI
CALC:EVM:MARK:Y?
:CALCulate:MARKer:MINimum:NEXT

**Next Dip Search**

**Function**

This command searches for the feature point on the active trace and moves the marker point to the peak point in which the marker value of a level that is lower than the current marker level is minimum.

**Command**

:CALCulate:MARKer:MINimum:NEXT

**Details**

This function is available when the following traces are active:

- Power vs Resource Block
- EVM vs Resource Block

When reading out a marker value after executing this command, use the *WAI command and execute synchronization control.

Note that synchronization control during the Continuous mode is not supported.

**Example of Use**

To move the marker to the next minimum peak point and query the marker value.

```
CALC:MARK:MIN:NEXT
*WAI
CALC:EVM:MARK:Y?
```
2.10 Measurement Result Saving Function

Table 2.10-1 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>
2.10 Measurement Result Saving Function

: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\3GLTE Downlink

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
Chapter 2  SCPI Device Message Details

/MMEMory:STORe:RESult:MODE XML|CSV

Save as Type

Function
This command sets the type of the file to be saved.

Command
/MMEMory:STORe:RESult:MODE <mode>

Parameter
<mode>  File type
XML  xml format (Default)
CSV  csv format

Example of Use
To set the type of the file to be saved to csv format.
/MMEM:STOR:RES:MODE CSV

/MMEMory:STORe:RESult:MODE?

Save as Type Query

Function
This command queries the type of the file to be saved.

Query
/MMEMory:STORe:RESult:MODE?

Response
<mode>

Parameter
<mode>  File type
XML  xml format
CSV  csv format

Example of Use
To query the type of the file to be saved.
/MMEM:STOR:RES:MODE?
> CSV
2.11 Replay Function

Table 2.11-1 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>
Chapter 2  SCPI Device Message Details

: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

2-390
2.11  Replay Function

/MMEMory:LOAD:IQData:INFormation?
Replay File Information Query

Function
This command queries the information of the file for which the Replay function is executed.

Query
/MMEMory:LOAD:IQData:INFormation?

Response
<filename>,<time_length>

Parameter
<filename>  File name
Character string within 32 characters (excluding extension)
*** is returned when the Replay function is not executed.

<time_length>  Time length of analyzable IQ data
Resolution 1 frame
No suffix code. Value is returned in frame units.
–999999999999 is returned when the Replay function is not executed.

Example of Use
To query the information of the file for which the Replay function is executed.
/MMEM:LOAD:IQD:INF?
> TEST,38.838771500
Chapter 2  SCPI Device Message Details

: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?
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
<device>

Parameter
<device> Drive name
A,B,D,E,F,...
*** is returned when the Replay function is not executed.

Example of Use
To query the name of the drive for which the Replay function is executed.
MMEM:LOAD:IQD:INF:DEV?

:MMEMory:LOAD:IQData:INFormation:APPLication?
Replay Application Query

Function
This command queries the name of the application for which the Replay function is executed.

Query
:MMEMory:LOAD:IQData:INFormation:APPLication?

Response
<application>

Parameter
<application> Application to load IQ data file
BASE5G 5G measurement software
*** is returned when the Replay function is not executed.

Example of Use
To query the name of the application for which the Replay function is executed.
MMEM:LOAD:IQD:INF:APPL?
:MMMmory: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

:MMMmory:LOAD:IQData:INFormation:CONDition?

Response

<switch>

Parameter

<switch>  Display of Level Over
1  Level Over is displayed.
0  Normal

–999.0 is returned when the Replay function is not executed.

Example of Use

To query the setting whether Level Over is displayed while the replay function is executed.

MMEM:LOAD:IQD:INF:COND?
> 0
:MMEMory:LOAD:IQData:INFormation:ERRor?
Replay Error Icon Query

Function
This command queries the setting whether the Replay Error Info. icon is displayed while the replay function is executed.

Query
:MMEMory:LOAD:IQData:INFormation:ERRor?

Response
<switch>

Parameter
<switch> Display of Replay Error Info. icon
1 Replay Error Info. icon is displayed.
0 Normal
~999.0 is returned when the Replay function is not executed.

Details
The Replay Error Info. icon is displayed if the loaded xml file contains error information.

Example of Use
To query the setting whether Level Over is displayed while the replay function is executed.
MMEM:LOAD:IQD:INF:ERR?
> 0
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.

3.1 Reading Measurement Status ................................................................. 3-2
   :STATus:ERRor? .................................................................................. 3-2

3.2 STATus:QUESTionable Register............................................................... 3-3
   :STATus:QUESTionable[:EVENt]............................................................. 3-5
   :STATus:QUESTionable:CONDition? .................................................... 3-5
   :STATus:QUESTionable:ENABle <integer> ......................................... 3-6
   :STATus:QUESTionable:ENABle? ......................................................... 3-6
   :STATus:QUESTionable:NTRansition <integer> .................................... 3-7
   :STATus:QUESTionable:NTRansition? ................................................. 3-7
   :STATus:QUESTionable:PTRansition <integer> .................................... 3-8
   :STATus:QUESTionable:PTRansition? .................................................. 3-8
   :STATus:QUESTionable:MEASure[:EVENt]? ....................................... 3-9
   :STATus:QUESTionable:MEASure:CONDition? ................................... 3-9
   :STATus:QUESTionable:MEASure:ENABle <integer> ......................... 3-10
   :STATus:QUESTionable:MEASure:ENABle? ....................................... 3-10
   :STATus:QUESTionable:MEASure:NTRansition <integer> .................. 3-11
   :STATus:QUESTionable:MEASure:NTRansition? ............................... 3-11
   :STATus:QUESTionable:MEASure:PTRansition <integer> .................. 3-12
   :STATus:QUESTionable:MEASure:PTRansition? ............................... 3-12

3.3 STATus:OPERation Register ................................................................. 3-13
   :STATus:OPERation[:EVENt]? ......................................................... 3-14
   :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
\[ = \text{bit0} + \text{bit1} + \text{bit2} + \text{bit3} + \text{bit4} + \text{bit5} + \text{bit6} + \text{bit7} + \text{bit8} + \text{bit9} + \text{bit10} + \text{bit11} + \text{bit12} + \text{bit13} + \text{bit14} + \text{bit15} \]

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>Questionable Status Register Condition</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>Questionable Status Register Positive Transition</td>
<td>:STATus:QUEStionable:PTRansition &lt;integer&gt;</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>Questionable Measure Register Condition</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>Questionable Measure Register Positive Transition</td>
<td>:STATus:QUEStionable:MEASure:PTRansition &lt;integer&gt;</td>
</tr>
</tbody>
</table>
3.2 STATUS:QUEStionalble Register

: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
Chapter 3  SCPI Status Register

: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
3.2 \texttt{STATus:QUEStionable Register}

\textbf{:STATus:QUEStionable:NTRansition <integer>}

Questionable Status Register Negative Transition

Function

This command sets transition filter (Negative Transition) of QUEStionable Status register.

Command

\texttt{:STATus:QUEStionable: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 Status register to 16.

\texttt{STAT:QUES:NTR 16}

\textbf{:STATus:QUEStionable:NTRansition?}

Questionable Status Register Negative Transition Query

Function

This command queries transition filter (Negative Transition) of QUEStionable Status register.

Query

\texttt{:STATus:QUEStionable: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 Status register.

\texttt{STAT:QUES:NTR?}

\texttt{> 16}
**Chapter 3  SCPI Status Register**

---

**:STATus:QUEStionable:PTRansition <integer>**

Questionable Status Register Positive Transition

**Function**

This command sets transition filter (Positive Transition) of QUEStionable Status register.

**Command**

**:STATus:QUEStionable:PTRansition <integer>**

**Parameter**

<integer>  
Bit Sum Total of Transition Filter (Positive Transition)

Resolution 1
Range 0 to 65535

**Usage Example**

To set transition filter (Positive Transition) of QUEStionable Status register to 16.

```
STAT:QUES:PTR 16
```

---

**:STATus:QUEStionable:PTRansition?**

Questionable Status Register Positive Transition Query

**Function**

This command queries transition filter (Positive Transition) of QUEStionable Status register.

**Query**

**:STATus:QUEStionable:PTRansition?**

**Response**

<integer>

**Parameter**

<integer>  
Bit Sum Total of Transition Filter (Positive Transition)

Resolution 1
Range 0 to 65535

**Usage Example**

To query transition filter (Positive Transition) of QUEStionable Status register.

```
STAT:QUES:PTR?
> 16
```
:STATus:QUESTionable:MEASure[:EVENt]?

Questionable Measure Register Event

Function

This command queries Event register of QUESTionable Measure register.

Query

:STATus:QUESTionable:MEASure[:EVENt]?

Response

<integer>

Parameter

<integer> Bit Sum Total of Event Register

Resolution 1
Range 0 to 65535

Usage Example

To query Event register of QUESTionable Measure register.
STAT:QUES:MEAS?
> 0

:STATus:QUESTionable:MEASure:CONDition?

Questionable Measure Register Condition

Function

This command queries Condition register of QUESTionable Measure register.

Query

:STATus:QUESTionable:MEASure:CONDition?

Response

<integer>

Parameter

<integer> Bit Sum Total of Condition Register

Resolution 1
Range 0 to 65535

Usage Example

To query Condition register of QUESTionable Measure register.
STAT:QUES:MEAS:COND?
> 0
:STATus:QUESTionable:MEASure:ENABle <integer>
Questionable Measure Register Enable

Function
This command sets Event Enable register of QUESTionable Measure register.

Command
:STATus:QUESTionable:MEASure:ENABle <integer>

Parameter
<integer>  Bit Sum Total of Event Enable Register
Resolution  1
Range  0 to 65535

Usage Example
To set a value of Event Enable register of QUESTionable Measure register to 16.
STAT:QUES:MEAS:ENAB 16

:STATus:QUESTionable:MEASure:ENABle?
Questionable Measure Register Enable Query

Function
This command queries Event Enable register of QUESTionable Measure register.

Query
:STATus:QUESTionable:MEASure:ENABle?

Response
<integer>

Parameter
<integer>  Bit Sum Total of Event Enable Register
Resolution  1
Range  0 to 65535

Usage Example
To query Event Enable register of QUESTionable Measure register.
STAT:QUES:MEAS:ENAB?
> 16
3.2 STATus:QUESTionable Register

:STATus:QUESTionable:MEASure:NTRansition <integer>

Questionable Measure Register Negative Transition Function

This command sets transition filter (Negative Transition) of QUESTionable Measure register.

Command

:STATus:QUESTionable:MEASure:NTRansition <integer>

Parameter

<integer> Bit Sum Total of Transition Filter (Negative Transition)

Resolution 1
Range 0 to 65535

Usage Example

To set transition filter (Negative Transition) of QUESTionable Measure register to 16.
STAT:QUES:MEAS:NTR 16

:STATus:QUESTionable:MEASure:NTRansition?

Questionable Measure Register Negative Transition Query

Function

This command queries transition filter (Negative Transition) of QUESTionable Measure register.

Query

:STATus:QUESTionable:MEASure:NTRansition?

Response

<integer>

Parameter

<integer> Bit Sum Total of Transition Filter (Negative Transition)

Resolution 1
Range 0 to 65535

Usage Example

To query transition filter (Negative Transition) of QUESTionable Measure register.
STAT:QUES:MEAS:NTR?
> 16
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</td>
<td>:STATus:OPERation:CONDition?</td>
</tr>
<tr>
<td>Enable</td>
<td>:STATus:OPERation:ENABle &lt;integer&gt;</td>
</tr>
<tr>
<td>:STATus:OPERation:ENABle?</td>
<td></td>
</tr>
<tr>
<td>Operation Status Register</td>
<td>:STATus:OPERation:NTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td>Negative Transition</td>
<td>:STATus:OPERation:NTRansition?</td>
</tr>
<tr>
<td>Operation Status Register</td>
<td>:STATus:OPERation:PTRansition &lt;integer&gt;</td>
</tr>
<tr>
<td>Positive Transition</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
: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