MX283027A-002
Bluetooth Test Software
Operation Manual
Remote Control

Second 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 MS2830 Signal Analyzer Operation Manual Mainframe Operation and MX283027A-002 Bluetooth Test Software Operation Manual Operation. Please also refer to this document before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

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

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MX283027A-002
Bluetooth Test Software
Operation Manual Remote Control

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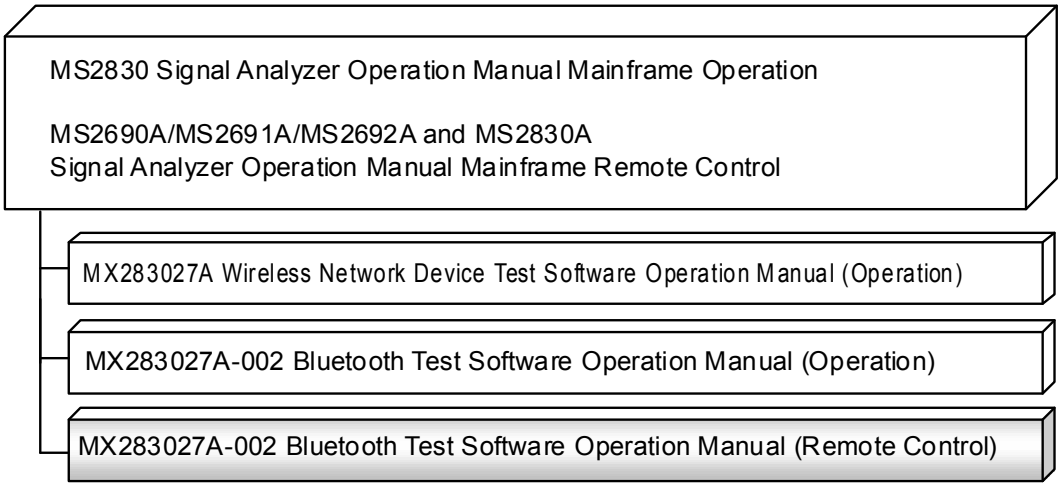
About This Manual

■Associated Documents

The operation manuals for the MX283027A-002 Bluetooth Test Software are comprised as shown in the figure below.



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

Description of basic operations, maintenance procedures, common functions and common remote functions of the mainframe

- Wireless Network Device Test Software Operation Manual (Operation)

This describes basic operations and functions of the Wireless Network Device Test Software.

- Bluetooth Test Software Operation Manual (Operation)

This describes basic operations and functions of the Bluetooth Test Software.

- Bluetooth Test Software Operation Manual (Remote Control) <This document>

This document describes the remote operation of Bluetooth Test Software.

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IV.

Chapter 1 Outline

This chapter outlines the remote control operation of the MX283027A-002 Bluetooth Test Software (hereinafter referred to as “this application”).

1.1 Outline

The MX283027A-002 can be controlled from an external controller (PC) by remote control commands using the MS2830A Signal Analyzer (hereafter referred to as “this instrument”). The remote control commands are defined by the SCPI format.

1.1.1 Interface

This instrument has GPIB, Ethernet, and USB interfaces for remote control. Only one of these can be used at once.

The interface is automatically determined when a command is received at the start of communication. This instrument enters the remote state after the interface has been determined. At remote-interface operation, the front panel Remote lamp lights; the lamp is off at local-interface operation.

Refer to the *MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer manual (Mainframe, Remote Control)* for more details of the basic operations for remote control, such as interface setting.

1.1.2 Controlled application

Two types of the remote control commands can be used with this instrument: commands that are commonly applied to this instrument itself or all the applications (hereinafter, referred to as, “Common commands”), and the other commands unique to the applications. Common commands can be executed at any time, regardless of the currently controlled application. However, commands unique to an application can be executed at the controlled application. If it is executed at another application, the command is not executed or an error occurs.

In this instrument, multiple applications can be loaded at the same time. Only one application resource can be executed per piece of hardware at one time. The MX283027A-002 measures an input signal by using the resource of RF Input. Thus, the MX283027A-002 cannot be executed at the same time with another application using the same resource such as the signal analyzer function. In order to execute a function unique to the application by using the remote control, you need to select this application while it has been running. Furthermore, the MX283027A-002 can be executed at the same time as another application that uses by itself a resource not used by this application, such as the Vector Signal Generator.

1.2 Basic Flow of Control

This section describes the basic remote control command programming operations for measuring Bluetooth signals.

Figure 1.2-1 shows the flow of the basic control process. The order in which the measurement functions are executed can be rearranged, but the parameter settings and measurement function type that are applied to the measurement, and the measurement execution order cannot be changed.

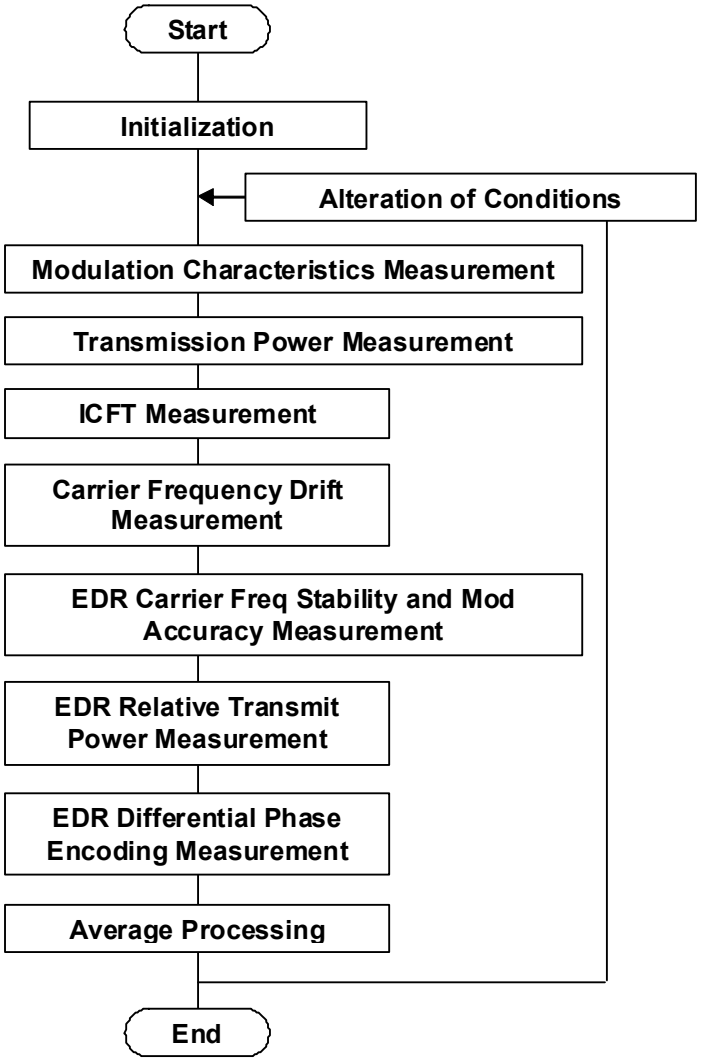

Figure 1.2-1 Basic Flow of Control

(1) Initialization

Initialize the communication interface and the parameters, and set the communication mode.

1.2.1 Initialization

(2) Setting Basic Parameters

Set the parameters applied in common to all measurements, such as carrier frequency and input level.

1.2.2 Setting of basic parameters

(3) Setting Common Batch Measurement Parameters

Set the common parameters for the Batch measurement functions that are executed by using this application. This includes such as the trigger, modulation mode, and bandwidth.

1.2.3 Setting of batch measurement-common parameters

(4) Batch measurement

Execute in order the measurement functions executed with the MX283027A-002. First, select the measurement functions to be executed. Next, set the storage mode for each measurement function. Finally perform the measurement and read out the measurement results.

1.2.4 Batch measurement

1.2.1 Initialization

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

(1) Initializing Communication Interface
The remote control interface to be used is initialized so sending and receiving of commands can start. For details, refer to *MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer manual (Mainframe Remote Control)*.

(2) Setting Language Mode and Response Format The language mode and the response format used to communicate are set. For details, refer to *MS2690A/MS2691A/MS2692A and MS2830A Signal Analyzer manual (Mainframe Remote Control)*.

(3) Starting the application
The application is loaded. The Signal Analyzer and Spectrum Analyzer applications should be loaded, too.

(4) Selecting Application
Select this application.

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

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

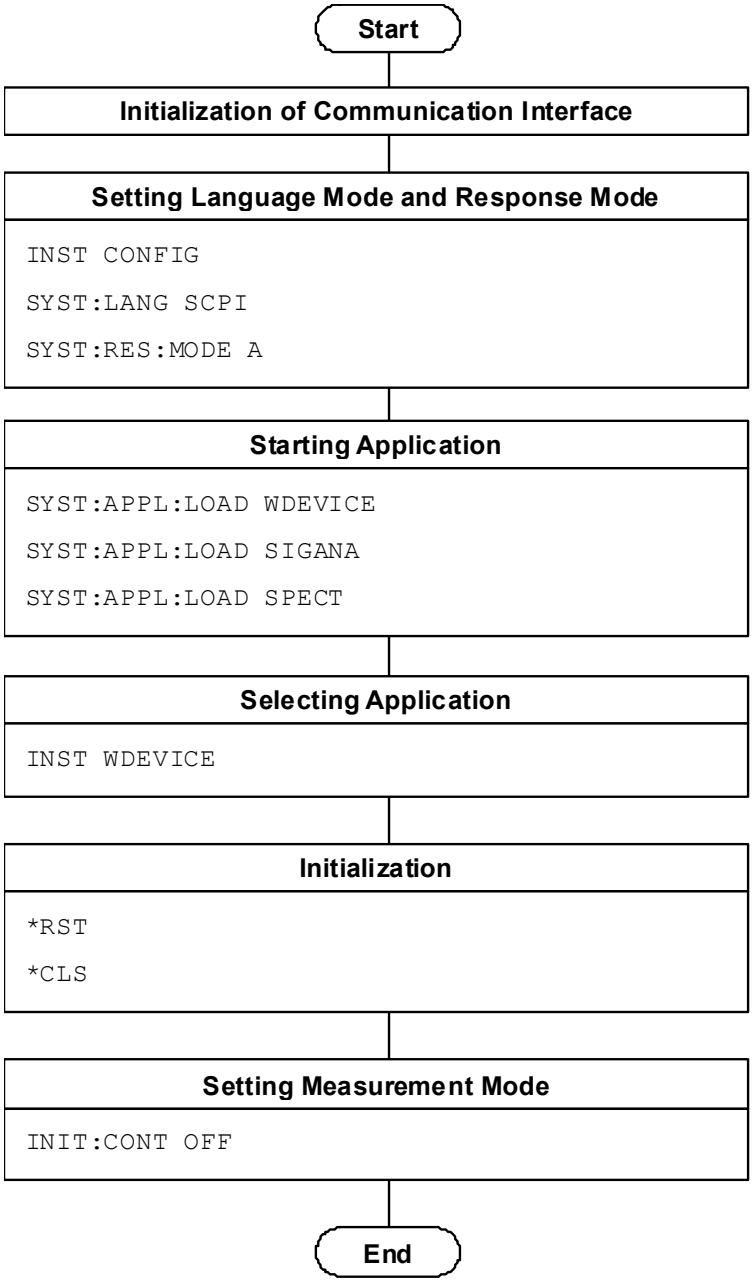

Figure 1.2.1-1 Initialization Flow and Command Example

1.2.2 Setting of basic parameters

Set the common parameters (carrier frequency, input level, etc.) using the MX283027A-002/Signal Analyzer/Spectrum Analyzer. The basic parameters include the following:

(1) Carrier Frequency

(2) Input Level (Reference Level･Attenuator)

(3) Level Offset

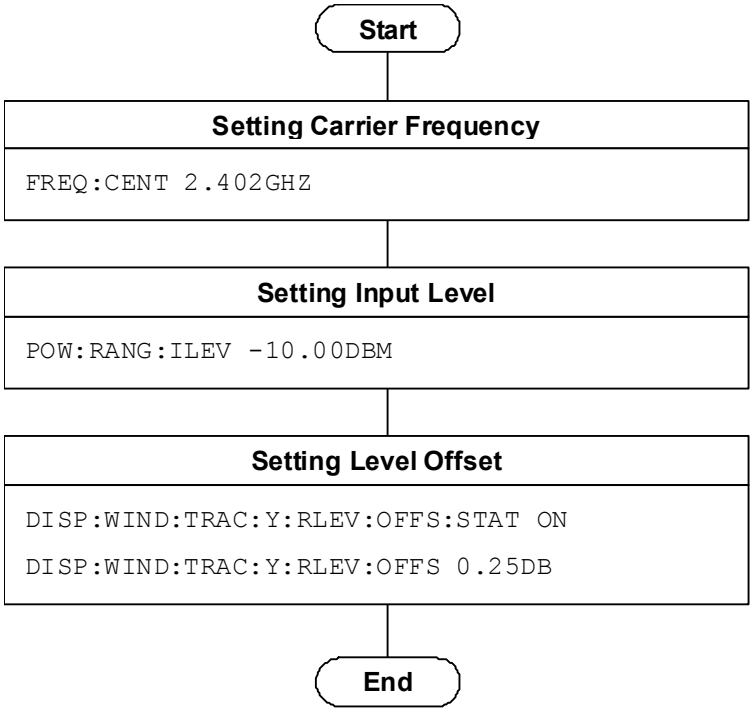

Figure 1.2.2-1 Flow of Basic Parameter Setting and Command Example

1.2.3 Setting of batch measurement-common parameters

Set the parameters used in common for the batch measurement functions executed in this application. The parameters can be set in any order, unless otherwise specified.

(1) Trigger
  (a) Trigger Switch
  (b) Trigger Source
  (c) Trigger Slope
  (d) Trigger Delay
(2) Bluetooth Standard
(3) Power Class
(4) Packet Type
(5) Burst Interval
(6) Burst Threshold

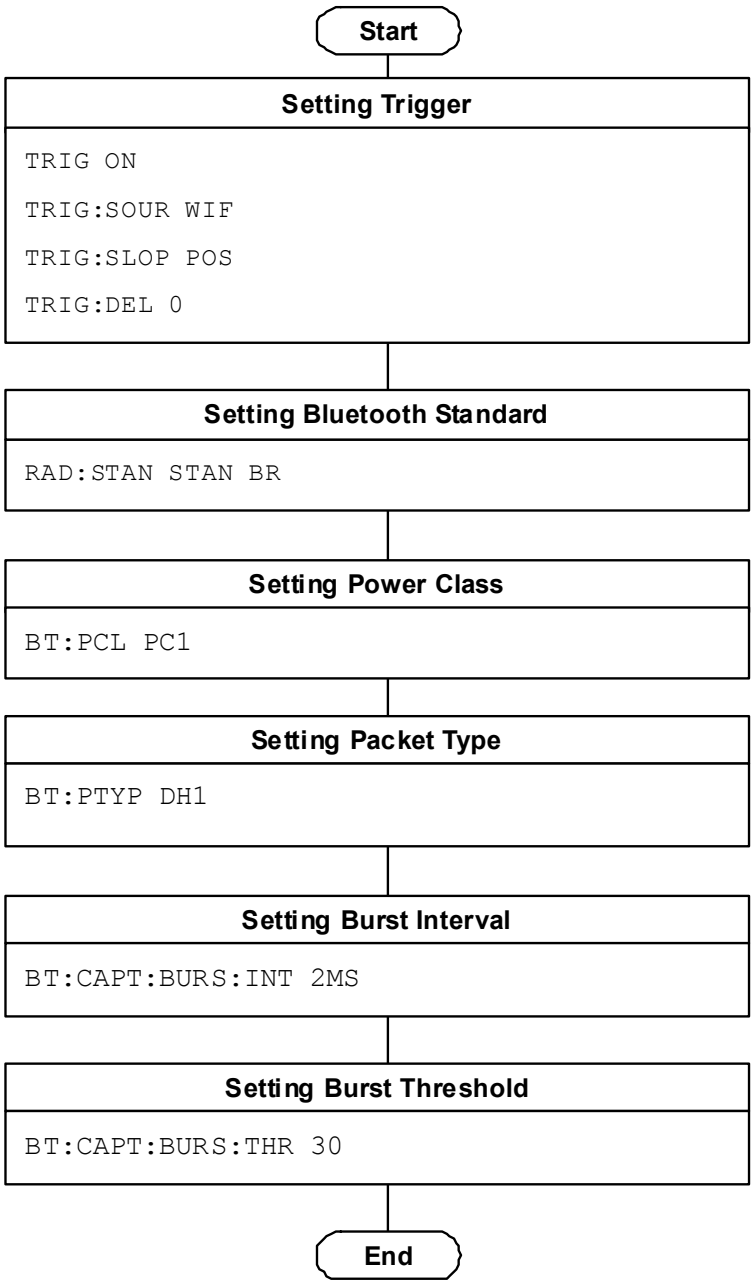

Figure 1.2.3-1 Flow of Common Settings for Batch Measurement and Command Example

1.2.4 Batch measurement

The Batch measurement is executed in the following order:

(1) Selecting the measurement function.

(2) Setting measurement parameters
The followings are the parameters applied to the Modulation Characteristics measurement.

(a) Modulation Characteristics Measurement

(b) Storage Mode

(c) Storage Count

(d) Hold Result

(e) Delta f1 Average Upper Limit

(f) Delta f1 Average Lower Limit

(d) Delta f2 Max Lower Limit

(e) Delta f2 Average/Delta f1 Average Lower Limit

(3) Executing measurement and querying the result

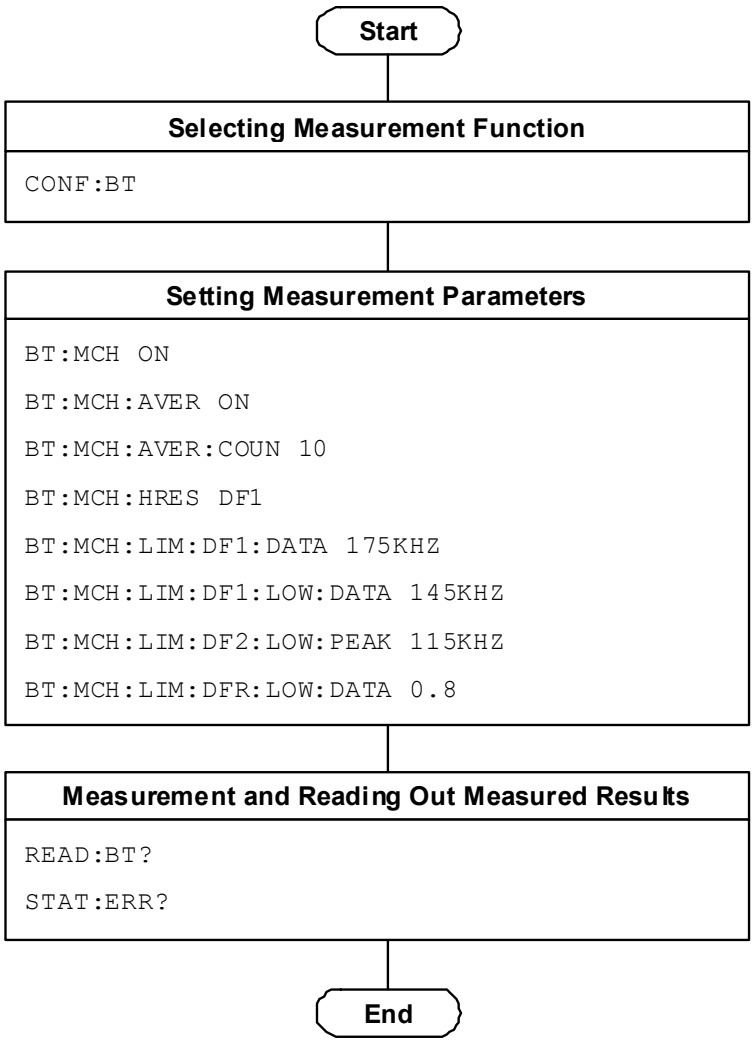

Figure 1.2.4-1 Modulation Characteristics Measurement Flow and Command Example

1.3 How to use Native Mode

This instrument defines the syntax/format types of the remote control commands as “Language mode”. The language mode has two modes: SCPI and Native.

(1) SCPI mode

The SCPI mode processes commands conforming to the syntax/format defined in SCPI (ver1999.0). For programming, 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 `SYST:LANG SCPI`.

(2) Native mode

The Native mode processes commands that are in this instrument’s own definition type. Unless otherwise specified, the character string of a command header is fixed. If application commands are defined only by the SCPI mode, character strings converted according to the conversion rules are the commands 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.

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

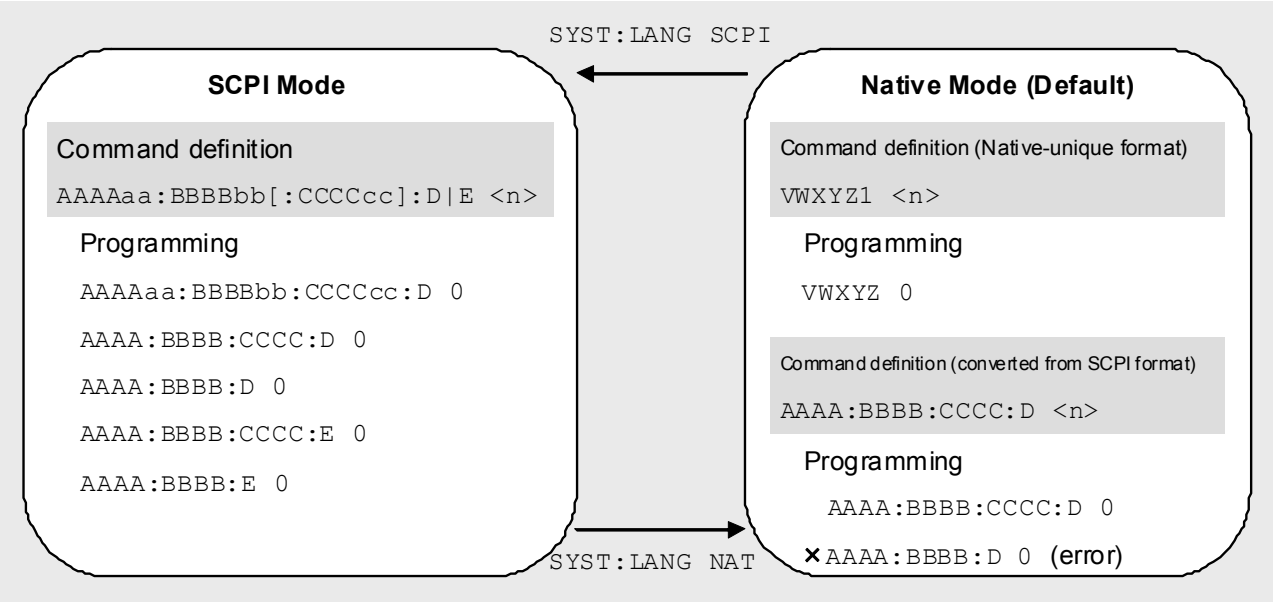

Figure 1.3-1 SCPI and Native Modes

The MX283027A-002 is only defined by the SCPI mode commands. You need to follow the conversion rules below in order to control the MX283027A-002 by using the Native mode.

Conversion Rules

1. Move the numeric parameters in the SCPI mode program header to the head of the arguments. Omit parameters that represent only one type of value and can be omitted. Leave parameters that represent only one type of value but cannot be omitted.
2. Use the first node if multiple ones can be selected.
3. Delete layers that can be deleted.
4. Alter all the long forms into the short ones.
5. Omit the colon (":") at the head of the command.

Example 1

:Convert CALCulate:MARKer[1]|2[:SET]:CENTerinto 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 layers that can be deleted.

:CALCulate:MARKer**[:SET]**:CENTer <integer>

↓

:CALCulate:MARKer:CENTer <integer>

[3] Alter all the long forms into the short ones.

:**CALCulate**:**MARKer**:**CENTer** <integer>

↓

:**CALC**:**MARK**:**CENT** <integer>

[4] Omit the colon (":") at the head of the command.

:CALC:MARK:CENT <integer>

↓

CALC:MARK:CENT <integer>

Example 2

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

1. Use the first node if multiple ones can be selected.

[:SENSe]**:BPOWer|:TXPower**[:STATe]?

↓

[:SENSe]**:BPOWer**[:STATe]?

2. Delete layers that can be deleted.

[:SENSe]:BPOWer**[:STATe]**?

↓

:BPOWer?

3. Alter all long forms into the short ones.

```
:BPOWer?
↓
:BPOW?
```

Omit the colon (":") at the head of the command.

```
:BPOW?
↓
BPOW?
```

1.4 Setting Numeric Program Data

The following character programs can be used for setting numeric program data (numeric parameters).

(1) `DEFault`

After `DEFault` has been set to numeric program data, the target parameter is set to the default value.

(2) `MINimum`

After `MINimum` has been set to numeric program data, the target parameter is set to the minimum value.

(3) `MAXimum`

After `MAXimum` has been set to numeric program data, the target parameter is set to the maximum value.

In the MX283027A-002, `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 Signal Analyzer Operation Manual (Mainframe Remote Control)* for detailed specifications of the IEEE488.2 common device messages and application common device messages.

2.1 Selecting Application

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

Table 2.1-1 Device Messages for Selecting Application

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

2.1.1 Launching application

:SYSTem:APPLication:LOAD WDEVICE

Load Application

Function

This command loads this application.

Command

```
:SYSTem:APPLication:LOAD WDEVICE
```

Details

This function loads an installed application and registers it to the Application Switch menu. To use this function set the target application to `Config`, by using `:INSTrument[:SELect]`.

Example of Use

To load this application.

```
SYST:APPL:LOAD WDEVICE
```

:SYSTem:APPLication:UNLoad WDEVICE

Unload Application

Function

This command exits this application.

Command

```
:SYSTem:APPLication:UNLoad WDEVICE
```

Details

This function exits an activated application and deletes it from the Application Switch menu. To use this function set the target application to `Config`, by using `:INSTrument[:SELect]`.

Example of Use

To exit this application.

```
SYST:APPL:UNL WDEVICE
```

2.1.2 Selecting application

:INSTrument[:SELect] WDEVICE|CONFIG

Application Switch

Function

This command selects the controlled application.

Command

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

Parameter

<apl_name>	Application
WDEVICE	This application
CONFIG	Config

Example of Use

To switch the control target to this application.

```
INST WDEVICE
```

:INSTrument[:SELect]?

Application Switch Query

Function

This command queries the controlled application.

Query

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

Response

```
<apl_name>
```

Parameter

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

Details

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

Example of Use

To query the controlled application.

```
INST?
> WDEVICE
```

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

Application Switch and Window Status

Function

This command selects the control target application and specifies the window status.

Command

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

Parameter

`<apl_name>`	Application
`WDEVICE`	This application
`CONFIG`	Config
`<window>`	Window status
`ACTive`	Active
`INACtive`	Inactive
`MINimum`	Minimized
When omitted	Active

Example of Use

To select this application with the window in active status.

```
INST:SYST WDEVICE,ACT
```

:INSTrument:SYSTem? WDEVICE

Application Switch And Window Status Query

Function

This command queries the status of the specified application.

Query

```
:INSTrument:SYSTem? <apl_name>
```

Response

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

Parameter

<apl_name>	Application
WDEVICE	This application
CONFIG	Config
<status>	Application status
CURR	Executed and targeted for control
RUN	Executed but not targeted for control
IDLE	Loaded but not executed
UNL	Not loaded
<window>	Window status
ACT	Active
INAC	Inactive
MIN	Minimized
NON	Window not displayed

Example of Use

To query the status of this application.

```
INST:SYST? WDEVICE
> 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.

Refer to `:INSTrument:DEFault`.

Example of Use

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

```
SYST:PRES
```

2.2 Device Messages for Setting Basic Parameters

Table 2.2-1 lists the parameters applied in common to this application, such as frequency and level.

Table 2.2-1 Setting Basic Parameters

Parameter	Device Message
Carrier Frequency	[:SENSe]:FREQuency:CENTer <freq>
	[:SENSe]:FREQuency:CENTer?
Channel Number	[:SENSe]:BT:CHANnel <integer>
	[:SENSe]:BT:CHANnel?
Input Level	[:SENSe]:POWer[:RF]:RANGe:ILEVel <real>
	[:SENSe]:POWer[:RF]:RANGe:ILEVel?
Level Offset	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet <rel_power>
	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet?
Level Offset State	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe OFF|ON|0|1
	:DISPlay:WINDow[1]:TRACe:Y[:SCALe]:RLEVel:OFFSet:STATe?

2.2.1 Carrier Frequency

[:SENSe]:FREQuency:CENTer <freq>

Carrier Frequency

Function

This command sets the carrier frequency of the measured signal.

Command

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

Parameter

<freq>		Carrier frequency
	Range	100 MHz to 3.6 GHz (With MS2830A-040) 100 MHz to 6 GHz (With MS2830A-041) 100 MHz to 13.5 GHz (With MS2830A-043)
	Resolution	1 Hz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	2.412 GHZ

Example of Use

To set the carrier frequency to 1.000 GHz.

```
FREQ:CENT 1.000GHZ
```

[:SENSe]:FREQuency:CENTer?

Carrier Frequency Query

Function

This command queries the carrier frequency of the measured signal.

Query

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

Response

```
<freq>
```

Parameter

<freq>		Carrier frequency
	Range	100 MHz to 3.6 GHz (With MS2830A-040) 100 MHz to 6 GHz (With MS2830A-041) 100 MHz to 13.5 GHz (With MS2830A-043)
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the carrier frequency.

```
FREQ:CENT?
> 5000000000
```

[:SENSe]:BT:CHANnel <integer>

Channel Number

Function

This command sets the carrier frequency according to channel number.

Command

```
[:SENSe]:BT:CHANnel <integer>
```

Parameter

<integer>	Channel number
Range	0 to 78
Default	0

Example of Use

To set the channel number to 1.

```
BT:CHAN 1
```

[:SENSe]:BT:CHANnel?

Channel Number Query

Function

This command queries the channel number setting.

Query

```
[:SENSe]:BT:CHANnel?
```

Response

```
<integer>
```

Parameter

<integer>	Channel number
Range	0 to 78

Example of Use

To query the channel number setting.

```
BT:CHAN?
> 1
```

2.2.2 Input Level

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

Input Level

Function

This command sets the input level of RF signals.

Command

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

Parameter

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

Example of Use

To set the input level to 0 dBm.

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

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

Input Level Query

Function

This command queries the input level of RF signals.

Query

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

Response

```
<real>
```

Parameter

`<real>`	Input level
Range	(–60.00+Level Offset) to (30.00+Level Offset) dBm
Resolution	0.01 dB Value is returned in dBm units.

Example of Use

To query the input level.

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

2.2.3 Level Offset

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

Level Offset Value

Function

This command sets the input level offset value.

Command

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

Parameter

`<rel_power>`	Offset value
Range	–99.99 to +99.99 dB
Resolution	0.01 dB
Suffix code	`DB` dB is used when omitted.
Default	0.00 dB

Example of Use

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

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

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

Level Offset Value Query

Function

This command queries the input level offset value.

Query

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

Response

```
<rel_power>
```

Parameter

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

Example of Use

To query the input level offset value.

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


2.2.4 Level Offset State

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

Level Offset State

Function

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

Command

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

Parameter

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

Example of Use

To enable the input level offset function.

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

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

Level Offset State Query

Function

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

Query

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

Response

```
<switch>
```

Parameter

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

Example of Use

To query the state of the input level offset function.

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

2.3 Device Messages for Setting System Parameters

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

Table 2.3-1 System Parameter Settings

Parameter	Device Message
Standard	[:SENSe]:BT:RADio:STANdard BR|EDR|BLE
	[:SENSe]:BT:RADio:STANdard?
Power Class	[:SENSe]:BT:PCLass PC1|PC2|PC3
	[:SENSe]:BT:PCLass?
Packet Type	[:SENSe]:BT:PTYPe DH1|DH3|DH5|2DH1|2DH3|2DH5|3DH1|3DH3|3DH5|AUTO
	[:SENSe]:BT:PTYPe?
Burst Interval	[:SENSe]:BT:CAPTure:BURSt:INTerval <real>
	[:SENSe]:BT:CAPTure:BURSt:INTerval?
Access Address	[:SENSe]:BT:BLE:AADDress <integer>
	[:SENSe]:BT:BLE:AADDress?
Burst Threshold	[:SENSe]:BT:CAPTure:BURSt:THReshold <integer>
	[:SENSe]:BT:CAPTure:BURSt:THReshold?

2.3.1 Standard

[:SENSe]:BT:RADio:STANdard BR|EDR|BLE

Standard

Function

This command sets the standard of target signal when measuring Bluetooth signal.

Command

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

Parameter

<mode>		Standard of target signal
	BR	Analyzes as Basic Rate signal
	EDR	Analyzes as EDR signal
	BLE	Analyzes as Bluetooth Low Energy signal
	Default	BR

Example of Use

To set the standard of target signal to Basic Rate.

```
BT:RAD:STAN BR
```

[:SENSe]:BT:RADio:STANdard?

Standard Query

Function

This command queries the standard of target signal when measuring Bluetooth signal.

Query

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

Response

```
<mode>
```

Parameter

<mode>		Standard of target signal
	BR	Analyzes as Basic Rate signal
	EDR	Analyzes as EDR signal
	BLE	Analyzes as Bluetooth Low Energy signal

Example of Use

To query the standard of target signal

```
BT:RAD:STAN?
> BR
```

2.3.2 Power Class

[:SENSe]:BT:PCLass PC1|PC2|PC3

Power Class

Function

This command sets the Power Class that automatically sets the limit value for Output Power measurement.

Command

```
[:SENSe]:BT:PCLass <mode>
```

Parameter

<mode>	Power Class
PC1	Sets the limit value of Power Class 1.
PC2	Sets the limit value of Power Class 2.
PC3	Sets the limit value of Power Class 3.
Default	PC2

Example of Use

To set Power Class to Power Class 2.

```
BT:PCL PC2
```

[:SENSe]:BT:PCLass?

Power Class Query

Function

This command queries the Power Class.

Query

```
[:SENSe]:BT:PCLass?
```

Response

```
<mode>
```

Parameter

<mode>	Power Class
PC1	Sets the limit value of Power Class 1.
PC2	Sets the limit value of Power Class 2.
PC3	Sets the limit value of Power Class 3.

Example of Use

To query the Power Class.

```
BT:PCL?
> PC2
```

2.3.3 Packet Type

[:SENSe]:BT:PTYPe
DH1|DH3|DH5|2DH1|2DH3|2DH5|3DH1|3DH3|3DH5|AUTO

Packet Type

Function

This command sets the packet type of input signal.When BLE is selected for the standard, it is analyzed as BLE signal irrespective of this setting.

Command

```
[:SENSe]:BT:PTYPe <mode>
```

Parameter

<mode>	Packet Type
DH1	Analyzes the input signal as DH1 (BR signal).
DH3	Analyzes the input signal as DH3 (BR signal).
DH5	Analyzes the input signal as DH5 (BR signal).
2DH1	Analyzes the input signal as 2-DH1 (π/4-DQPSK signal).
2DH3	Analyzes the input signal as 2-DH3 (π/4-DQPSK signal).
2DH5	Analyzes the input signal as 2-DH5 (π/4-DQPSK signal).
3DH1	Analyzes the input signal as 3-DH1 (8DPSK signal).
3DH3	Analyzes the input signal as 3-DH3 (8DPSK signal).
3DH5	Analyzes the input signal as 3-DH5 (8DPSK signal).
AUTO	Analyzes the input signal automatically.
Default	AUTo

Details

DH1, DH3, DH5	Available only when the selected standard is BR. When this is set when the selected standard is EDR, it is changed to BR.
2DH1, 2DH3, 2DH5, 3DH1, 3DH3, 3DH5	Available only when the selected standard is EDR. When this is set when the selected standard is BR, it is changed to EDR.

Example of Use

To set Packet Type to DH1.

```
BT:PTYP DH1
```

[:SENSe]:BT:PTYPe?

Packet Type Query

Function

This command queries the packet type.

Query

```
[:SENSe]:BT:PTYPe?
```

Response

```
<mode>
```

Parameter

<mode>	Packet Type
DH1	Analyzes the input signal as DH1 (BR signal).
DH3	Analyzes the input signal as DH3 (BR signal).
DH5	Analyzes the input signal as DH5 (BR signal).
2DH1	Analyzes the input signal as 2-DH1 (π/4-DQPSK signal).
2DH3	Analyzes the input signal as 2-DH3 (π/4-DQPSK signal).
2DH5	Analyzes the input signal as 2-DH5 (π/4-DQPSK signal).
3DH1	Analyzes the input signal as 3-DH1 (8DPSK signal).
3DH3	Analyzes the input signal as 3-DH3 (8DPSK signal).
3DH5	Analyzes the input signal as 3-DH5 (8DPSK signal).
AUT	Analyzes the input signal automatically.

Example of Use

To query the packet type.

```
BT:PTYP?
>DH1
```

2.3.4 Burst Interval

[:SENSe]:BT:CAPTure:BURSt:INTerval <real>

Burst Interval

Function

This command sets the burst interval.

Command

```
[:SENSe]:BT:CAPTure:BURSt:INTerval <real>
```

Parameter

<real>		Burst Interval
	Range	Minimum value: 200 μs Maximum value: the smaller value of the two: "100000 or "the longest T which is Storage Count × T ≤ 2000 ms"
	Resolution	1 μs
	Suffix code	NS, US, MS, S s is used when omitted.
	Default	3000 μs

Example of Use

To set burst interval to 3000 μs.

```
BT:CAPT:BURS:INT 3000US
```

[:SENSe]:BT:CAPTure:BURSt:INTerval?

Burst Interval Query

Function

This command queries the burst interval.

Query

```
[:SENSe]:BT:CAPTure:BURSt:INTerval?
```

Response

<real>

Parameter

<real>		Burst Interval
	Range	Minimum value: 200 µs Maximum value: the smaller value of the two: "100000" or "the longest T which is Storage Count × T ≤ 2000 ms"
	Resolution	1 µs
	Suffix code	None, value is returned in s units.

Example of Use

To query burst interval.

```
BT:CAPT:BURS:INT?
>0.003000
```

2.3.5 Access Address

[:SENSe]:BT:BLE:AADDress <integer>

Access Address

Function

This command sets Access Address used for BLE signal synchronization.

Command

```
[:SENSe]:BT:BLE:AADDress <integer>
```

Parameter

<integer>		Access Address
	Range	0x00000000 to 0xFFFFFFFF
	Resolution	1
	Suffix code	None
	Default	0x71764129

Example of Use

To set the Access Address to 0x71764129

```
BT:BLE:AADD 0x71764129
```

[:SENSe]:BT:BLE:AADDress?

Access Address Query

Function

This command queries Access Address used for BLE signal synchronization.

Query

```
[:SENSe]:BT:BLE:AADDress?
```

Response

```
<integer>
```

Parameter

<integer>		Access Address
	Range	0x00000000 to 0xFFFFFFFF
	Resolution	1
	Suffix code	None

Example of Use

To query the Access Address

```
BT:BLE:AADD?
> 71764129
```

2.3.6 Burst Threshold

[:SENSe]:BT:CAPTure:BURSt:THReshold <integer>

Burst Threshold

Function

This command sets Burst Threshold level for burst detection.

Command

```
[:SENSe]:BT:CAPTure:BURSt:THReshold <integer>
```

Parameter

<integer>		Burst Threshold
	Range	0 to 60 dB
	Resolution	1 dB
	Suffix code	None
	Default	30 dB

Example of Use

To set Burst Threshold level for burst detection to 30 dB.

```
BT:CAPT:BURS:THR 30
```

[:SENSe]:BT:CAPTure:BURSt:THReshold?

Burst Threshold Query

Function

This command queries Burst Threshold level for burst detection.

Query

```
[:SENSe]:BT:CAPTure:BURSt:THReshold?
```

Response

```
<integer>
```

Parameter

<integer>		Burst Threshold
	Range	0 to 60 dB
	Resolution	1 dB
	Suffix code	None. Value is returned in dB units.

Example of Use

To query the Burst Threshold level for burst detection.

```
BT:CAPT:BURS:THR?
> 30
```

2.4 Device Messages for Utility Function

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

Table 2.4-1 Device Messages for Utility Function

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

2.4.1 Erase Warm Up Message

:DISPlay:ANNotation:WUP:ERASe

Erase Warm Up Message

Function

This command erases the warmup message displayed immediately after startup.

Command

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

Example of Use

To erase the warmup message

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

2.4.2 Display Title

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

Display Title

Function

This command turns the title on/off.

Command

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

Parameter

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

Example of Use

To display the title.

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

:DISPlay:ANNotation:TITLe[:STATe]?

Display Title Query

Function

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

Query

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

Response

```
<switch>
```

Parameter

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

Example of Use

To query the title display On/Off state.

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

2.4.3 Title Entry

:DISPlay:ANNotation:TITLe:DATA <string>

Title Entry

Function

This command sets the title character string.

Command

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

Parameter

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

Example of Use

To set the title character string.

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

:DISPlay:ANNotation:TITLe:DATA?

Title Entry Query

Function

This command queries the title character string.

Query

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

Response

```
<string>
```

Parameter

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

Example of Use

To query the title character string.

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

2.5 Common Measurement Function

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

Table 2.5-1 Device Messages for Operations Common to Measurement Functions

Parameter	Device Message
Continuous Measurement	:INITiate:CONTinuous OFF|ON|0|1
	:INITiate:CONTinuous?
	:INITiate:MODE:CONTinuous
Single Measurement	:INITiate:MODE:SINGle
Initiate	:INITiate[:IMMediate]
Configure	:CONFigure?
Trigger Switch	:TRIGger[:SEQuence][:STATe] ON|OFF|1|0
	:TRIGger[:SEQuence][:STATe]?
Trigger Source	:TRIGger[:SEQuence]:SOURce EXTernal[1]|IMMediate|WIF|RFBurst|SG
	:TRIGger[:SEQuence]:SOURce?
Trigger Slope	:TRIGger[:SEQuence]:SLOPe POSitive|NEGative
	:TRIGger[:SEQuence]:SLOPe?
Wide IF Trigger Level	:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <ampl>
	:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?
Trigger Delay	:TRIGger[:SEQuence]:DELay <time>
	:TRIGger[:SEQuence]:DELay?

Note:

The trigger settings are separately retained for each application, and are commonly applied to the measurement functions within the application. In other words, if the trigger is set by the signal analyzer, the same trigger setting is applied to all the measurement functions of the signal analyzer. The same applies to the spectrum analyzer.

2.5.1 Measurement and control

:INITiate:CONTinuous OFF|ON|0|1

Continuous Measurement

Function

This command sets continuous or single measurement mode.

Command

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

Parameter

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

Details

When ON is set, continuous measurement starts. When set to Off, the Single measurement mode is set but measurement does not start at that time.

Example of Use

To make a continuous measurement.

```
INIT:CONT ON
```

:INITiate:CONTinuous?

Continuous Measurement Query

Function

This command queries the measurement mode.

Query

```
:INITiate:CONTinuous?
```

Response

```
<switch>
```

Parameter

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

Example of Use

To query the measurement mode.

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

:INITiate:MODE:CONTinuous

Continuous Measurement

Function

This command sets continuous or single measurement mode.

Command

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

Example of Use

To start continuous measurement.

```
INIT:MODE:CONT
```

:INITiate:MODE:SINGle

Single Measurement

Function

This command starts single measurement.

Command

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

Example of Use

To start a single measurement.

```
INIT:MODE:SING
```

:INITiate[:IMMediate]

Initiate

Function

Measurement starts with the current measurement mode.

Command

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

Example of Use

To start measurement

```
INIT
```

:CONFigure?

Configure Query

Function

This command queries the name of the current measurement mode.

Query

```
:CONFigure?
```

Response

```
<mode>
```

Parameter

<mode>	Measurement function
BT	This application

Example of Use

To query the current measurement function.

```
CONF?
> BT
```

2.5.2 Trigger Switch

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

Trigger Switch

Function

This command sets the trigger wait state On/Off.

Command

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

Parameter

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

Example of Use

To set the trigger wait state to On.

```
TRIG ON
```

:TRIGger[:SEQuence][:STATe]?

Trigger Switch Query

Function

This command queries the trigger wait state On/Off.

Query

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

Response

```
<switch>
```

Parameter

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

Example of Use

To query the trigger wait state setting.

```
TRIG?
> 0
```

2.5.3 Trigger source

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

Trigger Source

Function

This command selects the trigger signal source.

Command

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

Parameter

<mode>	Trigger signal source
EXTernal[1]	External input (External)
IMMediate	Free run (Default)
WIF|RFBurst	Wideband IF detection (Wide IF Video)
SG	SG Marker (SG Marker)

Details

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

Example of Use

To set the trigger signal source to External input.

```
TRIG:SOUR EXT
```

:TRIGger[:SEQuence]:SOURce?

Trigger Source Query

Function

This command queries the trigger signal source.

Query

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

Response

```
<mode>
```

Parameter

<mode>	Trigger signal source
EXT	External input (External)
IMM	Free run
WIF	Wideband IF detection (Wide IF Video)
SG	SG Marker (SG Marker)

Details

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

Example of Use

To query the trigger signal source.

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

2.5.4 Trigger Slope

:TRIGger[:SEQuence]:SLOPe POSitive|NEGative

Trigger Slope

Function

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

Command

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

Parameter

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

Example of Use

To detect a trigger at the rising edge.

```
TRIG:SLOP POS
```

:TRIGger[:SEQuence]:SLOPe?

Trigger Slope Query

Function

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

Query

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

Response

```
<mode>
```

Parameter

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

Example of Use

To query the trigger detection mode.

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

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <ampl>

Wide IF Trigger Level

Function

This command sets the threshold value of the level at which trigger sweep starts in the Wide IF Video trigger.

Command

```
:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute <ampl>
```

Parameter

`<ampl>` Threshold value of the level at which trigger sweep starts

Range	−60 to 50 dBm
Resolution	1 dBm
Default	–20 dBm

Example of Use

To set the threshold value of the level at which trigger sweep starts to 10 dBm

```
TRIG:WIF:LEV:ABS 10
```

:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?

Wide IF Trigger Level Query

Function

This command queries the threshold value of the level at which trigger sweep starts in the Wide IF Video trigger.

Query

```
:TRIGger[:SEQuence]:WIF|:RFBurst:LEVel:ABSolute?
```

Response

```
<level>
```

Parameter

`<level>` Threshold value of the level at which trigger sweep starts

Range	–60 to 50 dBm
Resolution	1 dB
Suffix code	None, value is returned in dBm units.

Example of Use

To query the threshold value of the level at which trigger sweep starts

```
TRIG:WIF:LEV:ABS?
> 10
```

:TRIGger[:SEQuence]:DELay <time>

Trigger Delay

Function

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

Command

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

Paramete

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

Range	−2 to 2 s
Resolution	20 nanoseconds
Suffix code	`NS`, `US`, `MS`, `S` s is used when omitted.
Default	0 s

Example of Use

To set the trigger delay time to 20 ms.

```
TRIG:DEL 20MS
```

:TRIGger[:SEQuence]:DELay?

Trigger Delay Query

Function

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

Query

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

Response

```
<time>
```

Parameter

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

Range	–2 to +2 s
Resolution	20 nanoseconds
	Value is returned in s units.

Example of Use

To query the delay time.

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

2.6 Measurement Function

This section explains the device messages that pertains to measurement function.

Table 2.6-1 lists device messages to execute measurement and to query the result.

Table 2.6-1 Device Messages for Measurement Functions

Parameter	Device Message
Configure	`:CONFigure:BT`
Initiate	`:INITiate:BT`
Fetch	`:FETCh:BT[n]?`
Read/Measure	`:READ:BT[n]?`
	`:MEASure:BT[n]?`

Table 2.6-2 lists the responses to parameter [n] of the device messages in Table 2.6-1.

Table 2.6-2 Responses to Measurement Results

n	Result Mode	Response
1 or omitted	A/B	Responses are returned with comma-separated value formats in the following order: 1 GFSK Power Avg (Average) (dBm) 2 GFSK Power Avg (max) (dBm) 3 GFSK Power Avg (min) (dBm) 4 GFSK Power Peak (dBm) 5 Pass/Fail flag of GFSK Power Avg (max/min) 6 Pass/Fail flag of GFSK Power Peak 7 Count of Output Power Measurements 8 Delta f1 Avg (Average) (Hz) 9 Delta f1 Avg (max) (Hz) 10 Delta f1 Avg (min) (Hz) 11 Delta f2 Avg (Hz) 12 Delta f1 Max (max) (Hz) 13 Delta f1 Max (min) (Hz) 14 Delta f2 Max (max) (Hz) 15 Delta f2 Max (min) (Hz) 16 Delta f2 Max > Lower Limit (%) 17 Delta f2 Avg/Delta f1 Avg 18 Pass/Fail flag of Delta f1 Avg (Average) 19 Pass/Fail flag of Delta f1 Avg (Max/Min) 20 Pass/Fail flag of Delta f2 Max > Lower Limit 21 Pass/Fail flag of Delta f2 Avg/Delta f1 Avg

Table 2.6-2 Responses to Measurement Results (Continued)

n	Result Mode	Response
1 or omitted	A/B	22 Count of Delta f1 Measurements 23 Count of Delta f2 Measurements 24 ICFT (Average) (Hz) 25 ICFT (Max) (Hz) 26 Pass/Fail flag of ICFT (Average) 27 Pass/Fail flag of ICFT (Max) 28 Count of ICFT Measurements 29 Frequency Drift (Average) (Hz) 30 Frequency Drift (Max) (Hz) 31 Max Drift Rate (Hz) 32 Pass/Fail flag of Frequency Drift (Average) 33 Pass/Fail flag of Frequency Drift (Max) 34 Pass/Fail flag of Max Drift Rate 35 Count of Frequency Drift Measurements 36 Freq Error i (Average) (Hz) 37 Freq Error i (Max) (Hz) 38 Freq Error 0 (Average) (Hz) 39 Freq Error 0 (Max) (Hz) 40 Freq Error i+0 (Average) (Hz) 41 Freq Error i+0 (Max) (Hz) 42 RMS DEVM (Average) (%) 43 RMS DEVM (Max) (%) 44 Peak DEVM (Max) (%) 45 99% DEVM for EDR modulation (%) 46 Pass/Fail flag of Freq Error i (Average) 47 Pass/Fail flag of Freq Error i (Max) 48 Pass/Fail flag of Freq Error 0 (Average) 49 Pass/Fail flag of Freq Error 0 (Max) 50 Pass/Fail flag of Freq Error i+0 (Average) 51 Pass/Fail flag of Freq Error i+0 (Max) 52 Pass/Fail flag of RMS DEVM (Average) 53 Pass/Fail flag of RMS DEVM (Max) 54 Pass/Fail flag of Peak DEVM (Max) 55 Pass/Fail flag of 99% DEVM for EDR modulation 56 Count of DEVM Measurement Blocks 57 GFSK Avg Power (Average) (dBm)

Table 2.6-2 Responses to Measurement Results (Continued)

n	Result Mode	Response
1 or omitted	A/B	58 GFSK Avg Power (Max) (dBm) 59 GFSK Avg Power (Min) (dBm) 60 DPSK Avg Power (Average) (dBm) 61 DPSK Avg Power (Max) (dBm) 62 DPSK Avg Power (Min) (dBm) 63 Relative Power (DPSK Avg Power – GFSK Avg Power) (Average) (dB) 64 Relative Power (DPSK Avg Power – GFSK Avg Power) (Max) (dB) 65 Relative Power (DPSK Avg Power – GFSK Avg Power) (Min) (dB) 66 Pass/Fail flag of Relative Power (Max/Min) 67 Count of EDR Relative Transmit Power Measurement 68 BER (%) 69 Bit Errors 70 PER (%) 71 Pass/Fail flag of PER 72 Count of PER Measurement 73 Packet Type 74 Payload Length (bytes) 75 Payload
2	A/B	Responses are returned with comma-separated value formats in the following order: 1 GFSK Power Avg (Average) (dBm) 2 GFSK Power Avg (max) (dBm) 3 GFSK Power Avg (min) (dBm) 4 GFSK Power Peak (dBm) 5 Pass/Fail flag of GFSK Power Avg (max/min) 6 Pass/Fail flag of GFSK Power Peak 7 Count of Output Power Measurements

Table 2.6-2 Responses to Measurement Results (Continued)

n	Result Mode	Response
3	A/B	Responses are returned with comma-separated value formats in the following order: 1 Delta f1 Avg (Average) (Hz) 2 Delta f1 Avg (max) (Hz) 3 Delta f1 Avg (min) (Hz) 4 Delta f2 Avg (Hz) 5 Delta f1 Max (max) (Hz) 6 Delta f1 Max (min) (Hz) 7 Delta f2 Max (max) (Hz) 8 Delta f2 Max (min) (Hz) 9 Delta f2 Max > Lower Limit (%) 10 Delta f2 Avg/Delta f1 Avg 11 Pass/Fail flag of Delta f1 Avg (Average) 12 Pass/Fail flag of Delta f1 Avg (Max/Min) 13 Pass/Fail flag of Delta f2 Max > Lower Limit 14 Pass/Fail flag of Delta f2 Avg/Delta f1 Avg 15 Count of Delta f1 Measurements 16 Count of Delta f2 Measurements
4	A/B	Responses are returned with comma-separated value formats in the following order: 1 ICFT (Average) (Hz) 2 ICFT (Max) (Hz) 3 Pass/Fail flag of ICFT (Average) 4 Pass/Fail flag of ICFT (Max) 5 Count of ICFT Measurements
5	A/B	Responses are returned with comma-separated value formats in the following order: 1 Frequency Drift (Average) (Hz) 2 Frequency Drift (Max) (Hz) 3 Max Drift Rate (Hz) 4 Pass/Fail flag of Frequency Drift (Average) 5 Pass/Fail flag of Frequency Drift (Max) 6 Pass/Fail flag of Max Drift Rate 7 Count of Frequency Drift Measurements

Table 2.6-2 Responses to Measurement Results (Continued)

n	Result Mode	Response
6	A/B	Responses are returned with comma-separated value formats in the following order: 1 Freq Error i (Average) (Hz) 2 Freq Error i (Max) (Hz) 3 Freq Error 0 (Average) (Hz) 4 Freq Error 0 (Max) (Hz) 5 Freq Error i+0 (Average) (Hz) 6 Freq Error i+0 (Max) (Hz) 7 RMS DEVM (Average) (%) 8 RMS DEVM (Max) (%) 9 Peak DEVM (Max) (%) 10 99% DEVM for EDR modulation (%) 11 Pass/Fail flag of Freq Error i (Average) 12 Pass/Fail flag of Freq Error i (Max) 13 Pass/Fail flag of Freq Error 0 (Average) 14 Pass/Fail flag of Freq Error 0 (Max) 15 Pass/Fail flag of Freq Error i+0 (Average) 16 Pass/Fail flag of Freq Error i+0 (Max) 17 Pass/Fail flag of RMS DEVM (Average) 18 Pass/Fail flag of RMS DEVM (Max) 19 Pass/Fail flag of Peak DEVM (Max) 20 Pass/Fail flag of 99% DEVM for EDR modulation 21 Count of DEVM Measurement Blocks
7	A/B	Responses are returned with comma-separated value formats in the following order: 1 GFSK Avg Power (Average) (dBm) 2 GFSK Avg Power (Max) (dBm) 3 GFSK Avg Power (Min) (dBm) 4 DPSK Avg Power (Average) (dBm) 5 DPSK Avg Power (Max) (dBm) 6 DPSK Avg Power (Min) (dBm) 7 Relative Power (DPSK Avg Power – GFSK Avg Power) (Average) (dB) 8 Relative Power (DPSK Avg Power – GFSK Avg Power) (Max) (dB) 9 Relative Power (DPSK Avg Power – GFSK Avg Power) (Min) (dB) 10 Pass/Fail flag of Relative Power (Max/Min) 11 Count of EDR Relative Transmit Power Measurement

Table 2.6-2 Responses to Measurement Results (Continued)

n	Result Mode	Response
8	A/B	Responses are returned with comma-separated value formats in the following order: 1 BER (%) 2 Bit Errors 3 PER (%) 4 Pass/Fail flag of PER 5 Count of PER Measurement
9	A/B	Responses are returned with comma-separated value formats in the following order: 1 Packet Type 2 Payload Length (bytes) 3 Payload

Table 2.6-3 lists the device messages for setting the Modulation Characteristics Measurement parameters for this application.

Table 2.6-3 Device Messages for Setting Modulation Characteristics Measurement Parameters for This Application

Parameter	Device Message
Modulation Characteristics Measurement	`[:SENSe]:BT:MCHar[:STATe] OFF|ON|0|1`
	`[:SENSe]:BT:MCHar[:STATe]?`
Storage Mode	`[:SENSe]:BT:MCHar:AVERage[:STATe] OFF|ON|0|1`
	`[:SENSe]:BT:MCHar:AVERage[:STATe]?`
Storage Count	`[:SENSe]:BT:MCHar:AVERage:COUNt <integer>`
	`[:SENSe]:BT:MCHar:AVERage:COUNt?`
Hold Result	`[:SENSe]:BT:MCHar:HRESult OFF|DF1|DF2`
	`[:SENSe]:BT:MCHar:HRESult?`
Delta f1 Average Upper Limit	`[:SENSe]:BT:MCHar:LIMit:DF1[:UPPer]:DATA <freq>`
	`[:SENSe]:BT:MCHar:LIMit:DF1[:UPPer]:DATA?`
Delta f1 Average Lower Limit	`[:SENSe]:BT:MCHar:LIMit:DF1:LOWer:DATA <freq>`
	`[:SENSe]:BT:MCHar:LIMit:DF1:LOWer:DATA?`
Delta f2 Max Lower Limit	`[:SENSe]:BT:MCHar:LIMit:DF2:LOWer:PEAK <freq>`
	`[:SENSe]:BT:MCHar:LIMit:DF2:LOWer:PEAK?`
Delta f2 Average / Delta f1 Average Lower Limit	`[:SENSe]:BT:MCHar:LIMit:DFRatio:LOWer:DATA <real>`
	`[:SENSe]:BT:MCHar:LIMit:DFRatio:LOWer:DATA?`

Table 2.6-4 lists the device messages for setting the Output Power Measurement parameters for this application.

Table 2.6-4 Device Messages for Setting Output Power Measurement Parameters for This Application

Parameter	Device Message
Output Power Measurement	[:SENSe]:BT:TXPower[:STATe] OFF|ON|0|1
	[:SENSe]:BT:TXPower[:STATe]?
Storage Mode	[:SENSe]:BT:TXPower:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:BT:TXPower:AVERage[:STATe]?
Storage Count	[:SENSe]:BT:TXPower:AVERage:COUNt <integer>
	[:SENSe]:BT:TXPower:AVERage:COUNt ?
Average Power Upper Limit	[:SENSe]:BT:TXPower:LIMit[:UPPer]:DATA <real>
	[:SENSe]:BT:TXPower:LIMit[:UPPer]:DATA?
Average Power Lower Limit	[:SENSe]:BT:TXPower:LIMit:LOWer:DATA <real>
	[:SENSe]:BT:TXPower:LIMit:LOWer:DATA?
Peak Power Upper Limit	[:SENSe]:BT:TXPower:LIMit[:UPPer]:PEAK <real>
	[:SENSe]:BT:TXPower:LIMit[:UPPer]:PEAK?

Table 2.6-5 lists the device messages for setting the ICFT Measurement parameters for this application.

Table 2.6-5 Device Messages for Setting ICFT Measurement Parameters for This Application

Parameter	Device Message
ICFT Measurement	[:SENSe]:BT:ICFT[:STATe] OFF|ON|0|1
	[:SENSe]:BT:ICFT[:STATe]?
Storage Mode	[:SENSe]:BT:ICFT:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:BT:ICFT:AVERage[:STATe]?
Storage Count	[:SENSe]:BT:ICFT:AVERage:COUNt <integer>
	[:SENSe]:BT:ICFT:AVERage:COUNt?
ICFT Upper Limit	[:SENSe]:BT:ICFT:LIMit[:UPPer]:DATA <freq>
	[:SENSe]:BT:ICFT:LIMit[:UPPer]:DATA?

Table 2.6-6 lists the device messages for setting the Carrier Frequency Drift Measurement parameters for this application.

Table 2.6-6 Device Messages for Setting Carrier Frequency Drift Measurement Parameters for This Application

Parameter	Device Message
Carrier Frequency Drift Measurement	[:SENSe]:BT:CFDRift[:STATe] OFF|ON|0|1
	[:SENSe]:BT:CFDRift[:STATe]?
Storage Mode	[:SENSe]:BT:CFDRift:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:BT:CFDRift:AVERage[:STATe]?
Storage Count	[:SENSe]:BT:CFDRift:AVERage:COUNt <integer>
	[:SENSe]:BT:CFDRift:AVERage:COUNt?
Carrier Frequency Drift Upper Limit	[:SENSe]:BT:CFDRift:LIMit[:UPPer]:DATA <freq>
	[:SENSe]:BT:CFDRift:LIMit[:UPPer]:DATA?
Max Drift Rate Upper Limit	[:SENSe]:BT:CFDRift:LIMit[:UPPer]:PEAK<freq>
	[:SENSe]:BT:CFDRift:LIMit[:UPPer]:PEAK?

Table 2.6-7 lists the device messages for setting the EDR Carrier Freq Stability and Mod Accuracy Measurement parameters for this application.

Table 2.6-7 Device Messages for Setting EDR Carrier Freq Stability and Mod Accuracy Measurement Parameters for This Application

Parameter	Device Message
EDR Carrier Freq Stability and Mod Accuracy Measurement	[:SENSe]:BT:EDR:DEVM[:STATe] OFF|ON|0|1
	[:SENSe]:BT:EDR:DEVM[:STATe]?
Storage Mode	[:SENSe]:BT:EDR:DEVM:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:BT:EDR:DEVM:AVERage[:STATe]?
Storage Count	[:SENSe]:BT:EDR:DEVM:AVERage:COUNt <integer>
	[:SENSe]:BT:EDR:DEVM:AVERage:COUNt?
Total Frequency Error Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:TOTal <freq>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:TOTal?
Block Frequency Error Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:BLOCk <freq>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:BLOCk?
Initial Frequency Error Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:INITial <freq>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:INITial?
RMS DEVM DQPSK Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:DATA <real>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:DATA?
RMS DEVM 8DPSK Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:DATA <real>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:DATA?
Peak DEVM DQPSK Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:PEAK <real>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:PEAK?
Peak DEVM 8DPSK Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:PEAK <real>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:PEAK?
99% DEVM DQPSK Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:99Percent <real>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:99Percent?
99% DEVM 8DPSK Upper Limit	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:99Percent <real>
	[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:99Percent?

Table 2.6-8 lists the device messages for setting the EDR Relative Transmit Power Measurement parameters for this application.

Table 2.6-8 Device Messages for Setting EDR Relative Transmit Power Measurement Parameters for This Application

Parameter	Device Message
EDR Relative Transmit Power Measurement	[:SENSe]:BT:EDR:TXPower:RELative[:STATe] OFF|ON|0|1
	[:SENSe]:BT:EDR:TXPower:RELative[:STATe]?
Storage Mode	[:SENSe]:BT:EDR:TXPower:RELative:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:BT:EDR:TXPower:RELative:AVERage[:STATe]?
Storage Count	[:SENSe]:BT:EDR:TXPower:RELative:AVERage:COUNt <integer>
	[:SENSe]:BT:EDR:TXPower:RELative:AVERage:COUNt?
EDR Relative Transmit Power Upper Limit	[:SENSe]:BT:EDR:TXPower:RELative:LIMit[:UPPer]:DATA <real>
	[:SENSe]:BT:EDR:TXPower:RELative:LIMit[:UPPer]:DATA?
EDR Relative Transmit Power Lower Limit	[:SENSe]:BT:EDR:TXPower:RELative:LIMit:LOWer:DATA <real>
	[:SENSe]:BT:EDR:TXPower:RELative:LIMit:LOWer:DATA?

Table 2.6-9 lists the device messages for setting the EDR Differential Phase Encoding Measurement parameters for this application.

Table 2.6-9 Device Messages for Setting EDR Differential Phase Encoding Measurement Parameters for This Application

Parameter	Device Message
EDR Differential Phase Encoding Measurement	[:SENSe]:BT:EDR:DPHase[:STATe] OFF|ON|0|1
	[:SENSe]:BT:EDR:DPHase[:STATe]?
Storage Mode	[:SENSe]:BT:EDR:DPHase:AVERage[:STATe] OFF|ON|0|1
	[:SENSe]:BT:EDR:DPHase:AVERage[:STATe]?
Storage Count	[:SENSe]:BT:EDR:DPHase:AVERage:COUNt <integer>
	[:SENSe]:BT:EDR:DPHase:AVERage:COUNt?
PER Limit	[:SENSe]:BT:EDR:DPHase:LIMit[:UPPer]:PER <real>
	[:SENSe]:BT:EDR:DPHase:LIMit[:UPPer]:PER?

2.6.1 Measure

:CONFigure:BT

Bluetooth Batch Measurement

Function

This command selects Bluetooth Batch Measurement function.

Command

```
:CONFigure:BT
```

Details

No measurement is made.

Example of Use

To select Bluetooth Batch Measurement function.

```
CONF:BT
```

:INITiate:BT

Bluetooth Batch Measurement

Function

This command executes Bluetooth Batch measurement function.

Command

```
:INITiate:BT
```

Example of Use

To execute Bluetooth Batch Measurement function.

```
INIT:BT
```

:FETCh:BT[n]?

Bluetooth Batch Measurement Query

Function

This command queries the result of Bluetooth Batch measurement function.

Query

```
:FETCh:BT[n]?
```

Response

See Table 2.6-2.

Details

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

Example of Use

To query the result of Bluetooth Batch measurement result.

```
FETC:BT?
>1.73,1.75,1.71,1.81,····
```

:READ:BT[n]?

Bluetooth Batch Measurement Query

Function

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

Query

```
:READ:BT[n]?
```

Response

See Table 2.6-2.

Example of Use

To query the result of Bluetooth Batch measurement result.

```
READ:BT?
>1.73,1.75,1.71,1.81,····
```

Related Command

This command has the same function as the following command.

```
MEASure:BT?
```

:MEASure:BT[n]?

Bluetooth Batch Measurement Query

Function

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

Query

```
:MEASure:BT[n]?
```

Response

See Table 2.6-2.

Example of Use

To query the result of Bluetooth Batch measurement result.

```
MEAS:BT?
>1.73,1.75,1.71,1.81,····
```

Related Command

This command has the same function as the following command.

```
READ:BT?
```

2.6.2 Modulation Characteristics

[:SENSe]:BT:MCHar[:STATe] OFF|ON|0|1

Modulation Characteristics Measurement

Function

This command sets the Modulation Characteristics measurement to On/Off.

Command

```
[:SENSe]:BT:MCHar[:STATe] <switch>
```

Parameter

<switch>		Modulation Characteristics measurement On/Off.
	OFF|0	Off (Default)
	ON|1	On

Example of Use

To set the Modulation Characteristics measurement to On.

```
BT:MCH ON
```

[:SENSe]:BT:MCHar[:STATe]?

Modulation Characteristics Measurement Query

Function

This command queries the On/Off setting of Modulation Characteristics measurement.

Query

```
[:SENSe]:BT:MCHar[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>		Modulation Characteristics measurement On/Off.
	0	Off
	1	On

Example of Use

To query the On/Off setting of Modulation Characteristics measurement.

```
BT:MCH?
> 1
```

[:SENSe]:BT:MCHar:AVERage[:STATe] OFF|ON|0|1

Modulation Characteristics Storage Mode

Function

This command sets the storage mode of Modulation Characteristics measurement.

Command

```
[:SENSe]:BT:MCHar:AVERage[:STATe] <switch>
```

Parameter

<switch>	Storage Mode of Modulation Characteristics
OFF|0	Off (Default)
ON|1	Average

Example of Use

To set the storage mode of Modulation Characteristics to On.

```
BT:MCH:AVER ON
```

[:SENSe]:BT:MCHar:AVERage[:STATe]?

Modulation Characteristics Storage Mode Query

Function

This command queries the storage mode of Modulation Characteristics measurement.

Query

```
[:SENSe]:BT:MCHar:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Storage Mode of Modulation Characteristics
0	Off
1	Average

Example of Use

To query the storage mode of Modulation Characteristics measurement.

```
BT:MCH:AVER?
> 1
```

[:SENSe]:BT:MCHar:AVERage:COUNt <integer>

Modulation Characteristics Storage Count

Function

This command sets the storage count of Modulation Characteristics measurement.

Command

```
[:SENSe]:BT:MCHar:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage Count of Modulation Characteristics
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of modulation characteristics

```
BT:MCH:AVER:COUN 10
```

[:SENSe]:BT:MCHar:AVERage:COUNt?

Modulation Characteristics Storage Count Query

Function

This command queries the storage count of Modulation Characteristics measurement.

Query

```
[:SENSe]:BT:MCHar:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>`		Storage Count of Modulation Characteristics
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None

Example of Use

To query the storage count of Modulation Characteristics measurement.

```
BT:MCH:AVER:COUN?
> 10
```

[:SENSe]:BT:MCHar:HRESult OFF|DF1|DF2

Modulation Characteristics Hold Result

Function

This command sets whether to hold the measurement result of Δf1 and Δf2.

Command

```
[:SENSe]:BT:MCHar:HRESult <mode>
```

Parameter

<mode>		Whether to hold the measurement result of Δf1 and Δf2
	OFF	Measures by clearing the value of Δf1 and Δf2 (Default).
	DF1	Holds Δf1.
	DF2	Holds Δf2.

Example of Use

To hold the value of Δf1.

```
BT:MCH:HRES DF1
```

[:SENSe]:BT:MCHar:HRESult?

Modulation Characteristics Hold Result Query

Function

This command queries the setting of whether to hold the measurement result of Δf1 and Δf2.

Query

```
[:SENSe]:BT:MCHar:HRESult?
```

Response

```
<mode>
```

Parameter

<mode>		Whether to hold the measurement result of Δf1 and Δf2
	OFF	Measures by clearing the value of Δf1 and Δf2.
	DF1	Holds Δf1.
	DF2	Holds Δf2.

Example of Use

To query the setting of whether to hold the measurement result of Δf1 and Δf2.

```
BT:MCH:HRES?
> DF1
```

[:SENSe]:BT:MCHar:LIMit:DF1[:UPPer]:DATA <freq>

Delta f1 Average Upper Limit

Function

This command sets the upper limit for Δf1 Average.

Command

```
[:SENSe]:BT:MCHar:LIMit:DF1[:UPPer]:DATA <freq>
```

Parameter

<freq>		Upper limit for Δf1 Average
	Range	0 Hz to 500 kHz
	Resolution	1 kHz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	175 kHz

Example of Use

To set the upper limit for Δf1 Average

```
BT:MCH:LIM:DF1:DATA 175KHZ
```

[:SENSe]:BT:MCHar:LIMit:DF1[:UPPer]:DATA?

Delta f1 Average Upper Limit Query

Function

This command queries the upper limit for Δf1 Average.

Query

```
[:SENSe]:BT:MCHar:LIMit:DF1[:UPPer]:DATA?
```

Response

```
<freq>
```

Parameter

<freq>		Upper limit for Δf1 Average
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the upper limit for Δf1 Average.

```
BT:MCH:LIM:DF1:DATA?
> 175000
```

[:SENSe]:BT:MCHar:LIMit:DF1:LOWer:DATA <freq>

Delta f1 Average Lower Limit

Function

This command sets the lower limit for Δf1 Average.

Command

```
[:SENSe]:BT:MCHar:LIMit:DF1:LOWer:DATA <freq>
```

Parameter

<freq>		Lower limit for Δf1 Average
	Range	0 Hz to 500 kHz
	Resolution	1 kHz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	145 kHz

Example of Use

To set the lower limit for Δf1 Average

```
BT:MCH:LIM:DF1:LOW:DATA 145KHZ
```

[:SENSe]:BT:MCHar:LIMit:DF1:LOWer:DATA?

Delta f1 Average Lower Limit Query

Function

This command queries the lower limit for Δf1 Average.

Query

```
[:SENSe]:BT:MCHar:LIMit:DF1:LOWer:DATA?
```

Response

```
<freq>
```

Parameter

<freq>		Lower limit for Δf1 Average
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the lower limit for Δf1 Average.

```
BT:MCH:LIM:DF1:LOW:DATA?
> 145000
```

[:SENSe]:BT:MCHar:LIMit:DF2:LOWer:PEAK <freq>

Delta f2 Max Lower Limit

Function

This command sets the lower limit for Δf2 Max.

Command

```
[:SENSe]:BT:MCHar:LIMit:DF2:LOWer:PEAK <freq>
```

Parameter

<freq>		Lower limit for Δf2 Max
	Range	0 Hz to 500 kHz
	Resolution	1 kHz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	115 kHz

Example of Use

To set the lower limit for Δf2 Max.

```
BT:MCH:LIM:DF2:LOW:PEAK 115000
```

[:SENSe]:BT:MCHar:LIMit:DF2:LOWer:PEAK?

Delta f2 Max Lower Limit Query

Function

This command queries the lower limit for Δf2 Max.

Query

```
[:SENSe]:BT:MCHar:LIMit:DF2:LOWer:PEAK?
```

Response

```
<freq>
```

Parameter

<freq>		Lower limit for Δf2 Max
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the lower limit for Δf2 Max.

```
BT:MCH:LIM:DF2:LOW:PEAK?
> 115000
```

[:SENSe]:BT:MCHar:LIMit:DFRatio:LOWer:DATA <real>

Delta f2 Average / Delta f1 Average Lower Limit

Function

This command sets the lower limit for Δf2 Average/Δf1 Average.

Command

```
[:SENSe]:BT:MCHar:LIMit:DFRatio:LOWer:DATA <real>
```

Parameter

<real>		Lower limit for Δf2 Average/Δf1 Average.
	Range	0.00 to 1.00
	Resolution	0.01
	Suffix code	None
	Default	0.80

Example of Use

To set the lower limit for Δf2 Average/Δf1 Average.

```
BT:MCH:LIM:DFR:LOW:DATA 0.8
```

[:SENSe]:BT:MCHar:LIMit:DFRatio:LOWer:DATA?

Delta f2 Average / Delta f1 Average Lower Limit Query

Function

This command queries the lower limit for Δf2 Average/Δf1 Average.

Query

```
[:SENSe]:BT:MCHar:LIMit:DFRatio:LOWer:DATA?
```

Response

```
<real>
```

Parameter

<real>		Lower limit for Δf2 Average/Δf1 Average.
	Range	0.00 to 1.00
	Resolution	0.01
	Suffix code	None

Example of Use

To query the lower limit for Δf2 Average/Δf1 Average.

```
BT:MCH:LIM:DFR:LOW:DATA?
> 0.80
```

2.6.3 Output Power

[:SENSe]:BT:TXPower[:STATe] OFF|ON|0|1

Output Power Measurement

Function

This command enables/disables the Output Power Measurement.

Command

```
[:SENSe]:BT:TXPower[:STATe] <switch>
```

Parameter

<switch>	Output Power Measurement On/Off
OFF|0	Off (Default)
ON|1	On

Example of Use

To enable Output Power Measurement.

```
BT:TXP ON
```

[:SENSe]:BT:TXPower[:STATe]?

Output Power Measurement Query

Function

This command queries the Output Power Measurement On/Off status.

Query

```
[:SENSe]:BT:TXPower[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Output Power Measurement On/Off
0	Off
1	On

Example of Use

To query the Output Power Measurement On/Off status.

```
BT:TXP?
> 1
```

[:SENSe]:BT:TXPower:AVERage[:STATe] OFF|ON|0|1

Output Power Storage Mode

Function

This command sets the storage mode of Output Power measurement.

Command

```
[:SENSe]:BT:TXPower:AVERage[:STATe] OFF|ON|0|1
```

Parameter

<switch>	Storage mode of Output Power measurement
OFF|0	Off (Default)
ON|1	Average

Example of Use

To set the storage mode of Output Power measurement.

```
BT:TXP:AVER OFF
```

[:SENSe]:BT:TXPower:AVERage[:STATe]?

Output Power Storage Mode Query

Function

This command queries the storage mode of Output Power measurement.

Query

```
[:SENSe]:BT:TXPower:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Storage mode of Output Power measurement
0	Off
1	Average

Example of Use

To query the storage mode of Output Power measurement.

```
BT:TXP:AVER?
> 0
```

[:SENSe]:BT:TXPower:AVERage:COUNt <integer>

Output Power Storage Count

Function

This command sets the storage count of Output Power measurement.

Command

```
[:SENSe]:BT:TXPower:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage count of Output Power measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of Output Power measurement

```
BT:TXP:AVER:COUN 10
```

[:SENSe]:BT:TXPower:AVERage:COUNt ?

Output Power Storage Count Query

Function

This command queries the storage count of Output Power measurement.

Query

```
[:SENSe]:BT:TXPower:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

<integer>		Storage count of Output Power measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None

Example of Use

To query the storage count of Output Power measurement.

```
BT:TXP:AVER:COUN?
> 10
```

[:SENSe]:BT:TXPower:LIMit[:UPPer]:DATA <real>

Average Power Upper Limit

Function

This command sets the upper limit for Average Power.

Command

```
[:SENSe]:BT:TXPower:LIMit[:UPPer]:DATA <real>
```

Parameter

<real>		Upper limit for Average Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dBm
	Default	When PC1 is set to Power class: 20.00 dBm When PC2 is set to Power class: 4.00 dBm When PC3 is set to Power class: 0.00 dBm

Example of Use

To set the upper limit for Average Power.

```
BT:TXP:LIM:DATA 20
```

[:SENSe]:BT:TXPower:LIMit[:UPPer]:DATA?

Average Power Upper Limit Query

Function

This command queries the upper limit for Average Power.

Query

```
[:SENSe]:BT:TXPower:LIMit[:UPPer]:DATA?
```

Response

```
<real>
```

Parameter

`<real>`		Upper limit for Average Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dBm

Example of Use

To query the upper limit for Average Power.

```
BT:TXP:LIM:DATA?
>20.0
```

[:SENSe]:BT:TXPower:LIMit:LOWer:DATA <real>

Average Power Lower Limit

Function

This command sets the lower limit for Average Power.

Command

```
[:SENSe]:BT:TXPower:LIMit:LOWer:DATA <real>
```

Parameter

<real>		Lower limit for Average Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dBm
	Default	When PC1 is set to Power class: 0.00 dBm When PC2 is set to Power class: –6.00 dBm When PC3 is set to Power class: –100.00 dBm

Example of Use

To set the lower limit for Average Power.

```
BT:TXP:LIM:LOW:DATA 00
```

[:SENSe]:BT:TXPower:LIMit:LOWer:DATA?

Average Power Lower Limit Query

Function

This command queries the lower limit for Average Power.

Query

```
[:SENSe]:BT:TXPower:LIMit:LOWer:DATA?
```

Response

```
<real>
```

Parameter

`<real>`		Lower limit for Average Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dBm

Example of Use

To query the lower limit for Average Power.

```
BT:TXP:LIM:LOW:DATA?
> 0.00
```

[:SENSe]:BT:TXPower:LIMit[:UPPer]:PEAK <real>

Peak Power Upper Limit

Function

This command sets the upper limit for Peak Power.

Command

```
[:SENSe]:BT:TXPower:LIMit[:UPPer]:PEAK <real>
```

Parameter

<real>		Upper limit for Peak Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dBm
	Default	23.00 dBm

Example of Use

To set the upper limit for Peak Power.

```
BT:TXP:LIM:PEAK 23.0
```

[:SENSe]:BT:TXPower:LIMit[:UPPer]:PEAK?

Peak Power Upper Limit Query

Function

This command queries the upper limit for Peak Power.

Query

```
[:SENSe]:BT:TXPower:LIMit[:UPPer]:PEAK?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for Peak Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dBm

Example of Use

To query the upper limit for Peak Power.

```
BT:TXP:LIM:PEAK?
> 23.00
```

2.6.4 ICFT

[:SENSe]:BT:ICFT[:STATe] OFF|ON|0|1

ICFT Measurement

Function

This command enables/disables the ICFT Measurement.

Command

```
[:SENSe]:BT:ICFT[:STATe] <switch>
```

Parameter

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

Example of Use

To enable/disable the ICFT Measurement.

```
BT:ICFT ON
```

[:SENSe]:BT:ICFT[:STATe]?

ICFT Measurement Query

Function

This command queries the On/Off setting of ICFT measurement.

Query

```
[:SENSe]:BT:ICFT[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Measurement On/Off
0	Off
1	On

Example of Use

To query the On/Off setting of ICFT measurement.

```
BT:ICFT?
> 1
```

[:SENSe]:BT:ICFT:AVERage[:STATe] OFF|ON|0|1

ICFT Storage Mode

Function

This command sets the storage mode of ICFT measurement.

Command

```
[:SENSe]:BT:ICFT:AVERage[:STATe] <switch>
```

Parameter

<switch>		Storage Mode of ICFT measurement
	OFF|0	Off (Default)
	ON|1	Average

Example of Use

This command sets the storage mode of ICFT measurement.

```
BT:ICFT:AVER OFF
```

[:SENSe]:BT:ICFT:AVERage[:STATe]?

ICFT Storage Mode Query

Function

This command queries the storage mode of ICFT measurement.

Query

```
[:SENSe]:BT:ICFT:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>		Storage Mode of ICFT measurement
	0	Off
	1	Average

Example of Use

To query the storage mode of ICFT measurement.

```
BT:ICFT:AVER?
> 0
```

[:SENSe]:BT:ICFT:AVERage:COUNt <integer>

ICFT Storage Count

Function

This command sets the storage count of ICFT measurement.

Command

```
[:SENSe]:BT:ICFT:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage Count of ICFT measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of ICFT measurement

```
BT:ICFT:AVER:COUN 10
```

[:SENSe]:BT:ICFT:AVERage:COUNt?

ICFT Storage Count Query

Function

This command queries the storage count of ICFT measurement.

Query

```
[:SENSe]:BT:ICFT:AVERage:COUNt?
```

Response

<integer>

Parameter

<integer>		Storage Count of ICFT measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None

Example of Use

To query the storage count of ICFT measurement.

```
BT:ICFT:AVER:COUN?
> 10
```

[:SENSe]:BT:ICFT:LIMit[:UPPer]:DATA <freq>

ICFT Limit

Function

This command sets the upper limit for ICFT.

Command

```
[:SENSe]:BT:ICFT:LIMit[:UPPer]:DATA <freq>
```

Parameter

<freq>		Upper limit for ICFT
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	75 kHz

Example of Use

To set the upper limit for ICFT.

```
BT:ICFT:LIM:DATA 75KHZ
```

[:SENSe]:BT:ICFT:LIMit[:UPPer]:DATA?

ICFT Limit Query

Function

This command queries the upper limit for ICFT.

Query

```
[:SENSe]:BT:ICFT:LIMit[:UPPer]:DATA?
```

Response

```
<freq>
```

Parameter

<freq>		Upper limit for ICFT
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the upper limit for ICFT.

```
BT:ICFT:LIM:DATA?
> 75000
```

2.6.5 Carrier Frequency Drift

[:SENSe]:BT:CFDRift[:STATe] OFF|ON|0|1

Carrier Frequency Drift Measurement

Function

This command enables/disables the Carrier Frequency Drift measurement.

Command

```
[:SENSe]:BT:CFDRift[:STATe] <switch>
```

Parameter

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

Example of Use

To enable/disable the Carrier Frequency Drift measurement.

```
BT:CFDR ON
```

[:SENSe]:BT:CFDRift[:STATe]?

Carrier Frequency Drift Measurement Query

Function

This command queries the Carrier Frequency Drift Measurement On/Off status.

Query

```
[:SENSe]:BT:CFDRift[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Measurement On/Off
0	Off
1	On

Example of Use

To query the Carrier Frequency Drift Measurement On/Off status.

```
BT:CFDR?
> 1
```

[:SENSe]:BT:CFDRift:AVERage[:STATe] OFF|ON|0|1

Carrier Frequency Drift Storage Mode

Function

This command sets the storage mode of Carrier Frequency Drift measurement.

Command

```
[:SENSe]:BT:CFDRift:AVERage[:STATe] <switch>
```

Parameter

<switch>	Storage mode of Carrier Frequency Drift measurement	
	OFF|0	Off (Default)
	ON|1	Average

Example of Use

To set the storage mode of Carrier Frequency Drift measurement

```
BT:CFDR:AVER OFF
```

[:SENSe]:BT:CFDRift:AVERage[:STATe]?

Carrier Frequency Drift Storage Mode Query

Function

This command queries the storage mode of Carrier Frequency Drift measurement.

Query

```
[:SENSe]:BT:CFDRift:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Storage mode of Carrier Frequency Drift measurement	
	0	Off
	1	Average

Example of Use

To query the storage mode of Carrier Frequency Drift measurement.

```
BT:CFDR:AVER?
> 0
```

[:SENSe]:BT:CFDRift:AVERage:COUNt <integer>

Carrier Frequency Drift Storage Count

Function

This command sets the storage count of Carrier Frequency Drift measurement.

Command

```
[:SENSe]:BT:CFDRift:AVERage:COUNt <integer>
```

Parameter

`<integer>`		Storage Count of Carrier Frequency Drift
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest A which is A × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of Carrier Frequency Drift measurement.

```
BT:CFDR:AVER:COUN 10
```

[:SENSe]:BT:CFDRift:AVERage:COUNt?

Carrier Frequency Drift Storage Count Query

Function

This command queries the storage count of Carrier Frequency Drift measurement.

Query

```
[:SENSe]:BT:CFDRift:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>` Storage count of Carrier Frequency Drift measurement.

Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest A which is A × Burst Interval ≤ 2000 ms".
Resolution	1
Suffix code	None

Example of Use

To query the storage count of Carrier Frequency Drift measurement.

```
BT:CFDR:AVER:COUN?
> 10
```

[:SENSe]:BT:CFDRift:LIMit[:UPPer]:DATA <freq>

Carrier Frequency Drift Upper Limit

Function

This command sets the upper limit for Carrier Frequency Drift.

Command

```
[:SENSe]:BT:CFDRift:LIMit[:UPPer]:DATA <freq>
```

Parameter

<freq>		Upper limit for Carrier Frequency Drift
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	25 kHz

Example of Use

To set the upper limit for Carrier Frequency Drift.

```
BT:CFDR:LIM:DATA 25KHZ
```

[:SENSe]:BT:CFDRift:LIMit[:UPPer]:DATA?

Carrier Frequency Drift Upper Limit Query

Function

This command queries the upper limit for Carrier Frequency Drift.

Query

```
[:SENSe]:BT:CFDRift:LIMit[:UPPer]:DATA?
```

Response

```
<freq>
```

Parameter

<freq>		Upper limit for Carrier Frequency Drift
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the upper limit for Carrier Frequency Drift.

```
BT:CFDR:LIM:DATA?
> 25000
```

[:SENSe]:BT:CFDRift:LIMit[:UPPer]:PEAK<freq>

Max Drift Rate Upper Limit

Function

This command sets the upper limit for Max Drift Rate.

Command

```
[:SENSe]:BT:CFDRift:LIMit[:UPPer]:PEAK <freq>
```

Parameter

<freq>		Upper limit for Max Drift Rate
	Range	0 Hz to 500 kHz
	Resolution	100 Hz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
		Hz is used when omitted.
	Default	20 kHz

Example of Use

To set the upper limit for Max Drift Rate

```
BT:CFDR:LIM:PEAK 20KHZ
```

[:SENSe]:BT:CFDRift:LIMit[:UPPer]:PEAK?

Max Drift Rate Upper Limit Query

Function

This command queries the upper limit for Max Drift Rate.

Query

```
[:SENSe]:BT:CFDRift:LIMit[:UPPer]:PEAK?
```

Response

```
<freq>
```

Parameter

<freq>		Upper limit for Max Drift Rate
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
		Value is returned in Hz units.

Example of Use

To query the upper limit for Max Drift Rate.

```
BT:CFDR:LIM:PEAK?
> 20000
```

2.6.6 EDR Carrier Freq Stability and Mod Accuracy

[:SENSe]:BT:EDR:DEVM[:STATe] OFF|ON|0|1

EDR Carrier Freq Stability and Mod Accuracy Measurement

Function

This command enables/disables the EDR Carrier Freq Stability and Mod Accuracy measurement.

Command

```
[:SENSe]:BT:EDR:DEVM[:STATe] <switch>
```

Parameter

<switch>	EDR Carrier Freq Stability and Mod Accuracy measurement On/Off
OFF|0	Off (Default)
ON|1	On

Example of Use

To enable/disable the EDR Carrier Freq Stability and Mod Accuracy measurement

```
BT:EDR:DEVM ON
```

[:SENSe]:BT:EDR:DEVM[:STATe]?

EDR Carrier Freq Stability and Mod Accuracy Measurement Query

Function

This command queries the EDR Carrier Freq Stability and Mod Accuracy measurement On/Off status.

Query

```
[:SENSe]:BT:EDR:DEVM[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	EDR Carrier Freq Stability and Mod Accuracy measurement On/Off
0	Off
1	On

Example of Use

To query the EDR Carrier Freq Stability and Mod Accuracy measurement On/Off status.

```
BT:EDR:DEVM?
> 1
```

[:SENSe]:BT:EDR:DEVM:AVERage[:STATe] OFF|ON|0|1

EDR Carrier Freq Stability and Mod Accuracy Storage Mode

Function

This command sets the storage mode of EDR Carrier Freq Stability and Mod Accuracy measurement.

Command

```
[:SENSe]:BT:EDR:DEVM:AVERage[:STATe] <switch>
```

Parameter

<switch>	Storage mode of EDR Carrier Freq Stability and Mod Accuracy measurement
OFF|0	Off (Default)
ON|1	Average

Example of Use

To set the storage mode of EDR Carrier Freq Stability and Mod Accuracy measurement.

```
BT:EDR:DEVM:AVER OFF
```

[:SENSe]:BT:EDR:DEVM:AVERage[:STATe]?

EDR Carrier Freq Stability and Mod Accuracy Storage Mode Query

Function

This command queries the storage mode of EDR Carrier Freq Stability and Mod Accuracy measurement.

Query

```
[:SENSe]:BT:EDR:DEVM:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	Storage mode of EDR Carrier Freq Stability and Mod Accuracy measurement
0	Off
1	Average

Example of Use

To query the storage mode of EDR Carrier Freq Stability and Mod Accuracy measurement.

```
BT:EDR:DEVM:AVER?
> 0
```

[:SENSe]:BT:EDR:DEVM:AVERage:COUNt <integer>

EDR Carrier Freq Stability and Mod Accuracy Storage Count

Function

This command sets the storage count of EDR Carrier Freq Stability and Mod Accuracy measurement.

Command

```
[:SENSe]:BT:EDR:DEVM:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage count of EDR Carrier Freq Stability and Mod Accuracy measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of EDR Carrier Freq Stability and Mod Accuracy measurement

```
BT:EDR:DEVM:AVER:COUN 10
```

[:SENSe]:BT:EDR:DEVM:AVERage:COUNt?

EDR Carrier Freq Stability and Mod Accuracy Storage Count Query

Function

This command queries the storage count of EDR Carrier Freq Stability and Mod Accuracy measurement.

Query

```
[:SENSe]:BT:EDR:DEVM:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

<integer>		Storage count of EDR Carrier Freq Stability and Mod Accuracy measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None

Example of Use

To query the storage count of EDR Carrier Freq Stability and Mod Accuracy measurement.

```
BT:EDR:DEVM:AVER:COUN?
> 10
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:TOTal <freq>

Total Frequency Error Upper Limit

Function

This command sets the upper limit for Total Frequency Error ($\omega_0 + \omega_i$).

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:TOTal <freq>
```

Parameter

<freq>		Upper limit for Total Frequency Error
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	75 kHz

Example of Use

To set the upper limit for Total Frequency Error

```
BT:EDR:DEVM:LIM:FERR:TOT 75KHZ
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:TOTal?

Total Frequency Error Upper Limit Query

Function

This command queries the upper limit for Total Frequency Error ($\omega_0 + \omega_i$).

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:TOTal?
```

Response

```
<freq>
```

Parameter

<freq>		Upper limit for Total Frequency Error
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the upper limit for Total Frequency Error.

```
BT:EDR:DEVM:LIM:FERR:TOT?
> 75000
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:BLOCk <freq>

Block Frequency Error Upper Limit

Function

This command sets the upper limit for Block Frequency Error (ω_0).

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:BLOCk <freq>
```

Parameter

<freq>		Upper limit for Block Frequency Error
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
	Suffix code	HZ, KHZ, KZ, MHZ, MZ, GHZ, GZ
		Hz is used when omitted.
	Default	10 kHz

Example of Use

To set the upper limit for Block Frequency Error

```
BT:EDR:DEVM:LIM:FERR:BLOC 10KHZ
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:BLOCk?

Block Frequency Error Upper Limit Query

Function

This command queries the upper limit for Block Frequency Error (ω_0).

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:BLOCk?
```

Response

```
<freq>
```

Parameter

<freq>		Upper limit for Block Frequency Error
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
		Value is returned in Hz units.

Example of Use

To query the upper limit for Block Frequency Error.

```
BT:EDR:DEVM:LIM:FERR:BLOC?
> 10000
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:INITial <real>

Initial Frequency Error Upper Limit

Function

This command sets the upper limit for Initial Frequency Error (ω_i).

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:INITial <real>
```

Parameter

<real>		Upper limit for Initial Frequency Error
	Range	0 Hz to 500 kHz
	Resolution	1 Hz
	Suffix code	HZ, KHZ, HZ, MHZ, MZ, GHZ, GZ Hz is used when omitted.
	Default	10 kHz

Example of Use

To set the upper limit for Initial Frequency Error

```
BT:EDR:DEVM:LIM:FERR:INIT 75KHZ
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:INITial?

Initial Frequency Error Upper Limit Query

Function

This command queries the upper limit for Initial Frequency Error (ω_i).

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:FERRor:INITial?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for Initial Frequency Error
	Range	0 Hz to 500 kHz
	Resolution	1 Hz Value is returned in Hz units.

Example of Use

To query the upper limit for Initial Frequency Error.

```
BT:EDR:DEVM:LIM:FERR:INIT?
> 75000
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:DATA <real>

RMS DEVM DQPSK Upper Limit

Function

This command sets the upper limit for RMS DEVM DQPSK.

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:DATA <real>
```

Parameter

<real>		Upper limit for RMS DEVM DQPSK
	Range	0.00 to 100.00
	Resolution	0.01
	Suffix code	%
	Default	20.00

Example of Use

To set the upper limit for RMS DEVM DQPSK

```
BT:EDR:DEVM:LIM:DQPS:DATA 20.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:DATA?

RMS DEVM DQPSK Upper Limit Query

Function

This command queries the upper limit for RMS DEVM DQPSK.

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:DATA?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for RMS DEVM DQPSK
	Range	0.00 to 100.00
	Resolution	0.01
		Value is returned in % units.

Example of Use

To query the upper limit for RMS DEVM DQPSK.

```
BT:EDR:DEVM:LIM:DQPS:DATA?
> 20.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:DATA <real>

RMS DEVM 8DPSK Upper Limit

Function

This command sets the upper limit for RMS DEVM 8DPSK.

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:DATA <real>
```

Parameter

<real>		Upper limit for RMS DEVM 8DPSK
	Range	0.00 to 100.00
	Resolution	0.01
	Suffix code	%
	Default	13.00

Example of Use

To set the upper limit for RMS DEVM 8DPSK.

```
BT:EDR:DEVM:LIM:8DPS:DATA 20.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:DATA?

RMS DEVM 8DPSK Upper Limit Query

Function

This command queries the upper limit for RMS DEVM 8DPSK.

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:DATA?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for RMS DEVM 8DPSK
	Range	0.00 to 100.00
	Resolution	0.01
		Value is returned in % units.

Example of Use

To query the upper limit for RMS DEVM 8DPSK.

```
BT:EDR:DEVM:LIM:8DPS:DATA?
> 20.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:PEAK <real>

Peak DEVM DQPSK Upper Limit

Function

This command sets the upper limit for Peak DEVM DQPSK.

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:PEAK <real>
```

Parameter

<real>		Upper limit for Peak DEVM DQPSK
	Range	0.00 to 100.00
	Resolution	0.01
	Suffix code	%
	Default	35.00

Example of Use

To set the upper limit for Peak DEVM DQPSK.

```
BT:EDR:DEVM:LIM:DQPS:PEAK 35.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:PEAK?

Peak DEVM DQPSK Upper Limit Query

Function

This command queries the upper limit for Peak DEVM DQPSK.

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:PEAK?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for Peak DEVM DQPSK
	Range	0.00 to 100.00
	Resolution	0.01
		Value is returned in % units.

Example of Use

To query the upper limit for Peak DEVM DQPSK.

```
BT:EDR:DEVM:LIM:DQPS:PEAK?
> 35.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:PEAK <real>

Peak DEVM 8DPSK Upper Limit

Function

This command sets the upper limit for Peak DEVM 8DPSK.

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:PEAK <real>
```

Parameter

<real>		Upper limit for Peak DEVM 8DPSK
	Range	0.00 to 100.00
	Resolution	0.01
	Suffix code	%
	Default	25.00

Example of Use

To set the upper limit for Peak DEVM 8DPSK.

```
BT:EDR:DEVM:LIM:8DPS:PEAK 25.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:PEAK?

Peak DEVM 8DPSK Upper Limit Query

Function

This command queries the upper limit for Peak DEVM 8DPSK.

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:PEAK?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for Peak DEVM 8DPSK
	Range	0.00 to 100.00
	Resolution	0.01
		Value is returned in % units.

Example of Use

To query the upper limit for Peak DEVM 8DPSK.

```
BT:EDR:DEVM:LIM:8DPS:PEAK?
> 25.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:99Percent <real>

99% DEVM DQPSK Upper Limit

Function

This command sets the upper limit for 99% DEVM DQPSK.

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:99Percent <real>
```

Parameter

<real>		Upper limit for 99% DEVM DQPSK
	Range	0.00 to 100.00
	Resolution	0.01
	Suffix code	%
	Default	30.00

Example of Use

To set the upper limit for 99% DEVM DQPSK

```
BT:EDR:DEVM:LIM:DQPS:99P 30.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:99Percent?

99% DEVM DQPSK Upper Limit Query

Function

This command queries the upper limit for 99% DEVM DQPSK.

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:DQPSk:99Percent?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for 99% DEVM DQPSK
	Range	0.00 to 100.00
	Resolution	0.01
		Value is returned in % units.

Example of Use

To query the upper limit for 99% DEVM DQPSK.

```
BT:EDR:DEVM:LIM:DQPS:99P?
> 30.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:99Percent <real>

99% DEVM 8DPSK Upper Limit

Function

This command queries the upper limit for 99% DEVM 8DPSK.

Command

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:99Percent <real>
```

Parameter

<real>		Upper limit for 99% DEVM 8DPSK
	Range	0.00 to 100.00
	Resolution	0.01
	Suffix code	%
	Default	20.00

Example of Use

To set the upper limit for 99% DEVM 8DPSK

```
BT:EDR:DEVM:LIM:8DPS:99P 20.00
```

[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:99Percent?

99% DEVM 8DPSK Upper Limit Query

Function

This command queries the upper limit for 99% DEVM 8DPSK.

Query

```
[:SENSe]:BT:EDR:DEVM:LIMit[:UPPer]:8DPSk:99Percent?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for 99% DEVM 8DPSK
	Range	0.00 to 100.00
	Resolution	0.01
		Value is returned in % units.

Example of Use

To query the upper limit for 99% DEVM 8DPSK.

```
BT:EDR:DEVM:LIM:8DPS:99P?
> 20.00
```

2.6.7 EDR Relative Transmit Power

[:SENSe]:BT:EDR:TXPower:RELative[:STATe] OFF|ON|0|1

EDR Relative Transmit Power Measurement

Function

This command sets the EDR Relative Transmit Power measurement settings to On/Off.

Command

```
[:SENSe]:BT:EDR:TXPower:RELative[:STATe] <switch>
```

Parameter

<switch>		EDR Relative Transmit Power measurement On/Off
	OFF|0	Off (Default)
	ON|1	On

Example of Use

To set the EDR Relative Transmit Power measurement On/Off

```
BT:EDR:TXP:REL ON
```

[:SENSe]:BT:EDR:TXPower:RELative[:STATe]?

EDR Relative Transmit Power Measurement Query

Function

This command queries the EDR Relative Transmit Power measurement On/Off status.

Query

```
[:SENSe]:BT:EDR:TXPower:RELative[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>		EDR Relative Transmit Power measurement On/Off
	0	Off
	1	On

Example of Use

To query the EDR Relative Transmit Power measurement On/Off status.

```
BT:EDR:TXP:REL?
> 1
```

[:SENSe]:BT:EDR:TXPower:RELative:AVERage[:STATe] OFF|ON|0|1

EDR Relative Transmit Power Storage Mode

Function

This command sets the storage mode of EDR Relative Transmit Power measurement.

Command

```
[:SENSe]:BT:EDR:TXPower:RELative:AVERage[:STATe] <switch>
```

Parameter

<switch>		Storage mode of EDR Relative Transmit Power measurement.
	OFF|0	Off (Default)
	ON|1	Average

Example of Use

To set the storage mode of EDR Relative Transmit Power measurement.

```
BT:EDR:TXP:REL:AVER OFF
```

[:SENSe]:BT:EDR:TXPower:RELative:AVERage[:STATe]?

EDR Relative Transmit Power Storage Mode Query

Function

This command queries the storage mode of EDR Relative Transmit Power measurement.

Query

```
[:SENSe]:BT:EDR:TXPower:RELative:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>		Storage mode of EDR Relative Transmit Power measurement.
	0	Off
	1	Average

Example of Use

To query the storage mode of EDR Relative Transmit Power measurement.

```
BT:EDR:TXP:REL:AVER?
> 0
```

[:SENSe]:BT:EDR:TXPower:RELative:AVERage:COUNt <integer>

EDR Relative Transmit Power Storage Count

Function

This command sets the storage count of EDR Relative Transmit Power measurement.

Command

```
[:SENSe]:BT:EDR:TXPower:RELative:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage count of EDR Relative Transmit Power measurement.
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of EDR Relative Transmit Power measurement.

```
BT:EDR:TXP:REL:AVER:COUN 10
```

[:SENSe]:BT:EDR:TXPower:RELative:AVERage:COUNt?

EDR Relative Transmit Power Storage Count Query

Function

This command queries the storage count of EDR Relative Transmit Power measurement.

Query

```
[:SENSe]:BT:EDR:TXPower:RELative:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>`		Storage count of EDR Relative Transmit Power measurement.
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None

Example of Use

To query the storage count of EDR Relative Transmit Power measurement.

```
BT:EDR:TXP:REL:AVER:COUN?
> 10
```

[:SENSe]:BT:EDR:TXPower:RELative:LIMit[:UPPer]:DATA <real>

EDR Relative Transmit Power Upper Limit

Function

This command sets the upper limit for EDR Relative Transmit Power.

Command

```
[:SENSe]:BT:EDR:TXPower:RELative:LIMit[:UPPer]:DATA
<real>
```

Parameter

<real>		Upper limit for EDR Relative Transmit Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dB
	Default	1.00 dB

Example of Use

To set the upper limit for EDR Relative Transmit Power

```
BT:EDR:TXP:REL:LIM:DATA 1.00
```

[:SENSe]:BT:EDR:TXPower:RELative:LIMit[:UPPer]:DATA?

EDR Relative Transmit Power Upper Limit Query

Function

This command queries the upper limit for EDR Relative Transmit Power.

Query

```
[:SENSe]:BT:EDR:TXPower:RELative:LIMit[:UPPer]:DATA?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for EDR Relative Transmit Power
	Range	–100.00 to 100.00
	Resolution	0.01

Example of Use

To query the upper limit for EDR Relative Transmit Power

```
BT:EDR:TXP:REL:LIM:DATA?
> 1.00
```

[:SENSe]:BT:EDR:TXPower:RELative:LIMit:LOWer:DATA <real>

EDR Relative Transmit Power Lower Limit

Function

This command sets the lower limit for EDR Relative Transmit Power.

Command

```
[:SENSe]:BT:EDR:TXPower:RELative:LIMit:LOWer:DATA <real>
```

Parameter

<real>		Lower limit for EDR Relative Transmit Power
	Range	–100.00 to 100.00
	Resolution	0.01
	Suffix code	dB
	Default	–4.00 dB

Example of Use

To set the lower limit for EDR Relative Transmit Power

```
BT:EDR:TXP:REL:LIM:LOW:DATA -4.00
```

[:SENSe]:BT:EDR:TXPower:RELative:LIMit:LOWer:DATA?

EDR Relative Transmit Power Lower Limit Query

Function

This command queries the lower limit for EDR Relative Transmit Power.

Query

```
[:SENSe]:BT:EDR:TXPower:RELative:LIMit:LOWer:DATA?
```

Response

```
<real>
```

Parameter

<real>		Lower limit for EDR Relative Transmit Power
	Range	–100.00 to 100.00
	Resolution	0.01

Example of Use

To query the lower limit for EDR Relative Transmit Power

```
BT:EDR:TXP:REL:LIM:LOW:DATA?
> -4.00
```

2.6.8 EDR Differential Phase Encoding

[:SENSe]:BT:EDR:DPHase[:STATe] OFF|ON|0|1

EDR Differential Phase Encoding

Function

This command sets the EDR Differential Phase Encoding measurement settings to On/Off.

Command

```
[:SENSe]:BT:EDR:DPHase[:STATe]
```

Parameter

<switch>	EDR Differential Phase Encoding measurement On/Off
OFF|0	Off (Default)
ON|1	On

Example of Use

To set the EDR Differential Phase Encoding measurement On/Off setting.

```
BT:EDR:DPH ON
```

[:SENSe]:BT:EDR:DPHase[:STATe]?

EDR Differential Phase Encoding Query

Function

This command queries the EDR Differential Phase Encoding measurement On/Off status.

Query

```
[:SENSe]:BT:EDR:DPHase[:STATe]?
```

Response

```
<switch>
```

Parameter

<switch>	EDR Differential Phase Encoding measurement On/Off
0	Off
1	On

Example of Use

To query the EDR Differential Phase Encoding measurement On/Off status.

```
BT:EDR:DPH?
> 1
```

[:SENSe]:BT:EDR:DPHase:AVERage[:STATe] OFF|ON|0|1

EDR Differential Phase Encoding Storage Mode

Function

This command sets the storage mode of EDR Differential Phase Encoding measurement.

Command

```
[:SENSe]:BT:EDR:DPHase:AVERage[:STATe] <switch>
```

Parameter

`<switch>`		Storage mode of EDR Differential Phase Encoding measurement
	`OFF|0`	Off (Default)
	`ON|1`	Average

Example of Use

To set the storage mode of EDR Differential Phase Encoding measurement

```
BT:EDR:DPH:AVER OFF
```

[:SENSe]:BT:EDR:DPHase:AVERage[:STATe]?

EDR Differential Phase Encoding Storage Mode Query

Function

This command queries the storage mode of EDR Differential Phase Encoding measurement.

Query

```
[:SENSe]:BT:EDR:DPHase:AVERage[:STATe]?
```

Response

```
<switch>
```

Parameter

`<switch>`		Storage mode of EDR Differential Phase Encoding measurement
	`0`	Off
	`1`	Average

Example of Use

To query the storage mode of EDR Differential Phase Encoding measurement.

```
BT:EDR:DPH:AVER?
> 0
```

[:SENSe]:BT:EDR:DPHase:AVERage:COUNt <integer>

EDR Differential Phase Encoding Storage Count

Function

This command sets the storage count of EDR Differential Phase Encoding measurement.

Command

```
[:SENSe]:BT:EDR:DPHase:AVERage:COUNt <integer>
```

Parameter

<integer>		Storage count of EDR Differential Phase Encoding measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None
	Default	10

Example of Use

To set the storage count of EDR Differential Phase Encoding measurement

```
BT:EDR:DPH:AVER:COUN 10
```

[:SENSe]:BT:EDR:DPHase:AVERage:COUNt?

EDR Differential Phase Encoding Storage Count Query

Function

This command queries the storage count of EDR Differential Phase Encoding measurement.

Query

```
[:SENSe]:BT:EDR:DPHase:AVERage:COUNt?
```

Response

```
<integer>
```

Parameter

`<integer>`		Storage count of EDR Differential Phase Encoding measurement
	Range	Minimum value, 2 Maximum value, the smaller value of the two: "200" or "the biggest n which is n × Burst Interval ≤ 2000 ms".
	Resolution	1
	Suffix code	None

Example of Use

To query the storage count of EDR Differential Phase Encoding measurement.

```
BT:EDR:DPH:AVER:COUN?
> 10
```

[:SENSe]:BT:EDR:DPHase:LIMit[:UPPer]:PER <real>

PER Limit

Function

This command sets the upper limit for PER.

Command

```
[:SENSe]:BT:EDR:DPHase:LIMit[:UPPer]:PER <real>
```

Parameter

<integer>		Upper limit for PER
	Range	0.0 to 100.0
	Resolution	0.1
	Suffix code	%
	Default	1.0

Example of Use

To set the upper limit for PER.

```
BT:EDR:DPH:LIM:PER 1.0
```

[:SENSe]:BT:EDR:DPHase:LIMit[:UPPer]:PER?

PER Limit Query

Function

This command queries the upper limit for PER.

Query

```
[:SENSe]:BT:EDR:DPHase:LIMit[:UPPer]:PER?
```

Response

```
<real>
```

Parameter

<real>		Upper limit for PER
	Range	0.0 to 100.0
	Resolution	0.1
		Value is returned in % units.

Example of Use

To query the upper limit for PER.

```
BT:EDR:DPH:LIM:PER?
> 1.0
```

Chapter 3 SCPI Status Register

This chapter describes the SCPI commands and the Status register for querying application statuses.

3.1 Querying Measurement Status

:STATus:ERRor?

Measurement Status Query

Function

This command queries the measurement status.

Query

```
:STATus:ERRor?
```

Response

```
<status>
```

Parameter

`<status>` Measurement status

Value = bit0 + bit1 + bit2 + bit3 + bit4 + bit5 + bit6 + bit7 + bit8 + bit9 + bit10 + bit11 + bit12 + bit13 + bit14 + bit15

bit0 : 2^0 = 1	No measurement
bit1 : 2^1 = 2	Level Over
bit2 : 2^2 = 4	Signal abnormal
bit3 : 2^3 = 8	(Not used)
bit4 : 2^4 = 16	(Not used)
bit5 : 2^5 = 32	(Not used)
bit6 : 2^6 = 64	(Not used)
bit7 : 2^7 = 128	(Not used)
bit8 : 2^8 = 256	(Not used)
bit9 : 2^9 = 512	(Not used)
bit10 : 2^{10} = 1024	(Not used)
bit11 : 2^{11} = 2048	(Not used)
bit12 : 2^{12} = 4096	(Not used)
bit13 : 2^{13} = 8192	(Not used)
bit14 : 2^{14} = 16384	(Not used)
bit15 : 2^{15} = 32768	(Not used)

Range 0 to 255

Details

0 is returned at normal termination.

Example of Use

To query the measurement status.

```
:STAT:ERR?
> 0
```

3.2 STATus:QUEStionable Register

Figure 3.2-1, Table 3.2-1, Figure 3.2-2, and Table 3.2-2 show the layer structure of the QUEStionable Status register.

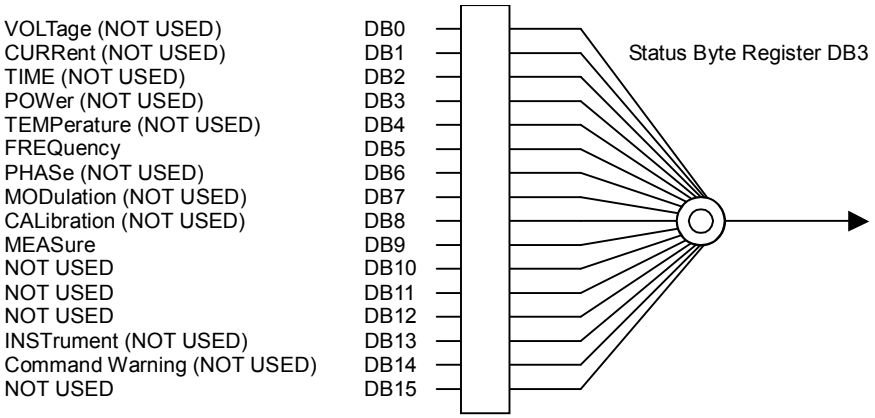

Figure 3.2-1 QUEStionable Status Register

Table 3.2-1 Bit Definition of QUEStionable Status Register

Bit	Definition
DB5	Reference Clock Unlock
DB9	QUEStionable Measure Register Summary

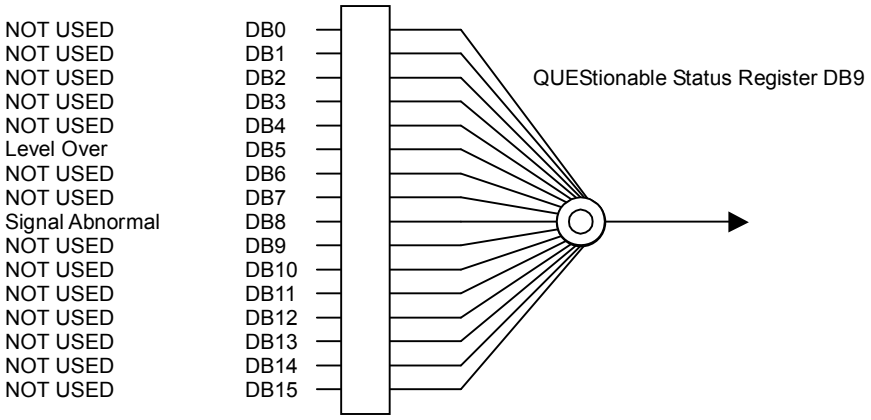

Figure 3.2-2 QUEStionable Measure Register

Table 3.2-2 Bit Definition of QUEStionable Measure Register

Bit	Definition
DB5	Level Over
DB8	Signal Abnormal

Table 3.2-3 lists device messages for the QUEStionable Status Register.

Table 3.2-3 Device Messages for QUEStionable Status Register

Function	Device Message
Questionable Status Register Event	:STATus:QUEStionable[:EVENt]?
Questionable Status Register Condition	:STATus:QUEStionable:CONDition?
Questionable Status Register Enable	:STATus:QUEStionable:ENABle <integer>
	:STATus:QUEStionable:ENABle?
Questionable Status Register Negative Transition	:STATus:QUEStionable:NTRansition <integer>
	:STATus:QUEStionable:NTRansition?
Questionable Status Register Positive Transition	:STATus:QUEStionable:PTRansition <integer>
	:STATus:QUEStionable:PTRansition?
Questionable Measure Register Event	:STATus:QUEStionable:MEASure[:EVENt]?
Questionable Measure Register Condition	:STATus:QUEStionable:MEASure:CONDition?
Questionable Measure Register Enable	:STATus:QUEStionable:MEASure:ENABle <integer>
	:STATus:QUEStionable:MEASure:ENABle?
Questionable Measure Register Negative Transition	:STATus:QUEStionable:MEASure:NTRansition <integer>
	:STATus:QUEStionable:MEASure:NTRansition?
Questionable Measure Register Positive Transition	:STATus:QUEStionable:MEASure:PTRansition <integer>
	:STATus:QUEStionable:MEASure:PTRansition?

:STATus:QUEStionable[:EVENt]?

Questionable Status Register Event

Function

This command queries the event register of the QUEStionable Status Register.

Query

```
:STATus:QUEStionable[:EVENt]?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit sum of event register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the event register content of the QUEStionable Status Register.

```
:STAT:QUES?
> 0
```

:STATus:QUEStionable:CONDition?

Questionable Status Register Condition

Function

This command queries the condition register of the QUEStionable Status Register.

Query

```
:STATus:QUEStionable:CONDition?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit sum of condition register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the condition register of the QUEStionable Status Register.

```
:STAT:QUES:COND?
> 0
```

:STATus:QUEStionable:ENABle <integer>

Questionable Status Register Enable

Function

This command sets the event enable register of the QUEStionable status register.

Command

```
:STATus:QUEStionable:ENABle <integer>
```

Parameter

<integer>		Bit sum of event enable register
	Resolution	1
	Range	0 to 65535

Example of Use

To set the event enable register of the QUEStionable status register to 16.

```
:STAT:QUES:ENAB 16
```

:STATus:QUEStionable:ENABle?

Questionable Status Register Enable Query

Function

This command queries the event enable register of the QUEStionable Status Register.

Query

```
:STATus:QUEStionable:ENABle?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of event enable register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the event enable register of the QUEStionable Status Register.

```
:STAT:QUES:ENAB?
> 16
```

:STATus:QUEStionable:NTRansition <integer>

Questionable Status Register Negative Transition

Function

This command sets the transition filter (negative transition) of the QUEStionable Status Register.

Command

```
:STATus:QUEStionable:NTRansition <integer>
```

Parameter

<integer>		Bit sum of transition filter (negative transition)
	Resolution	1
	Range	0 to 65535

Example of Use

To set the transition filter (negative transition) of the QUEStionable Status Register to 16.

```
:STAT:QUES:NTR 16
```

:STATus:QUEStionable:NTRansition?

Questionable Status Register Negative Transition Query

Function

This command queries the transition filter (negative transition) of the QUEStionable Status Register.

Query

```
:STATus:QUEStionable:NTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of transition filter (negative transition)
	Resolution	1
	Range	0 to 65535

Example of Use

To query the transition filter (negative transition) of the QUEStionable Status Register.

```
:STAT:QUES:NTR?
> 16
```

:STATus:QUEStionable:PTRansition <integer>

Questionable Status Register Positive Transition

Function

This command sets the transition filter (positive transition) of the QUEStionable Status Register.

Command

```
:STATus:QUEStionable:PTRansition <integer>
```

Parameter

<integer>	Bit sum of transition filter (positive transition)
Resolution	1
Range	0 to 65535

Example of Use

To set the transition filter (positive transition) of the QUEStionable Status Register to 16.

```
:STAT:QUES:PTR 16
```

:STATus:QUEStionable:PTRansition?

Questionable Status Register Positive Transition Query

Function

This command queries the transition filter (positive transition) of the QUEStionable Status Register.

Query

```
:STATus:QUEStionable:PTRansition?
```

Response

```
<integer>
```

Parameter

<integer>	Bit sum of transition filter (positive transition)
Resolution	1
Range	0 to 65535

Example of Use

To query the content of the event register of the QUEStionable Measure register.

```
:STAT:QUES:PTR?
> 16
```

:STATus:QUEStionable:MEASure[:EVENt]?

Questionable Measure Register Event

Function

This command queries the event register of the QUEStionable Measure Register.

Query

```
:STATus:QUEStionable:MEASure[:EVENt]?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of event register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the event register content of the QUEStionable Measure Register.

```
:STAT:QUES:MEAS?
> 0
```

:STATus:QUEStionable:MEASure:CONDition?

Questionable Measure Register Condition

Function

This command queries the condition register of the QUEStionable Measure Register.

Query

```
:STATus:QUEStionable:MEASure:CONDition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of condition register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the content of the condition register of QUEStionable Measure register.

```
STAT:QUES:MEAS:COND?
> 0
```

:STATus:QUEStionable:MEASure:ENABle <integer>

Questionable Measure Register Enable

Function

This command sets the event enable register of the QUEStionable Measure Register.

Command

```
:STATus:QUEStionable:MEASure:ENABle <integer>
```

Parameter

<integer>		Bit sum of event enable register
	Resolution	1
	Range	0 to 65535

Example of Use

To set the event enable register of the QUEStionable Measure Register to 16.

```
:STAT:QUES:MEAS:ENAB 16
```

:STATus:QUEStionable:MEASure:ENABle?

Questionable Measure Register Enable Query

Function

This command queries the event enable register of the QUEStionable Measure Register.

Query

```
:STATus:QUEStionable:MEASure:ENABle?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of event enable register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the event enable register of the QUEStionable Measure Register.

```
:STAT:QUES:MEAS:ENAB?
> 16
```

:STATus:QUEStionable:MEASure:NTRansition <integer>

Questionable Measure Register Negative Transition

Function

This command sets the transition filter (negative transition) of the QUEStionable Measure Register.

Command

```
:STATus:QUEStionable:MEASure:NTRansition <integer>
```

Parameter

<integer>	Bit sum of transition filter (negative transition)
Resolution	1
Range	0 to 65535

Example of Use

To set the transition filter (negative transition) of the QUEStionable Measure Register to 16.

```
:STAT:QUES:MEAS:NTR 16
```

:STATus:QUEStionable:MEASure:NTRansition?

Questionable Measure Register Negative Transition Query

Function

This command queries the transition filter (negative transition) of the QUEStionable Measure Register.

Query

```
:STATus:QUEStionable:MEASure:NTRansition?
```

Response

```
<integer>
```

Parameter

<integer>	Bit sum of transition filter (negative transition)
Resolution	1
Range	0 to 65535

Example of Use

To query the transition filter (negative transition) of the QUEStionable Measure Register.

```
:STAT:QUES:MEAS:NTR?
> 16
```

:STATus:QUEStionable:MEASure:PTRansition <integer>

Questionable Measure Register Positive Transition

Function

This command sets the transition filter (positive transition) of the QUEStionable Measure Register.

Command

```
:STATus:QUEStionable:MEASure:PTRansition <integer>
```

Parameter

<integer>	Bit sum of transition filter (positive transition)
Resolution	1
Range	0 to 65535

Example of Use

To set the transition filter (positive transition) of the QUEStionable Measure Register to 16.

```
:STAT:QUES:MEAS:PTR 16
```

:STATus:QUEStionable:MEASure:PTRansition?

Questionable Measure Register Positive Transition Query

Function

This command queries the transition filter (positive transition) of the QUEStionable Measure Register.

Query

```
:STATus:QUEStionable:MEASure:PTRansition?
```

Response

```
<integer>
```

Parameter

<integer>	Bit sum of transition filter (positive transition)
Resolution	1
Range	0 to 65535

Example of Use

To query the transition filter (positive transition) of the QUEStionable Measure Register.

```
:STAT:QUES:MEAS:PTR?
> 16
```

3.3 STATus:OPERation Register

Figure 3.3-1 and Table 3.3-1 show the layer structure of the OPERation Status Register.

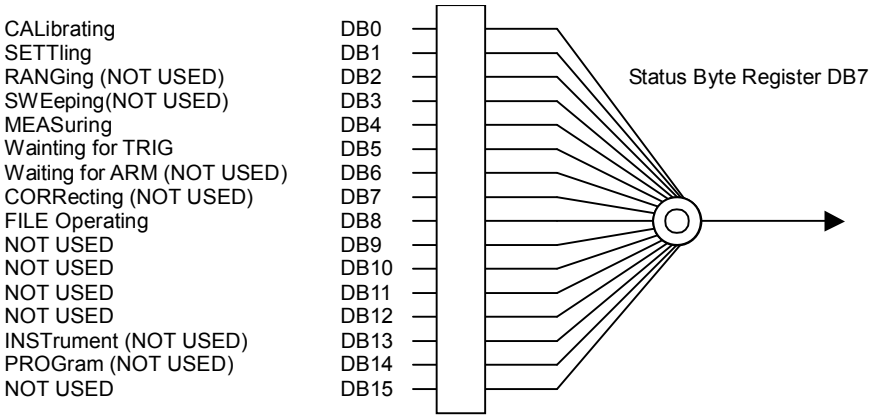

Figure 3.3-1 OPERation Status Register

Table 3.3-1 Definition for OPERation Status Register

Bit	Definition
DB0	Executing calibration
DB1	Warm Up message is being displayed.
DB4	Performing measurement (including trigger signal waiting status; always 1 during Continuous measurement)
DB5	Waiting for trigger signal
DB8	Operating on file

Table 3.3-2 lists device messages for the OPERation Status Register.

Table 3.3-2 Device Messages for OPERation Status Register

Function	Device Message
Operation Status Register Event	`:STATus:OPERation[:EVENt]?`
Operation Status Register Condition	`:STATus:OPERation:CONDition?`
Operation Status Register Enable	`:STATus:OPERation:ENABle <integer>`
	`:STATus:OPERation:ENABle?`
Operation Status Register Negative Transition	`:STATus:OPERation:NTRansition <integer>`
	`:STATus:OPERation:NTRansition?`
Operation Status Register Positive Transition	`:STATus:OPERation:PTRansition <integer>`
	`:STATus:OPERation:PTRansition?`

:STATus:OPERation[:EVENt]?

Operation Status Register Event

Function

This command queries the content of the event enable register of the OPERation status register.

Query

```
:STATus:OPERation[:EVENt]?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit sum of event register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the content of the event register of the OPERation status register.

```
:STAT:OPER?
> 0
```

:STATus:OPERation:CONDition?

Operation Status Register Condition

Function

This command queries the content of the condition register of the OPERation status register.

Query

```
:STATus:OPERation:CONDition?
```

Response

```
<integer>
```

Parameter

`<integer>`		Bit sum of condition register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the content of the condition register of the OPERation status register.

```
:STAT:OPER:COND?
> 0
```

:STATus:OPERation:ENABle <integer>

Operation Status Register Enable

Function

This command sets the event enable register of the OPERation status register.

Command

```
:STATus:OPERation:ENABle <integer>
```

Parameter

<integer>		Bit sum of event enable register
	Resolution	1
	Range	0 to 65535

Example of Use

To set the event enable register of the OPERation status register to 16.

```
:STAT:OPER:ENAB 16
```

:STATus:OPERation:ENABle?

Operation Status Register Enable Query

Function

This command queries the event enable register of the OPERation status register.

Query

```
:STATus:OPERation:ENABle?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of event enable register
	Resolution	1
	Range	0 to 65535

Example of Use

To query the event enable register of the OPERation status register.

```
:STAT:OPER:ENAB?
> 16
```

:STATus:OPERation:NTRansition <integer>

Operation Status Register Negative Transition

Function

This command sets the transition filter (negative transition) of the OPERation status register.

Command

```
:STATus:OPERation:NTRansition <integer>
```

Parameter

<integer>		Bit sum of transition filter (negative transition)
	Resolution	1
	Range	0 to 65535

Example of Use

To set the transition filter (negative transition) of the OPERation status register to 16.

```
:STAT:OPER:NTR 16
```

:STATus:OPERation:NTRansition?

Operation Status Register Negative Transition Query

Function

This command queries the transition filter (negative transition) of the OPERation status register.

Query

```
:STATus:OPERation:NTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of transition filter (negative transition)
	Resolution	1
	Range	0 to 65535

Example of Use

This function queries the transition filter (negative transition) of the OPERation status register.

```
:STAT:OPER:NTR?
> 16
```

:STATus:OPERation:PTRansition <integer>

Operation Status Register Positive Transition

Function

This command sets the transition filter (positive transition) of the OPERation status register.

Command

```
:STATus:OPERation:PTRansition <integer>
```

Parameter

<integer>		Bit sum of transition filter (positive transition)
	Resolution	1
	Range	0 to 65535

Example of Use

To set the transition filter (positive transition) of the OPERation status register to 16.

```
:STAT:OPER:PTR 16
```

:STATus:OPERation:PTRansition?

Operation Status Register Positive Transition Query

Function

This command queries the transition filter (positive transition) of the OPERation status register.

Query

```
:STATus:OPERation:PTRansition?
```

Response

```
<integer>
```

Parameter

<integer>		Bit sum of transition filter (positive transition)
	Resolution	1
	Range	0 to 65535

Example of Use

To query the transition filter (positive transition) of the OPERation status register.

```
:STAT:OPER:PTR?
> 16
```