SCPI Command Reference, Volume 2

Agilent Technologies
ESG Vector Signal Generator

This guide applies to the following signal generator model:

E4438C ESG Vector Signal Generator

Due to our continuing efforts to improve our products through firmware and hardware revisions, signal generator design and operation may vary from descriptions in this guide. We recommend that you use the latest revision of this guide to ensure you have up-to-date product information. Compare the print date of this guide (see bottom of page) with the latest revision, which can be downloaded from the following website:

www.agilent.com/find/esg

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6 Bit Error Rate Test (BERT) Commands

This chapter provides SCPI description for subsystems dedicated to BERT testing for the ESG Vector Signal Generator. This chapter contains the following sections:

Calculate Subsystem–Option UN7 and 300 (:CALCulate:BERT)

:BTS:LOOPback:EDGE:ETCH:F43:COMParator:CRITeria:ERATe

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:EDGE:ETCH:F43:COMParator:CRITeria:
ERATe <val>
:CALCulate:BERT:BTS:LOOPback:EDGE:ETCH:F43:COMParator:CRITeria:ERATe?
```

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 0.0–1.0

Key Entry Error Rate

Remarks N/A

:BTS:LOOPback:EDGE:ETCH:F43:COMParator:CRITeria[:SELect]

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:EDGE:ETCH:F43:COMParator:
CRITeria[:SELect] ERATe|NOLimit
:CALCulate:BERT:BTS:LOOPback:EDGE:ETCH:F43:COMParator:CRITeria[:SELect]?
```

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe	This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.
NOLimit	This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:COMParator:CRITeria:ERATe

Supported All with Option 300

`:CALCulate:BERT:BTS:LOOPback:EDGE:MCS5:COMParator:CRITeria:ERATe` <val>
`:CALCulate:BERT:BTS:LOOPback:EDGE:MCS5:COMParator:CRITeria:ERATe?`

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 0.0–1.0

Key Entry **Error Rate**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:COMParator:CRITeria[:SELect]

Supported All with Option 300

`:CALCulate:BERT:BTS:LOOPback:EDGE:MCS5:COMParator:`
`CRITeria[:SELect] ERATe`|NOLimit
`:CALCulate:BERT:BTS:LOOPback:EDGE:MCS5:COMParator:CRITeria[:SELect]?`

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe — This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.

NOLimit — This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:COMParator:CRITeria:ERATe

Supported All with Option 300

`:CALCulate:BERT:BTS:LOOPback:EDGE:MCS9:COMParator:CRITeria:ERATe` <val>
`:CALCulate:BERT:BTS:LOOPback:EDGE:MCS9:COMParator:CRITeria:ERATe?`

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 0.0–1.0

Key Entry **Error Rate**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:COMParator:CRITeria[:SELect]

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:EDGE:MCS9:COMParator:
CRITeria[:SELect] ERATe|NOLimit
:CALCulate:BERT:BTS:LOOPback:EDGE:MCS9:COMParator:CRITeria[:SELect]?
```

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.

NOLimit This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:COMParator:CRITeria:ERATe

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:EDGE:UNCoded:COMParator:CRITeria:
ERATe <val>
:CALCulate:BERT:BTS:LOOPback:EDGE:UNCoded:COMParator:CRITeria:ERATe?
```

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +2.00000000E-002

Range 0.0–1.0

Key Entry **Error Rate**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:COMParator:CRITeria[:SELect]

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:EDGE:UNCoded:COMParator:
```

`CRITeria[:SELect] ERATe|NOLimit`
`:CALCulate:BERT:BTS:LOOPback:EDGE:Uncoded:COMParator:CRITeria[:SELect]?`

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe — This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.

NOLimit — This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:GSM:CS1:COMParator:CRITeria:ERATe

Supported All with Option 300

`:CALCulate:BERT:BTS:LOOPback:GSM:CS1:COMParator:CRITeria:`
`ERATe` <val>
`:CALCulate:BERT:BTS:LOOPback:GSM:CS1:COMParator:CRITeria:ERATe?`

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 0.0–1.0

Key Entry **Error Rate**

Remarks N/A

:BTS:LOOPback:GSM:CS1:COMParator:CRITeria[:SELect]

Supported All with Option 300

`:CALCulate:BERT:BTS:LOOPback:GSM:CS1:COMParator:`
`CRITeria[:SELect] ERATe|NOLimit`
`:CALCulate:BERT:BTS:LOOPback:GSM:CS1:COMParator:CRITeria[:SELect]?`

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe — This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.

NOLimit — This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:GSM:CS4:COMParator:CRITeria:ERATe

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:CS4:COMParator:CRITeria:
ERATe <val>
:CALCulate:BERT:BTS:LOOPback:GSM:CS4:COMParator:CRITeria:ERATe?
```

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 0.0–1.0

Key Entry **Error Rate**

Remarks N/A

:BTS:LOOPback:GSM:CS4:COMParator:CRITeria[:SELect]

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:CS4:COMParator:
CRITeria[:SELect] ERATe|NOLimit
:CALCulate:BERT:BTS:LOOPback:GSM:CS4:COMParator:CRITeria[:SELect]?
```

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe — This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.

NOLimit — This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:GSM:MCS1:COMParator:CRITeria:ERATe

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:MCS1:COMParator:CRITeria:
ERATe <val>
:CALCulate:BERT:BTS:LOOPback:GSM:MCS1:COMParator:CRITeria:ERATe?
```

This command sets the error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 0.0–1.0

Key Entry **Error Rate**

Remarks N/A

:BTS:LOOPback:GSM:MCS1:COMParator:CRITeria[:SELect]

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:MCS1:COMParator:
CRITeria[:SELect] ERATe|NOLimit
:CALCulate:BERT:BTS:LOOPback:GSM:MCS1:COMParator:CRITeria[:SELect]?
```

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

ERATe	This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the error rate.
NOLimit	This choice disables the pass/fail indication.

***RST** ERAT

Key Entry **Error Rate** **No Limits**

Remarks N/A

:BTS:LOOPback:GSM:COMParator:CRITeria:CIB

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria:CIB <val>
:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria:CIB?
```

This command sets the Class II residual bit error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +4.00000000E-003

Range 0.0–1.0

Key Entry **Class Ib RBER**

Remarks N/A

:BTS:LOOPback:GSM:COMParator:CRITeria:CII

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria:CII <val>
:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria:CII?
```

This command sets the Class Ib residual bit error rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +2.00000000E-002

Range 0.0–1.0

Key Entry **Class II RBER**

Remarks N/A

:BTS:LOOPback:GSM:COMParator:CRITeria:FERasure

Supported All with Option 300

```
:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria:FERasure <val>
:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria:FERasure?
```

This command sets the frame erasure rate pass/fail threshold value.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-003

Range 0.0–1.0

Key Entry **Frame Erasure**

Remarks N/A

:BTS:LOOPback:GSM:COMParator:CRITeria[:SELect]

Supported All with Option 300

`:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria[:SELect] FERasure|`
CLIB|CLII|ANY|NOLimit
`:CALCulate:BERT:BTS:LOOPback:GSM:COMParator:CRITeria[:SELect]?`

This command determines which of the following pass/fail limit (comparator) criteria is applied to the measurement.

FERasure	This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for frame erasure ratio.
CLIB	This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the number of Class Ib errors detected in the measurement.
CLII	This choice reports, on the front panel display of the signal generator, the pass or fail status compared to the specified threshold for the number of Class II errors detected in the measurement.
ANY	This choice reports, on the front panel display of the signal generator, the pass or fail status compared to all of the specified comparator criteria.
NOLimit	This choice disables the pass/fail indication.

***RST** NOLimit

Key Entry **Frame Erasure** **Class Ib RBER** **Class II RBER** **Exceeds Any Limit** **No Limits**

Remarks N/A

[:BASeband]:COMParator:MODE

Supported All with Option UN7

`:CALCulate:BERT[:BASeband]:COMParator:MODE CEND|FHOLd`
`:CALCulate:BERT[:BASeband]:COMParator:MODE?`

This command selects the pass/fail judgement mode of the comparator function.

CEND	This choice selects the cycle end mode and each BER measurement result is compared with the limit value to make a pass/fail assessment at the end of a cycle.
FHOLd	This choice selects the fail hold mode and only one fail judgement is allowed during that BER measurement loop. Any failed judgement after the first failure is ignored.

***RST** CEND

Key Entry **Cycle End** **Fail Hold**

Remarks For automated tests, the results of this command can be accessed from the rear panel BER TEST OUT pin on the AUX I/O connector. For more information about the rear panel AUX I/O connector pin configuration, refer to the User's Guide.

[:BASeband]:COMParator:THReshold

Supported All with Option UN7

```
:CALCulate:BERT[:BASeband]:COMParator:THReshold <val>
:CALCulate:BERT[:BASeband]:COMParator:THReshold?
```

This command specifies the threshold value for the pass/fail judgement function.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-002

Range 0.0000001–1.00

Key Entry **Pass / Fail Limits**

Remarks This command is valid only while the BER pass/fail command is active. Refer to "[:BASeband]:COMParator[:STATe]" on page 352.

[:BASeband]:COMParator[:STATe]

Supported All with Option UN7

```
:CALCulate:BERT[:BASeband]:COMParator[:STATe] ON|OFF|1|0
:CALCulate:BERT[:BASeband]:COMParator[:STATe]?
```

This command enables or disables the pass/fail judgement function.

***RST** 0

Key Entry **Pass / Fail Off On**

Remarks N/A

[:BASeband]:DISPlay:MODE:

Supported All with Option UN7

```
:CALCulate:BERT[:BASeband]:DISPlay:MODE PERCent|SCIentific
:CALCulate:BERT[:BASeband]:DISPlay:MODE?
```

This command selects the display mode for the bit error rate (BER) measurement.

PERCent This choice reports measurement results as a percentage.

SCIentific	This choice reports measurement results in scientific notation.
***RST**	PERC
Key Entry	**BER Display % Exp**
Remarks	N/A

[:BASeband]:DISPlay:UPDate:

Supported All with Option UN7

```
:CALCulate:BERT[:BASeband]:DISPlay:UPDate CEND|CONT
:CALCulate:BERT[:BASeband]:DISPlay:UPDate?
```

This command selects the display update mode during bit error rate (BER) measurements.

CEND	This choice selects the cycle end mode and the previous BER measurement result is displayed during the current measurement cycle.
CONT	This choice selects the continuous mode and the display shows the real-time intermediate results during that BER measurement cycle.
***RST**	CONT
Key Entry	**Update Display Cycle End Cont**
Remarks	N/A

Data Subsystem–Option UN7 and 300 (:DATA)

:BERT:BTS:LOOPback:EDGE:ETCH:F43[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:EDGE:ETCH:F43[:DATA]? IEC|IEBC|DEFC|BCO|IER|IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

IEC	This choice provides the intermediate error count with the following range: <Integer> 0 to 1500000.
IEBC	This choice provides the intermediate non-erased bit error blocks with the following range: <Integer> 0 to 1500000.
DEFC	This choice provides the intermediate downlink error frame count with the following range: <Integer> 0 to 750000.
BCO	This choice provides the intermediate block or bit count with the following range: <Integer> 0 to 1500000 (block).
IER	This choice provides the intermediate error ratio with the following range: <Real> 0 to 1 (0 to 100%).
IABer	This choice provides the intermediate average BER within blocks that have errors. The range is as follows: <Real> 0 to 1.
ALL	This choice returns all intermediate values (IEC, IEBC, DEFC, BCO, IER, and IABer) at the same time.
TEC	This choice provides the total error count with the following range: <Integer> 0 to 1500000 (block).
TEBC	This choice provides the total non-erased bit error blocks count with the following range: <Integer> 0 to 1500000.
TDEFc	This choice provides the total downlink error frame count with the following range: <Integer> 0 to 65535.

TBCO	This choice provides the total block count with the following range: <Integer> 0 to 1500000 (block).
TER	This choice provides the total error ratio with the following range: <Real> 0 to 1 (0 to 100%).
TABer	This choice provides the total average BER within blocks that have errors. The range is as follows: <Real> 0 to 1.
TALL	This choice returns all total values (TEC, TEBC, TDEFc, TBCO, TER, TABer, JUDGe, STOP, and SCAuse) at the same time. If accidental TCH synchronization loss caused the measurement to stop, `TSLoss` is returned.
JUDGe	This choice provides the pass or fail string. If pass/fail criteria is NOLimit, `NONE` is returned.
STOP	This choice checks to see if the stop threshold is met and returns one of the following values: <Enumerated set> `TRUE FALSE`. When threshold to stop criteria is NONE, `FALSE` is returned.
SCAuse	This choice provides the stop cause by returning one of the following values: <Enumerated set> `NONE Ebit EBLock TSL`. If accidental TCH synchronization loss caused the measurement to stop, `TSL` is returned.
***RST**	N/A
Range	N/A
Key Entry	N/A
Remarks	N/A

:BERT:BTS:LOOPback:EDGE:MCS5[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:EDGE:MCS5[:DATA]? IEC|IEBC|DEFC|BCO|IER|IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information. ALL returns all intermediate values at the same time.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

For more information on the parameters, refer to page 354.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BERT:BTS:LOOPback:EDGE:MCS9[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:EDGE:MCS9[:DATA]? IEC|IEBC|DEFC|BCO|IER|IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information. ALL returns all intermediate values at the same time.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

For more information on the parameters, refer to page 354.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BERT:BTS:LOOPback:EDGE:UNCoded[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:EDGE:UNCoded[:DATA]? IEC|IEBC|DEFC|BCO|IER|IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information. ALL returns all intermediate values at the same time.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

For more information on the parameters, refer to page 354.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BERT:BTS:LOOPback:GSM[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:GSM[:DATA]? IBC|IIC|FEC|DFEC|FRC|IBBer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

`IBC|IIC|FEC|DEFC|FRC|IBBer|IIBer|FER` are intermediate values, so during the measurement, these variables are updated as well as the display information. `ALL` returns intermediate values at the same time.

At the end of the measurement, the final values are stored to: `TIBC|TIIC|TFEC|TDEFc|TFRC|TIBBer|TIIBer|TFER` variables. These variables and `JUDGe|JCAuse|STOP|SCAuse` are not updated until the next BER measurement is completed. `TALL` returns all of the total values at the same time.

IBC — This choice provides the intermediate class Ib error count with the following range: <Integer> 0 to 792000000.

IIC — This choice provides the intermediate class II error count with the following range: <Integer> 0 to 468000000.

FEC — This choice provides the intermediate frame erasure count with the following range: <Integer> 0 to 6000000.

DEFC — This choice provides the intermediate downlink error frame count with the following range: <Integer> 0 to 65535.

FRC — This choice provides the intermediate frame count with the following range: <Integer> 0 to 6000000.

IBBer — This choice provides the intermediate class Ib error ratio with the following range: <Real> 0 to 1 (0 to 100%).

IIBer — This choice provides the intermediate class II error ratio with the following range: <Real> 0 to 1 (0 to 100%).

FER — This choice provides the intermediate frame erasure ratio with the following range: <Real> 0 to 1 (0 to 100%).

ALL	This choice provides all intermediate values (IBC, IIC, FEC, DEFC, FRC, IBBer, IIBer, FER) at the same time.
TIBC	This choice provides the total class Ib bit error count with the following range: <Integer> 0 to 792000000.
TIIC	This choice provides the total class II bit error count with the following range: <Integer> 0 to 468000000.
TFEC	This choice provides the total frame erasure count with the following range: <Integer> 0 to 6000000.
TDEFc	This choice provides the total downlink error frame count with the following range: <Integer> 0 to 65535.
TFRC	This choice provides the total frame count with the following range: <Integer> 0 to 6000000.
TIBBer	This choice provides the total class Ib error ratio with the following range: <Real> 0 to 1 (0 to 100%).
TIIBer	This choice provides the total class II error ratio with the following range: <Real> 0 to 1 (0 to 100%).
TFER	This choice provides the total frame erasure ratio with the following range: <Real> 0 to 1 (0 to 100%).
TALL	This choice returns all total values (TIBC TIIC TFEC TDEFc TFRC TIBBer TIIBer TFER JUDGe JCAuse STOP SCAuse) at the same time. If accidental TCH synchronization loss caused the measurement to stop, `TSLoss` is returned.
JUDGe	This choice provides the comparator result (TEST OUT) with the following values: <Enumerated set> FAIL PASS NONE. If pass/fail criteria is NOLimit, `NONE` is returned
JCAuse	This choice provides which limit was met to cause the comparator result by returning one of the following values: <Enumerated set> NOLimit FER CIB CII
STOP	This choice checks to see if the stop threshold is met and returns one of the following values: <Enumerated set> `TRUE` `FALSE`. When threshold to stop criteria is NONE, `FALSE` is returned.
SCAuse	This choice provides the stop cause by returning one of the following values: <Enumerated set> NONE FE CIB CII TSLoss. If accidental TCH synchronization loss caused the measurement to stop, `TSLoss` is returned.
***RST**	N/A
Range	N/A

Key Entry N/A

Remarks N/A

:BERT:BTS:LOOPback:GSM:CS1[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:GSM:CS1[:DATA]? IEC|IEBC|DEFC|BCO|IER|IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information. ALL returns all intermediate values at the same time.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

For more information on the parameters, refer to page 354.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BERT:BTS:LOOPback:GSM:CS4[:DATA]

Supported All with Option 300

`:DATA:BERT:BTS:LOOPback:GSM:CS4[:DATA]? IEC|IEBC|DEFC|BCO|IER|IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse`

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information. ALL returns all intermediate values at the same time.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

For more information on the parameters, refer to page 354.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BERT:BTS:LOOPback:GSM:MCS1[:DATA]

Supported All with Option 300

```
:DATA:BERT:BTS:LOOPback:GSM:MCS1[:DATA]? IEC|IEBC|DEFC|BCO|IER|
IABer|ALL|TEC|TEBC|TDEFc|TBCO|TER|TABer|TALL|JUDGe|STOP|SCAuse
```

This data query returns the measurement result value for each variable.

IEC|IEBC|DEFC|BCO|IER|IABer are intermediate values, so during the measurement, these variables are updated as well as the display information. ALL returns all intermediate values at the same time.

At the end of the measurement, the final values are stored to: TEC|TEBC|TDEFc|TBCO|TER|TABer variables. These variables and JUDGe|STOP|SCAuse are not updated until the next BER measurement is completed.

For more information on the parameters, refer to page 354.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BERT:AUXout

Supported All with Option UN7

```
:DATA:BERT[:BASeband]:AUXout ERRor|REFerence|PN9
:DATA:BERT[:BASeband]:AUXout?
```

This command selects a pre-defined output signal configuration for pins on the AUX I/O rear panel connector. Refer to Table 6-1 for the output pin configuration and signal type.

ERRor This choice selects the bit error rate (BER) information output.

REFerence This choice selects the reference information output.

PN9 This choice selects a pseudo-random data output.

Table 6-1 AUX I/O pin configurations

Pin#	ERRor	REFerence	PN9
1	BER Meas End	BER Data Out	PN9 Data

Table 6-1 AUX I/O pin configurations

Pin#	ERRor	REFerence	PN9
4	BER Sync Loss	Sync Start	No signal
20	BER Test Out	BER Clock Out	PN9 Clock
21	BER Error Out	BER Error Out	BER Error Out
22	BER No Data	Reference Data	No signal

BER Meas End — A signal at this pin indicates the status of the bit error rate (BER) measurements. BER measurements are being executed when the signal is high.

BER Sync loss — A low signal at this pin indicates that the synchronization is lost. This signal is valid only when the signal at the BER Meas End pin is high.

BER Test Out — A signal at this pin indicates the test result of the bit error rate measurements. The result is guaranteed at the falling edge of the BER Meas End signal. The result is pass when the signal is low; the result is fail when the signal is high. The signal is also high when the pass/fail judgment is set to off.

BER Error Out — A signal at this pin indicates the number of the error bits. The output is normally low. One pulse signal (pulse width matches the input clock) indicates one error bit. Pulses for the error bits of one measurement cycle are not synchronized with the rear panel connector BER CLK IN signal and are output when the BER Meas End signal is high.

BER No Data — A low signal at this pin indicates the no data status. The no data status is reported when there has been no clock inputs for more than 3 seconds or there has been no data change for more than 200 bits. This signal is valid only when the signal of the BER Meas End output signal is high.

BER Clock Out — The BER Clock Out signal monitors the rear panel BER CLK IN signal after polarity control, delay control, and gate control (if applicable) have taken place.

BER Data Out — This is a data stream for the bit error rate measurements. The clock signal is used to trigger the reading of the data.

Sync Start — This signal indicates the timing when the PN generator starts to generate a PN sequence. This signal can also indicate if the hardware is triggering a PN synchronization or making a measurement when the signal is high.

PN9 Clock — This signal is the clock signal for the PN9 Data. The falling edge of the PN9 Clock indicates the center of PN9 Data. The PN9 Clock rate is 37.5Mbits per second.

PN9 Data	This signal is PN9 data for the self-loopback test.
Reference Data	This signal uses the pseudo-random bit stream as the reference signal.
***RST**	ERRor
Key Entry	**Error Out** **Reference Out** **PN9 Out**
Remarks	N/A

[:DATA]

Supported All with Option UN7

`:DATA[:DATA]? BEC|BITC|BER|ALL|TBEC|TBIT|TBER|JUDGe`

This query returns the data measurement for the selected variable.

BEC	This choice provides the intermediate bit error count result.
BITC	This choice provides the intermediate bit count result.
BER	This choice provides the intermediate bit error rate result.
ALL	This choice provides the values of the bit error count, bit error rate, and bit count in the following format: <bit count>, <error count>, <bit error rate>
TBEC	This choice provides the total bit error count at the end of each cycle.
TBIT	This choice provides the total bit count at the end of each cycle.
TBER	This choice provides the total bit error rate at the end of each cycle.
JUDGe	This choice provides the pass or fail string.
***RST**	N/A
Range	N/A
Key Entry	N/A
Remarks	N/A

Input Subsystem–Option UN7 (:INPut:BERT[: BASeband])

:CGATe:DELay:CLOCk

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CGATe:DELay:CLOCk <val>
:INPut:BERT[:BASeband]:CGATe:DELay:CLOCk?
```

This command sets the number of delay bits for the signal applied to the BER GATE IN rear panel connector.

One bit corresponds with one bit of delay for the input clock.

***RST** 1

Range 1–16384

Key Entry **Gate Clk Delay**

Remarks The gate delay mode must be set to CLOCk for this command to work. Refer to ":CGATe:DELay:MODE". Also, the gate and gate delay must be enabled for this command to work. Refer to ":CGATe[:STATe]" on page 365 and ":CGATe:DELay[:STATe]" on page 364.

:CGATe:DELay:MODE

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CGATe:DELay:MODE TIME|CLOCk
:INPut:BERT[:BASeband]:CGATe:DELay:MODE:?
```

This command selects the operating mode of the gate delay.

TIME — This choice selects the time mode which makes it possible to set the gate time delay in absolute time and the resolution.

CLOCk — This choice selects the clock mode which enables you to set the gate delay by a set number of bits.

***RST** TIME

Key Entry **Gate Mode Time Clk**

Remarks The gate state and gate delay state must be enabled for this command to work. Refer to ":CGATe[:STATe]" on page 365 and ":CGATe:DELay[:STATe]" on page 364.

:CGATe:DELay:TIME

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CGATe:DELay:TIME <val><unit>
:INPut:BERT[:BASeband]:CGATe:DELay:TIME?
```

This command sets the delay time of the gate signal. The gate delay time must be the multiple of the minimum resolution value and if not, the delay resolution is automatically rounded to the nearest multiplied value of the gate time delay value.

The variable <val> is expressed in units of seconds (s), milliseconds (ms), microseconds (µs), and nanoseconds (ns).

***RST** +2.67000000E–008

Range 2.67 ns–1.0 s

Key Entry **Gate Time Delay**

Remarks **Gate Delay Off On** must be set to **On** and **Gate Mode Time Clk** set to **Time** for this command to work. Refer to ":CGATe:DELay[:STATe]" on page 364 and ":CGATe:DELay:MODE" on page 363.

To set the resolution, refer to ":CLOCk:DELAy:RESolution" on page 365.

:CGATe:DELay[:STATe]

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CGATe:DELay[:STATe] ON|OFF|1|0
:INPut:BERT[:BASeband]:CGATe:DELay[:STATe]?
```

This command enables or disables the operating state of the gate delay.

ON This choice enables the gate delay adjustment function.

OFF This choice disables the gate delay adjustment function.

***RST** 0

Key Entry **Gate Delay Off On**

Remarks The gate must be enabled for this command to work. To enable the gate, refer to ":CGATe[:STATe]" on page 365.

:CGATe:POLarity

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CGATe:POLarity POSitive|NEGative
```

```
:INPut:BERT[:BASeband]:CGATe:POLarity?
```

This command sets the input polarity of the gate signal supplied to the BER GATE IN rear panel connector.

POS	With this choice, the signal is valid when the gate signal is high.
NEG	With this choice, the signal is valid when the gate signal is low.
***RST**	POS
Key Entry	**Gate Polarity Neg Pos**
Remarks	N/A

:CGATe[:STATe]

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CGATe[:STATe] ON|OFF|1|0
:INPut:BERT[:BASeband]:CGATe[:STATe]?
```

This command sets the operating state of the clock gate function.

ON	This choice enables the clock gate function.
OFF	This choice disables the clock gate function.
***RST**	0
Key Entry	**Gate Off On**
Remarks	N/A

:CLOCk:DELAy:RESolution

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CLOCk:DELay:RESolution <val><unit>
:INPut:BERT[:BASeband]:CLOCk:DELay:RESolution?
```

This command sets the resolution of the clock delay. The minimum resolution is 13.3 ns and it corresponds to 1/75 MHz. The 75 MHz is the sampling clock for the BERT board. The input value must be a multiple of the minimum resolution. If the set value is not a multiple value, the delay resolution is automatically rounded to the nearest multiple value with reference to the set value.

***RST**	+1.33000000E–008
Range	13.3ns–80µs
Key Entry	**Resolution**

Remarks The clock delay or the gate delay must be enabled for this command to work. Refer to ":CLOCk:DELAy[:STATe]" on page 366 and ":CGATe:DELay[:STATe]" on page 364. A change in the resolution value can affect both the clock and the gate delay time automatically.

:CLOCk:DELAy:TIME

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CLOCk:DELay:TIME <val><unit>
:INPut:BERT[:BASeband]:CLOCk:DELay:TIME?
```

This command sets the clock signal delay time.

The variable <val> is expressed in units of seconds (s), milliseconds (ms), microseconds (µs), and nanoseconds (ns).

***RST** +2.67000000E–008

Range 26.7ns–999.9967600ms

Key Entry **Clock Time Delay**

Remarks The clock delay must be enabled for this command to work. Refer to ":CLOCk:DELAy[:STATe]" on page 366.

:CLOCk:DELAy[:STATe]

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CLOCk:DELay[:STATe] ON|OFF|1|0
:INPut:BERT[:BASeband]:CLOCk:DELay[:STATe]?
```

This command sets the operating state of the clock delay function.

ON This choice enables the clock delay adjustment.

OFF This choice disables the clock delay adjustment.

***RST** 0

Key Entry **Clock Delay Off On**

Remarks N/A

:CLOCk:POLarity

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:CLOCk:POLarity POSitive|NEGative
```

`:INPut:BERT[:BASeband]:CLOCk:POLarity?`

This command sets the input polarity of the clock signal supplied to the BER CLK IN rear panel connector.

POS	With this choice, the signal is valid when the clock signal is high.
NEG	With this choice, the signal is valid when the clock signal is low.
***RST**	POS
Key Entry	**Clock Polarity Neg Pos**
Remarks	N/A

:DATA:POLarity

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:DATA:POLarity POSitive|NEGative
:INPut:BERT[:BASeband]:DATA:POLarity?
```

This command sets the input polarity of the data signal supplied to the BER DATA IN rear panel connector.

POS	With this choice, the signal is valid when the data signal is high.
NEG	With this choice, the signal is valid when the data signal is low.
***RST**	POS
Key Entry	**Data Polarity Neg Pos**
Remarks	N/A

:IMPedance

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:IMPedance OHM_75|HIGH
:INPut:BERT[:BASeband]:IMPedance?
```

This command sets the input termination mode of the BER CLK IN, BER DATA IN, and BER GATE IN rear panel connectors.

***RST**	HIGH
Key Entry	**Impedance 75 Ohm High**
Remarks	N/A

:THReshold

Supported All with Option UN7

```
:INPut:BERT[:BASeband]:THReshold V0_7|V1_4|V1_65|V2_5
:INPut:BERT[:BASeband]:THReshold?
```

This command sets the threshold voltage level of the BER CLK IN, BER DATA IN, and BER GATE IN rear panel connectors.

V0_7	This choice selects 0.7 volts (normal TTL) as the turn-on voltage for the input signal.
V1_4	This choice selects 1.4 volts (Schmit TTL) as the turn-on voltage for the input signal.
V1_65	This choice selects 1.65 volts (CMOS 3.3 volts is the maximum operating range) as the turn-on voltage for the input signal.
V2_5	This choice selects 2.5 volts (CMOS 5 volts is the maximum operating range) as the turn-on voltage for the input signal.

***RST** V1_4

Key Entry **0.7V** **1.4V** **1.65V** **2.5V**

Remarks N/A

Measure Subsystem–Option 300 (:MEASure[:SCALar]:BERT:BTS:LOOPback)

:EDGE:MCS5[:SENSitivity]

Supported All with Option 300

```
:MEASure[:SCALAR]:BERT:BTS:LOOPback:EDGE:MCS5[:SENSitivity]?
<high amplitude><unit>,<low amplitude><unit>,<pass amplitude><unit>,
<error sensitivity limit>,<block count>,<initial block count>
```

This query returns either PASS or FAIL and the result for the measured sensitivity level. When this command is executed before the signal generator is synchronized with the BTS, the message "`Fail, –999.00`" is displayed.

There are two other status errors that may be returned; `SERR` or `DERR`.

`SERR` This indicates that RF synchronization is lost during search and the search is aborted.

`DERR` This indicates that a downlink error occurred during search and the search is aborted.

When these errors are returned, the sensitivity search returns a value of –1.0.

This command can be used in both the BER% measurement or the sensitivity search mode. After this command is executed, the measurement mode is in the sensitivity search mode.

***RST** N/A

Range N/A

Key Entry N/A

Remarks The trigger source must be set to IMMediate to execute this command. If the trigger source selection is BUS, error "-214 Trigger deadlock" is generated and no data is returned.

:EDGE:MCS9[:SENSitivity]

Supported All with Option 300

```
:MEASure[:SCALAR]:BERT:BTS:LOOPback:EDGE:MCS9[:SENSitivity]?
<high amplitude><unit>,<low amplitude><unit>,<pass amplitude><unit>,
<error sensitivity limit>,block count>,<initial block count>
```

This query returns either PASS or FAIL and the result for the measured sensitivity level. When this command is executed before the signal generator is synchronized with the BTS, the message "`Fail,`

–999.00" is displayed.

There are two other status errors that may be returned; SERR or DERR.

SERR — This indicates that RF synchronization is lost during search and the search is aborted.

DERR — This indicates that a downlink error occurred during search and the search is aborted.

When these errors are returned, the sensitivity search returns a value of –1.0.

This command can be used in both the BER% measurement or the sensitivity search mode. After this command is executed, the measurement mode is in the sensitivity search mode.

***RST** N/A

Range N/A

Key Entry N/A

Remarks The trigger source must be set to IMMediate to execute this command. If the trigger source selection is BUS, error "-214 Trigger deadlock" is generated and no data is returned.

:EDGE:UNCoded[:SENSitivity]

Supported All with Option 300

```
:MEASure[:SCALAR]:BERT:BTS:LOOPback:EDGE:UNCoded[:SENSitivity]?
<high amplitude><unit>,<low amplitude><unit>,<pass amplitude><unit>,
<error sensitivity limit>,<block count>,<initial block count>
```

This query returns either PASS or FAIL and the result for the measured sensitivity level. When this command is executed before the signal generator is synchronized with the BTS, the message "Fail, –999.00" is displayed.

There are two other status errors that may be returned; SERR or DERR.

SERR — This indicates that RF synchronization is lost during search and the search is aborted.

DERR — This indicates that a downlink error occurred during search and the search is aborted.

When these errors are returned, the sensitivity search returns a value of –1.0.

This command can be used in both the BER% measurement or the sensitivity search mode. After this command is executed, the measurement mode is in the sensitivity search mode.

***RST** N/A

Range N/A

Key Entry N/A

Remarks The trigger source must be set to IMMediate to execute this command. If the trigger source selection is BUS, error "-214 Trigger deadlock" is generated and no data is returned.

:GSM[:SENSitivity]

Supported All with Option 300

```
:MEASure[:SCALAR]:BERT:BTS:LOOPback:GSM[:SENSitivity]?
<high amplitude><unit>,<low amplitude><unit>,<pass amplitude><unit>,
<error sensitivity limit>,<block count>,<initial block count>
```

This query returns either PASS or FAIL and the result for the measured sensitivity level. When this command is executed before the signal generator is synchronized with the BTS, the message "`Fail, –999.00`" is displayed.

There are two other status errors that may be returned; `SERR` or `DERR`.

`SERR` This indicates that RF synchronization is lost during search and the search is aborted.

`DERR` This indicates that a downlink error occurred during search and the search is aborted.

When these errors are returned, the sensitivity search returns a value of –1.0.

This command can be used in both the BER% measurement or the sensitivity search mode. After this command is executed, the measurement mode is in the sensitivity search mode.

***RST** N/A

Range N/A

Key Entry N/A

Remarks The trigger source must be set to IMMediate to execute this command. If the trigger source selection is BUS, error "-214 Trigger deadlock" is generated and no data is returned.

Sense Subsystem–Options UN7 and 300 ([:SOURce]:SENSe:BERT)

:BTS:LOOPback:EDGE:ETCH:F43:BLOCk:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:BLOCk:COUNt <val>
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:BLOCk:COUNt?
```

This command specifies the total number of blocks to be measured.

***RST** +600

Range 1–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:ETCH:F43:CONTain

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:CONTain ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:CONTain?
```

This command enables or disables the BER measurement for ETCH/F43 channels in addition to the BLER measurement.

ON With this choice, data bits of the specified number of blocks are measured.

OFF This choice disables the measurement.

***RST** 1

Key Entry **BER Mode Off On**

Remarks N/A

:BTS:LOOPback:EDGE:ETCH:F43:STOP:CRITeria:EBLock

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:STOP:CRITeria:EBLock <val>
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:STOP:CRITeria:EBLock?
```

This command specifies the number of erased blocks that contain bit errors for the threshold limit to stop the measurement.

***RST** +60

Range 0–1500000

Key Entry **Block Erasure**

Remarks N/A

:BTS:LOOPback:EDGE:ETCH:F43:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:STOP:CRITeria[:SELect] EBLock|
NONE
:SENSe:BERT:BTS:LOOPback:EDGE:ETCH:F43:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBLock This choice enables you to specify the number of erased blocks.

NONE This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Block Erasure** **No Thresholds**

Remarks N/A

:BTS:LOOPback:EDGE:FTRigger:EXTernal:DELay

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:FTRigger:EXTernal:DELay <val>
:SENSe:BERT:BTS:LOOPback:EDGE:FTRigger:EXTernal:DELay?
```

This command specifies the delay time of the external frame trigger. This delay is the offset from the beginning of timeslot 0.

The variable <val> is expressed in symbols with a resolution of 0.25.

***RST** +0.00000000E+000

Range –1250 to 1250

Key Entry **Ext Frame Trigger Delay**

Remarks Refer to the *User's Guide* for information on how to calculate the delay value.

:BTS:LOOPback:EDGE:FTRigger:EXTernal:POLarity

Supported All with Option 300

:SENSe:BERT:BTS:LOOPback:EDGE:FTRigger:EXTernal:POLarity POSitive|NEGative
:SENSe:BERT:BTS:LOOPback:EDGE:FTRigger:EXTernal:POLarity?

This command specifies the external frame trigger polarity.

POS This selects the reference edge to be the rising edge of the pulse.

NEG This selects the reference edge to be the falling edge of the pulse.

***RST** POS

Key Entry **External Frame Trigger Polarity Neg Pos**

Remarks N/A

:BTS:LOOPback:EDGE:FTRigger[SELect]

Supported All with Option 300

:SENSe:BERT:BTS:LOOPback:EDGE:FTRigger[:SELect] INTernal|EXTernal
:SENSe:BERT:BTS:LOOPback:EDGE:FTRigger[:SELect]?

This command specifies the frame trigger source to be used by the baseband generator.

INTernal This choice enables internal triggering.

EXTernal This choice enables the triggering by an externally applied signal at the rear panel connector.

***RST** INT

Key Entry Frame Trigger Source Int Ext

Remarks To enable this command, the frame trigger synchronization source must be PDCH. Refer to ":BTS:LOOPback:EDGE:SYNC[:SOURce]" on page 384.

:BTS:LOOPback:EDGE:MCS5:BLOCk:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:BLOCk:COUNt <value>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:BLOCk:COUNt?
```

This command specifies the total number of blocks to be measured.

***RST** +600

Range 1–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:CONTain

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:CONTain ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:CONTain?
```

This command enables or disables the BER measurement for MCS-5 channels in addition to the BLER measurement.

ON With this choice, data bits of the specified number of blocks are measured.

OFF This choice disables the measurement.

***RST** 1

Key Entry **BER Mode Off On**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:ESENsitivity

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:ESENsitivity <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:ESENsitivity?
```

This command specifies the target error rate when performing a sensitivity search.

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E–001

Range 1E–6 to 1

Key Entry **Target BER %**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:HAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:HAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:HAMPlitude?
```

This command specifies the maximum amplitude level for performing a sensitivity search. The high amplitude value can not be lower than the low amplitude value.

The variable <val> is expressed in units of dBm.

***RST** –9.00000000E+001

Range –136 to 20

Key Entry **High Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:LAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:LAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:LAMPlitude?
```

This command specifies the minimum amplitude level for performing a sensitivity search. The low amplitude value can not be higher than the high amplitude value.

The variable <val> is expressed in units of dBm.

***RST** –1.10000000E+002

Range –136.0 to 20

Key Entry **Low Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:PAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:PAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:PAMPlitude?
```

This command specifies the threshold amplitude for pass/fail comparator results when performing a sensitivity search.

The variable <val> is expressed in units of dBm.

***RST** –1.01000000E+002

Range –136.0 to 20

Key Entry **Pass Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:SBLock:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:SBLock:COUNt <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:SBLock:COUNt?
```

This command specifies the total number of blocks for each measurement during the sensitivity search.

***RST** +1200

Range 1–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:SBLock:INITial

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:SBLock:INITial <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:SBLock:INITial?
```

This command specifies the total number of blocks to be measured at the beginning of each measurement during the sensitivity search.

***RST** +600

Range 1–1500000

Key Entry **Initial Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:STOP:CRITeria:EBLock

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:STOP:CRITeria:EBLock <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:STOP:CRITeria:EBLock?
```

This command specifies the number of erased blocks that contain bit errors for the threshold limit to stop the measurement.

***RST** +60

Range 0–1500000

Key Entry **Block Erasure**

Remarks N/A

:BTS:LOOPback:EDGE:MCS5:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:STOP:CRITeria[:SELect] EBLock|NONE
:SENSe:BERT:BTS:LOOPback:EDGE:MCS5:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBLock This choice enables you to specify the number of erased blocks or bit errors.

NONE This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Block Erasure** **No Thresholds**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:BLOCk:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:BLOCk:COUNt <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:BLOCk:COUNt?
```

This command specifies the total number of blocks to be measured.

Only even values can be entered. If odd numbers are entered, the value increments by one to make it an even value.

***RST** +600

Range 2–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:CONTain

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:CONTain ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:CONTain?
```

This command enables or disables the BER measurement for MCS-9 channels in addition to the

BLER measurement.

ON	With this choice, data bits of the specified number of blocks are measured.
OFF	This choice disables the measurement.

***RST** 1

Key Entry **BER Mode Off On**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:ESENsitivity

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:ESENsitivity <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:ESENsitivity?
```

The variable <val> is a decimal notation representing a percentage value.

***RST** +1.00000000E-001

Range 1E–6 to 1

Key Entry **Target BER %**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:HAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:HAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:HAMPlitude?
```

This command specifies the maximum amplitude level for performing a sensitivity search. The high amplitude value can not be lower than the low amplitude value.

The variable <val> is expressed in units of dBm.

***RST** –8.00000000E+001

Range –136.0 to 20

Key Entry **High Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:LAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:LAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:LAMPlitude?
```

This command specifies the minimum amplitude level for performing a sensitivity search. The low amplitude value can not be higher than the high amplitude value.

The variable <val> is expressed in units of dBm.

***RST** –1.00000000E+002

Range –136.0 to 20

Key Entry **Low Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:PAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:PAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:PAMPlitude?
```

This command specifies the threshold amplitude for pass/fail comparator results when performing a sensitivity search.

The variable <val> is expressed in units of dBm.

***RST** –9.15000000E+001

Range –136.0 to 20

Key Entry **Pass Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:SBLock:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:SBLock:COUNt <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:SBLock:COUNt?
```

This command specifies the total number of blocks to be measured at each measurement during the sensitivity search.

Only even values can be entered. If odd numbers are entered, the value increments by one to make it an even value.

***RST** +1200

Range 2–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:SBLock:INITial

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:SBLock:INITial <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:SBLock:INITial?
```

This command specifies the total number of blocks to be measured at the beginning of each measurement during the sensitivity search.

Only even values can be entered. If odd numbers are entered, the value increments by one to make it an even value.

***RST** +600

Range 2–1500000

Key Entry **Initial Block Count**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:STOP:CRITeria:EBLock

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:STOP:CRITeria:EBLock <val>
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:STOP:CRITeria:EBLock?
```

This command specifies the number of erased blocks that contain bit errors for the threshold limit to stop the measurement.

***RST** +60

Range 0–1500000

Key Entry **Block Erasure**

Remarks N/A

:BTS:LOOPback:EDGE:MCS9:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:STOP:CRITeria[:SELect] EBLock|NONE
:SENSe:BERT:BTS:LOOPback:EDGE:MCS9:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the

measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBLock	This choice enables you to specify the number of non-erased blocks that contain bit errors.
NONE	This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Block Erasure** **No Thresholds**

Remarks N/A

:BTS:LOOPback:EDGE:MEASurement:STOP

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MEASurement:STOP
```

This command immediately stops any current measurement and releases the PRBS synchronization. After the synchronization is released, a new PRBS synchronization is attempted.

***RST** N/A

Range N/A

Key Entry **Stop Measurement**

Remarks N/A

:BTS:LOOPback:EDGE:MEASurement:TSLot

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MEASurement:TSLot 0|1|2|3|4|5|6|7
:SENSe:BERT:BTS:LOOPback:EDGE:MEASurement:TSLot?
```

This command specifies the timeslot number in which the measurement is to be performed.

The following EDGE timeslot configuration conditions will generate error message "-221 Settings Conflict":

- If the specified timeslot does not have one of the BLER/BER measurable channel types, which are uncoded, E-TCH/43.2NT, MCS-9, and MCS-5.
- If the specified timeslot type is not set to "NORMal."

***RST** +0

Key Entry **Timeslot**

Remarks This command couples the selected timeslot number with the EDGE configuration.

Changing the timeslot configuration with EDGE on will not generate an error message if EDGE BERT is off and the timeslot is off.

:BTS:LOOPback:EDGE:MEASurement[:MODE]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:MEASurement[:MODE] BLER|SSEarch
:SENSe:BERT:BTS:LOOPback:EDGE:MEASurement[:MODE]?
```

This command specifies the measurement mode.

BLER This choice specifies BLER% as the measurement mode.

SSEarch This choice specifies sensitivity search as the measurement mode.

***RST** BLER

Key Entry **Measurement Mode BLER% Search**

Remarks If the BLER% measurement is already running, this command will abort the BLER% measurement.

:BTS:LOOPback:EDGE:SINVert

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:SINVert ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:EDGE:SINVert?
```

This command sets the operating state of the spectrum inverting function.

ON This choice specifies that the EDGE demodulator invert the spectrum of the received RF signal.

OFF This choice leaves the spectrum of the received RF signal unaffected.

***RST** 1

Key Entry **Spectrum Invert Off On**

Remarks N/A

:BTS:LOOPback:EDGE:SYNC:AGAin

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:SYNC:AGAin
```

This command adjusts the input signal level of the internal demodulator. Use this adjustment when switching from BCH synchronization to PDCH synchronization.

***RST** N/A

Range N/A

Key Entry **Adjust Gain**

Remarks This command is ignored unless the status displays "Waiting for PDCH."

:BTS:LOOPback:EDGE:SYNC:RF

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:SYNC:RF
```

This command releases the current synchronization with the BTS and immediately starts to try to synchronize to either a BCH or PDCH signal as selected with the `SYNC[:SOURce]` command. This command will also stop the current measurement.

***RST** N/A

Range N/A

Key Entry **Synchronize to BCH/PDCH**

Remarks N/A

:BTS:LOOPback:EDGE:SYNC[:SOURce]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:SYNC[:SOURce] BCH|PDCH
:SENSe:BERT:BTS:LOOPback:EDGE:SYNC[:SOURce]?
```

This command specifies the synchronization source from the BTS under test.

BCH This choice specifies the traffic channel as the synchronization source.

PDCH This choice specifies the packet data channel as the synchronization source.

***RST** BCH

Key Entry **Sync Source BCH PDCH**

Remarks N/A

:BTS:LOOPback:EDGE:TRIGger[:SOURce]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:TRIGger[:SOURce] IMMediate|KEY|EXT|BUS
:SENSe:BERT:BTS:LOOPback:EDGE:TRIGger[:SOURce]?
```

This command determines the trigger source for the EDGE loopback bit error rate measurement.

IMMediate — This choice begins the measurement directly after synchronization has been achieved.

KEY — This choice begins the measurement when the front panel **Trigger** key is pressed, provided that synchronization has been achieved. If synchronization has not occurred, the trigger is ignored.

EXT — This choice begins the measurement as soon as a trigger signal is applied to the rear panel connector provided that synchronization has been achieved. If synchronization has not occurred, the trigger is ignored.

BUS — This choice enables GPIB triggering using the *TRG or GET command or LAN and RS-232 triggering using the *TRG command.

***RST** KEY

Key Entry **Immediate** **Trigger Key** **Ext** **Bus**

Remarks An inherent variable delay will always exist when starting a measurement because the measurement must await the start of the next speech frame after the trigger. The delay can vary between 0 and 23 ms (5 frames) depending on where the trigger falls within the TDMA multiframe.

A trigger is ignored unless the EDGE loopback operating state is turned on.

:BTS:LOOPback:EDGE:ULINk:OFFSet

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:ULINk:OFFSet <val>
:SENSe:BERT:BTS:LOOPback:EDGE:ULINk:OFFSet?
```

This command specifies, in symbols, the amount of compensation for the insertion of equipment such as fading simulators into the uplink RF path.

***RST** +0

Range –500 to 10000

Key Entry **Uplink Timing Advance**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:BIT:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:BIT:COUNt <value>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:BIT:COUNt?
```

This command specifies the total number of bits to be measured for the uncoded channel.

***RST** +139200

Range 1392–2147483647

Key Entry **Bit Count**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:ESENsitivity

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:ESENsitivity <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:ESENsitivity?
```

This command specifies the target error rate when performing a sensitivity search.

***RST** +2.00000000E-002

Range 1E–6 to 1

Key Entry **Target BER %**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:HAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:HAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:HAMPlitude?
```

This command specifies the maximum amplitude level for performing a sensitivity search. The high amplitude value can not be lower than the low amplitude value.

The variable <val> is expressed in units of dBm.

***RST** –8.50000000E+001

Range –136.0 to 20

Key Entry **High Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:LAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:LAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:LAMPlitude?
```

This command specifies the minimum amplitude level for performing a sensitivity search. The low amplitude value can not be higher than the high amplitude value.

The variable <val> is expressed in units of dBm.

***RST** –1.05000000E+002

Range –136.0 to 20

Key Entry **Low Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:PAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:PAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:PAMPlitude?
```

This command specifies the threshold amplitude for pass/fail comparator results when performing a sensitivity search.

The variable <val> is expressed in units of dBm.

***RST** –9.50000000E+001

Range –136.0 to 20

Key Entry **Pass Amplitude**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:SBIT:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:SBIT:COUNt <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:SBIT:COUNt?
```

This command specifies the total number of bits to be measured during a sensitivity search for the uncoded channel.

***RST** +139200

Range 1392–2147483647

Key Entry **Bit Count**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:SBIT:INITial

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:SBIT:INITial <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:SBIT:INITial?
```

This command specifies the total number of bits to be measured at the beginning of the sensitivity search for the uncoded channel.

***RST** +13920

Range 1392–2147483647

Key Entry **Initial Bit Count**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:STOP:CRITeria:EBIT

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:STOP:CRITeria:EBIT <val>
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:STOP:CRITeria:EBIT?
```

This command specifies the number of block erasures or bit errors, depending on the measurement channel type, for the threshold limit to stop the measurement.

***RST** +2784

Range 0–2147483647

Key Entry **Error Count**

Remarks N/A

:BTS:LOOPback:EDGE:UNCoded:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:STOP:CRITeria[:SELect] EBIT|NONE
:SENSe:BERT:BTS:LOOPback:EDGE:UNCoded:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBIT This choice enables you to specify the number of bit errors.

NONE This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Error Count** **No Thresholds**

Remarks N/A

:BTS:LOOPback:EDGE[:STATe]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:EDGE[:STATe] ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:EDGE[:STATe]?
```

This command sets the operating state of the EDGE loopback bit error rate (BER) function.

ON This choice enables the EDGE loopback BER function.

OFF This choice disables the EDGE loopback BER function.

***RST** 0

Key Entry **EDGE BERT Off On**

Remarks Although you can configure the measurement parameters while the operating state is off, any command triggers sent will be ignored until the operating state is turned on.

:BTS:LOOPback:GSM:CS1:BLOCk:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS1:BLOCk:COUNt <val>
:SENSe:BERT:BTS:LOOPback:GSM:CS1:BLOCk:COUNt?
```

This command specifies the total number of blocks to be measured.

***RST** +600

Range 1–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:GSM:CS1:CONTain

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS1:CONTain ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:GSM:CS1:CONTain?
```

This command enables or disables the BER measurement for CS-1 channels in addition to the BLER measurement.

ON With this choice, data bits of the specified number of blocks are measured.

OFF This choice disables the BER measurement.

***RST** 1

Key Entry **BER Mode Off On**

Remarks N/A

:BTS:LOOPback:GSM:CS1:STOP:CRITeria:EBLock

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS1:STOP:CRITeria:EBLock <val>
:SENSe:BERT:BTS:LOOPback:GSM:CS1:STOP:CRITeria:EBLock?
```

This command specifies the number of erased blocks that contain bit errors for the threshold limit to stop the measurement.

***RST** +60

Range 0–1500000

Key Entry **Block Erasure**

Remarks N/A

:BTS:LOOPback:GSM:CS1:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS1:STOP:CRITeria[:SELect] EBLock|NONE
:SENSe:BERT:BTS:LOOPback:GSM:CS1:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBLock This choice enables you to specify the number of erased blocks.

NONE — This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Block Erasure** **No Thresholds**

Remarks N/A

:BTS:LOOPback:GSM:CS4:BLOCk:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS4:BLOCk:COUNt <value>
:SENSe:BERT:BTS:LOOPback:GSM:CS4:BLOCk:COUNt?
```

This command specifies the total number of blocks to be measured.

***RST** +600

Range 1 to 1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:GSM:CS4:CONTain

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS4:CONTain ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:GSM:CS4:CONTain?
```

This command enables or disables the BER measurement for CS-4 channels in addition to the BLER measurement.

ON — With this choice, data bits of the specified number of blocks are measured.

OFF — This choice disables the BER measurement.

***RST** 1

Key Entry **BER Mode Off On**

Remarks N/A

:BTS:LOOPback:GSM:CS4:STOP:CRITeria:EBLock

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS4:STOP:CRITeria:EBLock <val>
:SENSe:BERT:BTS:LOOPback:GSM:CS4:STOP:CRITeria:EBLock?
```

This command specifies the threshold limit to stop the measurement which is the number of erased blocks that contain bit errors.

***RST** +60

Range 0–1500000

Key Entry **Block Erasure**

Remarks N/A

:BTS:LOOPback:GSM:CS4:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:CS4:STOP:CRITeria[:SELect] EBLock|NONE
:SENSe:BERT:BTS:LOOPback:GSM:CS4:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBLock This choice enables you to specify the number of erased blocks.

NONE This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Block Erasure** **No Thresholds**

Remarks N/A

:BTS:LOOPback:GSM:ESENsitivity

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:ESENsitivity <val>
:SENSe:BERT:BTS:LOOPback:GSM:ESENsitivity?
```

This command specifies the target error rate when performing a sensitivity search.

***RST** +2.00000000E-002

Range 1E–6 to 1

Key Entry **Target BER%**

Remarks N/A

:BTS:LOOPback:GSM:FRAMe:CIB

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:FRAMe:CIB?
```

This query returns the total number of Class Ib bits to be measured which are calculated from the total number of frames specified to be measured.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BTS:LOOPback:GSM:FRAMe:CII

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:FRAMe:CII?
```

This query returns the total number of Class II bits to be measured which are calculated from the total number of frames specified to be measured.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

:BTS:LOOPback:GSM:FRAMe:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:FRAMe:COUNt <val>
:SENSe:BERT:BTS:LOOPback:GSM:FRAMe:COUNt?
```

This command determines the length of the measurement specified by the total number of frames included in one measurement.

***RST** +100

Range 1–6000000

Key Entry **Frame Count**

Remarks N/A

:BTS:LOOPback:GSM:HAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:HAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:GSM:HAMPlitude?
```

This command specifies the maximum amplitude level for performing a sensitivity search.

The variable <val> is expressed in units of dBm.

***RST** –9.00000000E+001

Range –136.0 to 20

Key Entry **High Amplitude**

Remarks N/A

:BTS:LOOPback:GSM:LAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:LAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:GSM:LAMPlitude?
```

This command specifies the minimum amplitude level for performing a sensitivity search.

The variable <val> is expressed in units of dBm.

***RST** –1.15000000E+002

Range –136.0 to 20

Key Entry **Low Amplitude**

Remarks N/A

:BTS:LOOPback:GSM:MCS1:BLOCk:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:BLOCk:COUNt <val>
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:BLOCk:COUNt?
```

This command specifies the total number of blocks to be measured.

***RST** +600

Range 1–1500000

Key Entry **Block Count**

Remarks N/A

:BTS:LOOPback:GSM:MCS1:CONTain

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:CONTain ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:CONTain?
```

This command enables or disables the BER measurement for MCS-1 channels in addition to the BLER measurement.

ON With this choice, data bits of the specified number of blocks are measured.

OFF This choice disables the BER measurement.

***RST** 1

Key Entry **BER Mode Off On**

Remarks N/A

:BTS:LOOPback:GSM:MCS1:STOP:CRITeria:EBLock

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:STOP:CRITeria:EBLock <val>
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:STOP:CRITeria:EBLock?
```

This command specifies the number of erased blocks that contain bit errors for the threshold limit to stop the measurement.

***RST** +60

Range 0–1500000

Key Entry **Block Erasure**

Remarks N/A

:BTS:LOOPback:GSM:MCS1:STOP:CRITeria[:SELect]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:STOP:CRITeria[:SELect] EBLock|NONE
:SENSe:BERT:BTS:LOOPback:GSM:MCS1:STOP:CRITeria[:SELect]?
```

This command determines which of the following threshold criteria is used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

EBLock	This choice enables you to specify the number of erased blocks.
NONE	This choice disables the stop measurement threshold criteria function.
***RST**	NONE
Key Entry	**Block Erasure No Thresholds**
Remarks	N/A

:BTS:LOOPback:GSM:MEASurement:STOP

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MEASurement:STOP
```

This command stops any current measurement and releases the current PRBS synchronization. After the synchronization is released, a new PRBS synchronization is attempted.

***RST**	N/A
Range	N/A
Key Entry	**Stop Measurement**
Remarks	N/A

:BTS:LOOPback:GSM:MEASurement:TSLot

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MEASurement:TSLot 0|1|2|3|4|5|6|7
:SENSe:BERT:BTS:LOOPback:GSM:MEASurement:TSLot?
```

This command specifies the timeslot number in which the measurement is to be performed. This command couples the selected timeslot number with the GSM configuration.

The following GSM timeslot configuration conditions will generate error message “-221 Settings Conflict”:

- If the specified timeslot E field fails to designate either MPN9 or MPN15.
- If the specified timeslot is not set to “Normal.”

***RST**	+0
Key Entry	**Timeslot**
Remarks	Changing the timeslot configuration with GSM on will not generate error messages if GSM BERT is off and the timeslot is off.

:BTS:LOOPback:GSM:MEASurement[:MODE]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:MEASurement[:MODE] BER|SSEarch
:SENSe:BERT:BTS:LOOPback:GSM:MEASurement[:MODE]?
```

This command specifies the measurement mode.

BER This choice specifies BER% as the measurement mode.

SSEarch This choice specifies sensitivity search as the measurement mode.

***RST** BER

Key Entry **Measurement Mode BER% Search**

Remarks If the BER% measurement is already running, this command will abort the BER% measurement.

:BTS:LOOPback:GSM:PAMPlitude

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:PAMPlitude <val>
:SENSe:BERT:BTS:LOOPback:GSM:PAMPlitude?
```

This command specifies the threshold amplitude for pass/fail comparator results when performing a sensitivity search.

The variable <val> is expressed in units of dBm.

***RST** −1.04000000E+002

Range −136.0 to 20

Key Entry **Pass Amplitude**

Remarks N/A

:BTS:LOOPback:GSM:SFRame:COUNt

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:SFRame:COUNt <val>
:SENSe:BERT:BTS:LOOPback:GSM:SFRame:COUNt?
```

This command specifies the total number of frames to be measured for the final measurements during the sensitivity search.

***RST** +100

Range 1–6000000

Key Entry Frame Count

Remarks N/A

:BTS:LOOPback:GSM:SFRame:INITial

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:SFRame:INITial <val>
:SENSe:BERT:BTS:LOOPback:GSM:SFRame:INITial?
```

This command specifies the number of frames to be measured while sensitivity search is running rough searching to gain search speed. It is the first phase of sensitivity search.

***RST** +26

Range 1–6000000

Key Entry **Initial Frame Count**

Remarks N/A

:BTS:LOOPback:GSM:SINVert

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:SINVert ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:GSM:SINVert?
```

This command sets the operating state of the spectrum inverting function.

ON This choice specifies that the GSM demodulator invert the spectrum of the received RF signal.

OFF This choice leaves the spectrum of the received RF signal unaffected.

***RST** 1

Key Entry **Spectrum Invert Off On**

Remarks N/A

:BTS:LOOPback:GSM:STOP:CRITeria:CIB

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria:CIB <val>
:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria:CIB?
```

This command specifies the threshold number of Class Ib errors to stop the measurement.

***RST** 300

Range 0–1000000

Key Entry **Class Ib Bit Error**

Remarks Refer to ":BTS:LOOPback:GSM:STOP:CRITeria[:SELect]" on page 399 for information on the use of the file variables.

:BTS:LOOPback:GSM:STOP:CRITeria:CII

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria:CII <val>
:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria:CII?
```

This command specifies the threshold number of Class II errors to stop the measurement.

***RST** 300

Range 0–1000000

Key Entry **Class II Bit Error**

Remarks Refer to ":BTS:LOOPback:GSM:STOP:CRITeria[:SELect]" on page 399 for information on the use of the file variables.

:BTS:LOOPback:GSM:STOP:CRITeria:FERasure

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria:FERasure <val>
:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria:FERasure?
```

This command specifies the threshold number of erased frames to stop the measurement.

***RST** 120

Range 0–1000000

Key Entry **Frame Erasure**

Remarks Refer to ":BTS:LOOPback:GSM:STOP:CRITeria[:SELect]" for information on the use of the file variables.

:BTS:LOOPback:GSM:STOP:CRITeria[:SELect]

Supported All with Option 300

`:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria[:SELect] FERasure|CIB|CII|ANY|NONE`

`:SENSe:BERT:BTS:LOOPback:GSM:STOP:CRITeria[:SELect]?`

This command sets the threshold criteria used to prematurely stop the measurement prior to the normal measurement end. In each case, the measurement will terminate no later than 200 ms after the threshold is exceeded.

FERasure	This selection ends the measurement when the number of erased frames exceeds the specified threshold.
CIB	This selection ends the measurement when the number of Class Ib errors detected exceeds the specified threshold.
CII	This selection ends the measurement when the number of Class II errors detected exceeds the specified threshold.
ANY	This selection ends the measurement when any of the above stop measurement threshold criteria is exceeded.
NONE	This selection disables the stop measurement threshold criteria function, so that the measurement runs for the specified number of speech frames.

***RST** NONE

Key Entry **Frame Erasure** **Class Ib Bit Error** **Class II Bit Error** **Exceeds Any Thresholds** **No Thresholds**

Remarks N/A

:BTS:LOOPback:GSM:SYNC:RF

Supported All with Option 300

`:SENSe:BERT:BTS:LOOPback:GSM:SYNC:RF`

This command releases the current synchronization with the BTS and immediately starts to try to synchronize to either a BCH or TCH signal as selected with the `SYNC[:SOURce]` command. This command will also stop the current measurement.

***RST** N/A

Range N/A

Key Entry **Synchronize to BCH/TCH**

Remarks The test equipment can use a BCH signal from the BTS to determine the required transmit timeslot, frame and multiframe timing. The BCH signal is always transmitted in timeslot 0 and contains multiframe information. Use BCH when a

BCH subset is present
which contains SCH bursts with a properly coded T2 parameter.

Use TCH when providing a TCH/FS training sequence from the BTS. However, only one timeslot from the BTS can be active at a time and you must specify to the receiver which timeslot is being received since it has no absolute reference (unlike a BCH signal, which is always transmitted in timeslot 0).

:BTS:LOOPback:GSM:SYNC[:SOURce]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:SYNC[:SOURce] BCH|TCH
:SENSe:BERT:BTS:LOOPback:GSM:SYNC[:SOURce]?
```

This command specifies the synchronization source from the BTS under test.

BCH This choice specifies the broadcast channel as the synchronization source.

TCH This choice specifies the traffic channel as the synchronization source.

***RST** BCH

Key Entry **Sync Source BCH TCH**

Remarks N/A

:BTS:LOOPback:GSM:TRIGger[:SOURce]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:TRIGger[:SOURce] IMMediate|KEY|EXT|BUS
:SENSe:BERT:BTS:LOOPback:GSM:TRIGger[:SOURce]?
```

This command determines the trigger source for the GSM loopback bit error rate measurement.

IMMediate This choice begins the measurement directly after synchronization has been achieved.

KEY This choice begins the measurement when the front panel **Trigger** key is pressed, provided that synchronization has been achieved. If synchronization has not occurred, the trigger is ignored.

EXT This choice begins the measurement as soon as a trigger signal is applied to the rear panel connector provided that synchronization has been achieved. If synchronization has not occurred, the trigger is ignored.

BUS This choice enables GPIB triggering using the *TRG or GET command or LAN and RS-232 triggering using the *TRG command.

***RST** KEY

Key Entry **Immediate** **Trigger Key** **Ext** **Bus** **Aux**

Remarks An inherent variable delay will always exist when starting a measurement because the measurement must await the start of the next speech frame after the trigger. The delay can vary between 0 and 23 ms (5 frames) depending on where the trigger falls within the TDMA multiframe.

A trigger is ignored unless the GSM loopback operating state is turned on.

:BTS:LOOPback:GSM:ULINk:OFFSet

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM:ULINk:OFFSet <value>
:SENSe:BERT:BTS:LOOPback:GSM:ULINk:OFFSet?
```

This command specifies the amount of compensation for the insertion of equipment such as fading simulators into the uplink RF path.

***RST** +0

Range –500 to 10000

Key Entry **Uplink Timing Advance**

Remarks N/A

:BTS:LOOPback:GSM[:STATe]

Supported All with Option 300

```
:SENSe:BERT:BTS:LOOPback:GSM[:STATe] ON|OFF|1|0
:SENSe:BERT:BTS:LOOPback:GSM[:STATe]?
```

This command turns on and off the operating state of the GSM loopback bit error rate function. Although you can configure the measurement parameters while the operating state is off, any command triggers sent will be ignored until the operating state is turned on.

***RST** 0

Key Entry **GSM BERT Off On**

Remarks N/A

[:BASeband]:PRBS:FUNCtion:SPIGnore:DATA

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:PRBS:FUNCtion:SPIGnore:DATA ALL_0|ALL_1
:SENSe:BERT[:BASeband]:PRBS:FUNCtion:SPIGnore:DATA?
```

This command selects the bit parameter of the special pattern ignore function.

ALL_0 This choice ignores more than 80 bits of 0's when they are detected.

ALL_1 This choice ignores more than 80 bits of 1's when they are detected.

***RST** ALL_0

Key Entry **Spcl Pattern 0's 1's**

Remarks This command is valid only when the special pattern ignore function is on. Refer to "[:BASeband]:PRBS:FUNCtion:SPIGnore[:STATe]" on page 403.

[:BASeband]:PRBS:FUNCtion:SPIGnore[:STATe]

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:PRBS:FUNCtion:SPIGnore[:STATe] ON|OFF|1|0
:SENSe:BERT[:BASeband]:PRBS:FUNCtion:SPIGnore[:STATe]?
```

This command enables or disables the special pattern ignore function.

ON This choice detects more than 80 bits of 0's or 1's in the incoming bit stream and ignores these bits when making BER measurements. To select 0's or 1's refer to "[:BASeband]:PRBS:FUNCtion:SPIGnore:DATA" on page 402

OFF This choice disables the detect mode for the BER measurement.

***RST** 0

Key Entry **Spcl Pattern Ignore Off On**

Remarks N/A

[:BASeband]:PRBS[:DATA]

Supported All with Option 300

```
:SENSe:BERT[:BASeband]:PRBS[:DATA] PN9|PN11|PN15|PN20|PN23
:SENSe:BERT[:BASeband]:PRBS[:DATA]?
```

This command selects the incoming data pattern for making BER measurements.

PN9–PN23 These choices select an internally generated pseudo-random pattern for BER measurements.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23**

Remarks N/A

[:BASeband]:RSYNc:THReshold

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:RSYNc:THReshold <val>
:SENSe:BERT[:BASeband]:RSYNc:THReshold?
```

This command specifies the threshold level for the resynchronizing function.

***RST** 0.40

Range 0.05–0.40

Key Entry **Resync Limits**

Remarks This command is valid only when the BERT resynchronizing function is on. Refer to "[:BASeband]:RSYNc[:STATe]" on page 404.

[:BASeband]:RSYNc[:STATe]

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:RSYNc[:STATe] ON|OFF|1|0
:SENSe:BERT[:BASeband]:RSYNc[:STATe]?
```

This command sets the operating state of the resynchronization function.

ON This choice enables the resynchronization function.

OFF This choice disables the resynchronization function.

***RST** 1

Key Entry **BERT Resync Off On**

Remarks N/A

[:BASeband]:STATe

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:STATe ON|OFF|1|0
:SENSe:BERT[:BASeband]:STATe?
```

This command sets the operating state of the bit error rate test (BERT) measurement.

ON This choice enables the BERT measurement.

OFF This choice disables the BERT measurement.

***RST** 0

Key Entry **BERT Off On**

Remarks N/A

[:BASeband]:STOP:CRITeria:EBIT

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:STOP:CRITeria:EBIT <val>
:SENSe:BERT[:BASeband]:STOP:CRITeria:EBIT?
```

This command specifies the threshold limit to stop the measurement.

***RST** 100

Range 0–1000000000

Key Entry **Error Count**

Remarks When the stop mode criteria is set to EBIT, the signal generator monitors the error bits and when it exceeds the set value, the signal generator stops the current BER measurement and waits for the next trigger.

EBIT must be the selection for this command to work. To select EBIT refer to "[:BASeband]:STOP:CRITeria[:SELect]".

[:BASeband]:STOP:CRITeria[:SELect]

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:STOP:CRITeria[:SELect] EBIT|NONE
:SENSe:BERT[:BASeband]:STOP:CRITeria[:SELect]?
```

This command determines which threshold criteria is used to prematurely stop the measurement.

EBIT This choice enables a specified number of bit errors to prematurely stop the measurement.

NONE This choice disables the stop measurement threshold criteria function.

***RST** NONE

Key Entry **Error Count** **No Thresholds**

Remarks The measurement will terminate no later than 200 ms after the threshold is exceeded.

[:BASeband]:TBITs

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:TBITs <val>
:SENSe:BERT[:BASeband]:TBITs?
```

This command specifies the total bit count to be measured in one measurement cycle.

***RST** +10000

Range 100–4294967295

Key Entry **Total Bits**

Remarks N/A

[:BASeband]:TRIGger:BDELay

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:TRIGger:BDELay <val>
:SENSe:BERT[:BASeband]:TRIGger:BDELay?
```

This command specifies the number of bits to delay the trigger signal.

***RST** 0

Range 0–65535

Key Entry **Delay Bits**

Remarks This command is valid only when the trigger bit delay function is on. Refer to "[:BASeband]:TRIGger:BDELay:STATe".

[:BASeband]:TRIGger:BDELay:STATe

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:TRIGger:BDELay:STATe ON|OFF|1|0
:SENSe:BERT[:BASeband]:TRIGger:BDELay:STATe?
```

This command sets the operating state of the trigger delay function.

ON This choice enables the trigger delay function.

OFF This choice disables the trigger delay function.

***RST** 0

Key Entry **Bit Delay Off On**

Remarks This command needs to be set to ON before the number of bits for the trigger delay can be set. Refer to "[:BASeband]:TRIGger:BDELay".

[:BASeband]:TRIGger:COUNt

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:TRIGger:COUNt <val>
:SENSe:BERT[:BASeband]:TRIGger:COUNt?
```

This command sets the number of times the bit error rate test (BERT) measurements will repeat.

***RST** 1

Range 0–65535

Key Entry **Cycle Count**

Remarks With 0 set, the BER measurements are repeated until you set the BERT operating state is set to off. Refer to "[:BASeband]:STATe" on page 404.

[:BASeband]:TRIGger:POLarity

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:TRIGger:POLarity POSitive|NEGative
:SENSe:BERT[:BASeband]:TRIGger:POLarity?
```

This command selects the polarity of the trigger signal.

POSitive This choice triggers on the rising edge of the input data signal.

NEGative This choice triggers on the falling edge of the input data signal.

***RST** POS

Key Entry **Aux I/O Trigger Polarity Pos Neg**

Remarks This command is valid only when the trigger source AUX is selected. Refer to "[:BASeband]:TRIGger[:SOURce]" on page 407.

[:BASeband]:TRIGger[:SOURce]

Supported All with Option UN7

```
:SENSe:BERT[:BASeband]:TRIGger[:SOURce] IMMediate|KEY|EXT|BUS|AUX
:SENSe:BERT[:BASeband]:TRIGger[:SOURce]?
```

This command selects the triggering type for starting the bit error rate test (BERT) measurements.

IMMediate This choice begins the measurement directly after synchronization has been

	achieved.
KEY	This choice begins the measurement when the front panel **Trigger** key is pressed, provided that synchronization has been achieved. If synchronization has not occurred, the trigger is ignored.
EXT	This choice begins the measurement as soon as a trigger signal is applied to the rear panel connector provided that synchronization has been achieved. If synchronization has not occurred, the trigger is ignored.
BUS	This choice enables GPIB triggering using the `*TRG` or `GET` command or LAN and RS-232 triggering using the `*TRG` command.
AUX	This choice triggers an event using the rear panel AUX I/O connector pin #22. Refer to the *User's Guide*.
***RST**	KEY
Key Entry	**Immediate** **Trigger Key** **Ext** **Bus** **Aux I/O**
Remarks	N/A

7 Receiver Test Digital Commands

This chapter provides SCPI descriptions for subsystems dedicated to digital real-time testing for the ESG Vector Signal Generator. This chapter contains the following sections:

All Subsystem–Option 001/601 or 002/602 ([:SOURce])

:RADio:ALL:OFF

Supported All with Option 001/601 or 002/602

`[:SOURce]:RADio:ALL:OFF`

This command disables all digital modulation personalities on a particular baseband.

***RST** N/A

Range N/A

Key Entry N/A

Remarks This command does not affect analog modulation.

AWGN Real-Time Subsystem–Option 403 ([:SOURce]:RADio:AWGN:RT)

:BWIDth

Supported All with Option 403

```
[:SOURce]:RADio:AWGN:RT:BWIDth <val>
[:SOURce]:RADio:AWGN:RT:BWIDth?
```

This command adjusts the real-time AWGN bandwidth value.

The variable <val> is expressed in units of Hertz (Hz–MHz).

***RST** +1.00000000E+006

Range 5E4–8E7

Key Entry **Bandwidth**

Remarks N/A

[:STATe]

Supported All with Option 403

```
[:SOURce]:RADio:AWGN:RT[:STATe] ON|OFF|1|0
[:SOURce]:RADio:AWGN:RT[:STATe]?
```

This command enables or disables the operating state of real-time AWGN.

***RST** 0

Key Entry **Real-time AWGN Off On**

Remarks N/A

Bluetooth Subsystem–Option 406 ([:SOURce]:RADio:BLUEtooth:ARB)

:AMADdr

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:AMADdr <val>
[:SOURce]:RADio:BLUEtooth:ARB:AMADdr?
```

This command sets the 3-bit active member address (AM_ADDR).

***RST** +1

Range 0–7

Key Entry **AM_ADDR**

Remarks In a piconet, one or more slaves are connected to a single master; a temporary 3-bit address (AM_ADDR) is used to identify each active slave.

:BDADdr

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:BDADdr <val>
[:SOURce]:RADio:BLUEtooth:ARB:BDADdr?
```

This command sets the unique hexadecimal Bluetooth device address (BD_ADDR) with up to 48 bits.

***RST** #H000000000008

Range #H0–#HFFFFFFFFFFFF

Key Entry **BD_ADDR**

Remarks The address is derived from the IEEE802 standard.

:BURSt[:STATe]

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:BURSt[:STATe] ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB:BURSt[:STATe]?
```

This command enables or disables the burst function.

ON(1) This choice will ramp up the signal power prior to transmitting the packet and ramp it down after the end of the packet transmission.

OFF(0) This choice provides a linked series of packet transmissions with no power ramping.

***RST** 1

Key Entry **Burst Off On**

Remarks N/A

:CGDelay

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:CGDelay <val>
[:SOURce]:RADio:BLUEtooth:ARB:CGDelay?
```

This command sets the number of symbols to shift the output symbol clock (EVENT 1 rear panel connector) and gate (EVENT 2 rear panel connector) signals relative to the Bluetooth signal. The shifting of these signals is used to compensate for any packet delay through the DUT during BER tests.

***RST** +0.00000000E+000

Range 0.0–24999.9

Key Entry **Clock / Gate Delay**

Remarks This command is only effective with a continuous PN9 (CPN9) payload data and is intended for bit error rate testing (BERT, Option UN7). Refer to ":DATA" on page 413 for selecting the CPN9 data choice.

When the clock and gate delay is set to zero (0), the rising edge of the symbol clock lines up with the middle of each symbol and the gate is high during the user payload field (PN9 data).

:DATA

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:DATA TPN9|CPN9|<val>
[:SOURce]:RADio:BLUEtooth:ARB:DATA?
```

This command sets the user payload data type; user payload data is the voice or data information (less the payload header) that is carried in a packet.

TPN9 This choice places a truncated PN9 sequence consisting of 216 bits into a single packet.

CPN9 This choice places 8 continuous PN9 sequences into 19 packets, followed by one packet with no user payload. This ensures that the SEQN bit is properly alternated

which is a requirement to filter out packet re-transmission at the destination.

<val> This variable lets you set your own 8 bit data pattern for a single packet. A change in the user payload data type resets the eight bit pattern to a value of 00000000.

***RST** TPN9

Range <*val*>: #B0–#B11111111 or 0–255

Key Entry **Truncated PN9** **Continuous PN9** **8 Bit Pattern**

Remarks The PN9 sequence (511 bits) is standard based. The sequence begins with the first one of nine consecutive ones.

:IQ:EXTernal:FILTer

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IQ:EXTernal:FILTer 40e6|THRough
[:SOURce]:RADio:BLUEtooth:ARB:IQ:EXTernal:FILTer?
```

This command selects the filter or through path for I/Q signals routed to the rear panel I and Q outputs. Selecting a filter with this command will automatically set ":IQ:EXTernal:FILTer:AUTO" on page 414 to OFF(0) mode.

40e6 This choice applies a 40 MHz baseband filter.

THRough This choice bypasses filtering.

***RST** THR

Key Entry **40.000 MHz** **Through**

Remarks N/A

:IQ:EXTernal:FILTer:AUTO

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IQ:EXTernal:FILTer:AUTO ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB:IQ:EXTernal:FILTer:AUTO?
```

This command enables or disables the automatic selection of the filters for I/Q signals routed to the rear panel I/Q outputs.

ON(1) This choice will automatically select a digital modulation filter optimized for the current signal generator settings.

OFF(0) This choice disables the auto feature which lets you select a digital modulation filter or through path. Refer to ":IQ:EXTernal:FILTer" on page 414 for selecting a filter or through path.

***RST** 1

Key Entry **I/Q Output Filter Manual Auto**

Remarks N/A

:HEADer:CLEar

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:HEADer:CLEar
```

This command clears the header information from the header file used by this format.

***RST** N/A

Key Entry **Clear Header**

Remarks The **Bluetooth Off On** softkey must be set to On for this command to function.

:HEADer:SAVE

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:HEADer:SAVE
```

This command saves the header information to the header file used by this format.

***RST** N/A

Key Entry **Save Setup To Header**

Remarks The **Bluetooth Off On** must be set to On for this command to function.

:IMPairments

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments?
```

This command enables or disables the Bluetooth signal impairment function.

ON(1) This choice enables the current impairment settings.

OFF(0) This choice disables the impairments.

***RST** 0

Key Entry **Impairments Off On**

Remarks N/A

:IMPairments:AWGN

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:AWGN ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:AWGN?
```

This choice enables or disables the additive white gaussian noise (AWGN) impairment.

***RST** 0

Key Entry **AWGN Off On**

Remarks The AWGN impairment is not added to the signal until the Bluetooth signal impairment function is enabled. Refer to ":IMPairments" for enabling the impairments.

:IMPairments:AWGN:CNR

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:AWGN:CNR <val>
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:AWGN:CNR?
```

This command sets the carrier to noise ratio expressed in a 1 MHz bandwidth for the additive white gaussian noise (AWGN) impairment.

The variable <val> is expressed in units of decibels (dB).

***RST** +21

Range 10–40

Key Entry **C/N[1MHz]**

Remarks The value set by this command does not affect the Bluetooth signal until both the AWGN impairment and the Bluetooth signal impairment function are enabled. Refer to ":IMPairments:AWGN" on page 416 for more information.

:IMPairments:AWGN:NSEed

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:AWGN:NSEed <val>
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:AWGN:NSEed?
```

This command sets the noise seed value for the additive white gaussian noise (AWGN) impairment.

***RST** +1

Range 1–65535

Key Entry **Noise Seed**

Remarks A change in the seed value changes the noise pattern.

The value set by this command does not affect the Bluetooth signal until both the AWGN impairment and the Bluetooth signal impairment function are enabled. Refer to ":IMPairments:AWGN" on page 416 for more information.

:IMPairments:DDEViation

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:DDEViation <val>
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:DDEViation?
```

This command sets the maximum linear or sinusoidal carrier frequency drift deviation during the Bluetooth packet transmission.

The variable <val> is expressed in units of kilohertz (–kHz to kHz) with a minimum resolution of 1 kHz.

***RST** +0.00000000E+000

Range –1E5 to –1E3, 0, 1E3 to 1E5

Key Entry **Drift Deviation**

Remarks Refer to ":IMPairments:FDType" on page 417 for selecting either a linear or sinusoidal frequency drift.

The value set by this command does not affect the Bluetooth signal until the Bluetooth signal impairment function is enabled. Refer to ":IMPairments" on page 415 for more information.

:IMPairments:FDType

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:FDType LINear|SINE
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:FDType?
```

This command sets the carrier frequency drift impairment type that will occur during the length of the Bluetooth packet transmission.

LINear This choice enables the carrier frequency to drift linearly from the signal generator carrier frequency setting to the value entered for the frequency drift.

SINE This choice enables the carrier frequency to drift sinusoidally above and below the signal generator carrier frequency setting. For example, if the carrier signal generator setting is 2.4 GHz and the drift value was 100 kHz, the carrier

frequency would sinusoidally drift to
2.4001 GHz, back to 2.4 GHz and continue drifting to frequency values less than 2.4 GHz until the packet transmission ends. With a negative drift value, the carrier frequency deviation would begin drifting toward
2.3999 GHz at the beginning of the drift cycle.

***RST** SINE

Key Entry **Freq Drift Type Linear Sine**

Remarks To set a drift value, refer to ":IMPairments:DDEViation" on page 417.

The value set by this command does not affect the Bluetooth signal until the Bluetooth signal impairment function is enabled. Refer to ":IMPairments" on page 415 for more information.

The carrier frequency value on the signal generator display does not change during the drift impairment.

:IMPairments:FOFFset

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:FOFFset <val>
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:FOFFset?
```

This command sets a carrier frequency offset impairment value as part of a Bluetooth setup.

The variable <val> is expressed in units of kilohertz (–kHz to kHz) with a minimum resolution of 1 kHz.

***RST** +0.00000000E+000

Range –1E5 to –1E3, 0, 1E3 to 1E5

Key Entry **Freq Offset**

Remarks The value set by this command does not affect the Bluetooth signal until the Bluetooth signal impairment function is enabled. Refer to ":IMPairments" on page 415 for more information.

The carrier frequency value on the signal generator display does not change during the offset impairment.

:IMPairments:MINDex

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:MINDex <val>
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:MINDex?
```

This command sets the modulation index impairment value for the Bluetooth waveform.

***RST** +3.15000000E–001

Range 2.5E–1 to 4E–1

Key Entry **Mod Index**

Remarks The value set by this command does not affect the Bluetooth signal until the Bluetooth signal impairment function is enabled. Refer to ":IMPairments" on page 415 for more information.

Only the peak-to-peak frequency deviation is changed by this command; the bit rate (1 MHz) remains constant. The modulation index is derived from the following formula:

$$\text{Mod Index} = \frac{\text{Peak-to-Peak Frequency Deviation}}{\text{Bit Rate}}$$

:IMPairments:STERror

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:STERror <val>
[:SOURce]:RADio:BLUEtooth:ARB:IMPairments:STERror?
```

This command sets the symbol timing error impairment value for the Bluetooth waveform.

The variable <val> is expressed in units of parts per million (ppm) and in units of hertz (Hz). A 20 ppm timing error corresponds to a 20 Hz shift in the symbol rate. The range value indicated below applies to both units of measurement.

***RST** +0

Range –50 to 50

Key Entry **Symbol Timing Err**

Remarks The value set by this command does not affect the Bluetooth signal until the Bluetooth signal impairment function is enabled. Refer to ":IMPairments" on page 415 for more information.

:IQ:MODulation:ATTen

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:ATTen <val>
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:ATTen?
```

This command attenuates the I/Q signals being modulated through the signal generator RF path.

The variable <val> is expressed in units of decibels (dB).

ON (1) This choice enables the attenuation auto mode which optimizes the modulator attenuation for the current conditions.

OFF (0) This choice holds the attenuator at its current setting or at a selected value. Refer to ":IQ:MODulation:ATTen" on page 419 for setting the attenuation value.

***RST** +2.00000000E+000

Range 0–40

Key Entry **Modulator Atten Manual Auto**

Remarks N/A

:IQ:MODulation:ATTen:AUTO

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:ATTen:AUTO ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:ATTen:AUTO?
```

This command enables or disables the I/Q attenuation auto mode.

***RST** 1

Key Entry **Modulator Atten Manual Auto**

Remarks N/A

:IQ:MODulation:FILTer

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:FILTer 2.1e6|40e6|THRough
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:FILTer?
```

This command enables you to select a filter or through path for I/Q signals modulated onto the RF carrier. Selecting a filter with this command will set ":IQ:MODulation:ATTen:AUTO" on page 420 to OFF(0) mode.

2.1E6 This choice applies a 2.1 MHz baseband filter to the I/Q signals.

40E6 This choice applies a 40 MHz baseband filter to the I/Q signals.

THRough This choice bypasses filtering.

***RST** THR

Key Entry **2.100 MHz** **40.000 MHz** **Through**

Remarks N/A

:IQ:MODulation:FILTer:AUTO

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:FILTer:AUTO ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB:IQ:MODulation:FILTer:AUTO?
```

This command enables or disables the automatic selection of the filters for I/Q signals modulated onto the RF carrier.

ON(1) This choice will automatically select a digital modulation filter.

OFF(0) This choice disables the auto feature which lets you select a digital modulation filter or through path. Refer to ":IQ:MODulation:FILTer" on page 420 for selecting a filter or through path.

***RST** 1

Key Entry **I/Q Mod Filter Manual Auto**

Remarks N/A

:MDEStination:PULSe

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MDEStination:PULSe NONE|M1|M2|M3|M4
[:SOURce]:RADio:BLUEtooth:ARB:MDEStination:PULSe?
```

This command routes the selected marker to the Pulse/RF Blanking function. The `NONE` parameter clears the marker for the Pulse/RF Blanking function.

***RST** NONE

Key Entry **None** **Marker 1** **Marker 2** **Marker 3** **Marker 4**

Remarks N/A

:MDEStination:AAMPlitude

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MDEStination:AAMPlitude NONE|M1|M2|M3|M4
[:SOURce]:RADio:BLUEtooth:ARB:MDEStination:AAMPlitude?
```

This command routes the selected marker to the Alternate Amplitude function. The `NONE` parameter clears the marker for the Alternate Amplitude function.

***RST** NONE

Key Entry **None** **Marker 1** **Marker 2** **Marker 3** **Marker 4**

Remarks N/A

:MDEStination:ALCHold

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MDEStination:ALCHold NONE|M1|M2|M3|M4
[:SOURce]:RADio:BLUEtooth:ARB:MDEStination:ALCHold?
```

This command routes the selected marker to the ALC Hold function. The `NONE` parameter clears the marker for the ALC Hold function.

***RST** NONE

Key Entry **None** **Marker 1** **Marker 2** **Marker 3** **Marker 4**

Remarks N/A

:MPOLarity:MARKer1

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer1 NEGative|POSitive
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer1?
```

This command sets the polarity for marker 1.

***RST** POS

Key Entry **Marker 1 Polarity Neg Pos**

Remarks N/A

:MPOLarity:MARKer2

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer2 NEGative|POSitive
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer2?
```

This command sets the polarity for marker 2.

***RST** POS

Key Entry **Marker 2 Polarity Neg Pos**

Remarks N/A

:MPOLarity:MARKer3

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer3 NEGative|POSitive
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer3?
```

This command sets the polarity for marker 3.

***RST** POS

Key Entry **Marker 3 Polarity Neg Pos**

Remarks N/A

:MPOLarity:MARKer4

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer4 NEGative|POSitive
[:SOURce]:RADio:BLUEtooth:ARB:MPOLarity:MARKer4?
```

This command sets the polarity for marker 4.

***RST** POS

Key Entry **Marker 4 Polarity Neg Pos**

Remarks N/A

:PACKet

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:PACKet DH1
[:SOURce]:RADio:BLUEtooth:ARB:PACKet?
```

This command selects a DH1 packet.

***RST** DH1

Choices DH1

Key Entry **Packet (DH1)**

Remarks A DH1 packet covers a single timeslot.

:REFernce:EXTernal:FREQuency

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:REFerence:EXTernal:FREQuency <val>
[:SOURce]:RADio:BLUEtooth:ARB:REFerence:EXTernal:FREQuency?
```

This command sets the lock frequency of the internal ARB waveform clock to match the externally applied ARB waveform clock reference at the BASEBAND GEN REF IN connector.

The variable <val> is expressed in units of hertz (Hz–MHz).

***RST** +1.00000000+007

Range 2.5E5–1E8

Key Entry **Reference Freq**

Remarks Use this command when EXTernal is the ARB waveform clock reference source. Refer to ":REFerence[:SOURce]" on page 424 for selecting either the internal or an external source.

:REFerence[:SOURce]

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:REFerence[:SOURce] INTernal|EXTernal
[:SOURce]:RADio:BLUEtooth:ARB:REFerence[:SOURce]?
```

This command selects either an internal or external reference for the ARB waveform clock.

***RST** INT

Key Entry **ARB Reference Ext Int**

Remarks If the EXTernal choice is selected, the frequency of the external reference must be entered into the signal generator and the signal must be applied to the BASEBAND GEN REF IN connector. Refer to ":REFernce:EXTernal:FREQuency" on page 423 for entering the frequency value.

:RSYMbols

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:RSYMbols <val>
[:SOURce]:RADio:BLUEtooth:ARB:RSYMbols?
```

This command controls how long it takes the RF burst to ramp up at the beginning of the packet transmission and down at the end.

The variable <val> is expressed in symbols (1 symbol interval equals 1 µs).

***RST** +6

Range 1–10

Key Entry **Burst Power Ramp**

Remarks N/A

:SCLock:RATE

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB:SCLock:RATE <val>
[:SOURce]:RADio:BLUEtooth:ARB:SCLock:RATE?
```

This command sets the sample clock rate for the Bluetooth modulation format.

The variable <val> is expressed in units of hertz.

***RST** +1.00000000E+008

Range 1–1E8

Key Entry **ARB Sample Clock**

Remarks N/A

[:STATe]

Supported All with Option 406

```
[:SOURce]:RADio:BLUEtooth:ARB[:STATe] ON|OFF|1|0
[:SOURce]:RADio:BLUEtooth:ARB[:STATe]?
```

This command enables or disables the Bluetooth waveform generator.

***RST** 0

Key Entry **Bluetooth Off On**

CDMA2000 BBG Subsystem–Option 401 ([:SOURce]:RADio:CDMA2000[:BBG])

:LMODe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:LMODe FORWard|RT12|RA12|RT34|RE34|RC34
[:SOURce]:RADio:CDMA2000[:BBG]:LMODe?
```

This command selects either forward or reverse link Real Time CDMA2000.

FORWard	This choice selects the forward link mode.
RT12	This choice selects the reverse traffic channel for radio configurations one and two.
RA12	This choice selects the reverse access channel for radio configurations one and two.
RT34	This choice selects the reverse traffic channel for radio configurations three and four.
RE34	This choice selects the reverse enhanced access channel for radio configurations three and four.
RC34	This choice selects the reverse common control channel for radio configurations three and four.

***RST** FORW

Key Entry **Link Forward Reverse** **RadioConfig 1/2 Traffic** **RadioConfig 1/2 Access** **RadioConfig 3/4 Traffic** **RadioConfig 3/4 Enhanced Access** **RadioConfig 3/4 Common Control**

Remarks N/A

[:FORWard]:BBCLock

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:BBCLock INT[1]|EXT[1]
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:BBCLock?
```

This command selects the baseband data clock source for the forward link.

***RST** INT

Field Entry `BBG Data Clock`

Remarks If the EXT choice is selected, the external frequency must be entered and the signal must be applied to the BASEBAND GEN REF IN rear panel connector.

[:FORWard]:CHIPrate

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:CHIPrate <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:CHIPrate?
```

This command adjusts the chip rate value.

The variable <val> is expressed in units of chips per second (cps–Mcps).

***RST** +1.22880000E+006

Range 1E3–1.3E6

Field Entry `Chip Rate`

Remarks The default value (1.228800 Mcps) is in accordance with the IS-2000 specification.

[:FORWard]:ESDelay

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:ESDelay <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:ESDelay?
```

This command modifies the even second clock pulse.

***RST** +2.00000000E+001

Range 0.5–128.0

Field Entry `Even Second Delay`

Remarks The even second clock pulse sets the delay to align the RF with the trigger.

When the noise function is set to ON, this value will increase. Refer to "[:FORWard]:NOISe[:STATe]" on page 453 for more information.

[:FORWard]:FILTer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer RNYQuist|NYQuist|
GAUSsian|RECTangle|IS95|IS95_EQ|IS95_MOD|IS95_MOD_EQ|AC4Fm|UGGaussian|
"<user FIR>"|
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer?
```

This command specifies the filter type.

IS95	This choice selects a filter that meets the criteria of the IS-95 standard.
IS95_EQ	This choice selects a filter which is a combination of the IS-95 filter (above) and the equalizer filter described in the IS-95 standard. This filter is only used for IS-95 baseband filtering.
IS95_MOD	This choice selects a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance) with lower passband rejection than the filter specified in the IS-95 standard.
IS95_MOD_EQ	This choice selects a filter which is a combination of the equalizer filter described in the IS-95 standard and a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance), with lower passband rejection.
AC4Fm	This choice selects a predefined Association of Public Safety Communications Officials (APCO) specified compatible 4-level frequency modulation (C4FM) filter.
UGGaussian	This choice selects a backwards compatible GSM Gaussian filter (Gaussian filter with a fixed BbT value of 0.300) for the ESG E44xxB Option UN3 or UN4.
"<user FIR>"	This variable is any filter file that you have stored into memory.
***RST**	IS95_EQ
Key Entry	**Root Nyquist** **Nyquist** **Gaussian** **Rectangle** **IS-95** **IS-95 w/EQ** **IS-95 Mod** **IS-95 MOD w/EQ** **APCO 25 C4FM** **UN3/4 GSM Gaussian** **User FIR**
Remarks	Refer to “File Name Variables” on page 13 for information on the file name syntax.

[:FORWard]:FILTer:ALPHa

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer:ALPHa <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer:ALPHa?
```

This command changes the Nyquist or root Nyquist filter's alpha value.

The filter alpha value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +2.20000000E–001

Range 0.000–1.000

Key Entry **Filter Alpha**

Remarks To change the current filter type, refer to "[:FORWard]:FILTer" on page 428.

[:FORWard]:FILTer:BBT

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer:BBT <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer:BBT?
```

This command changes the bandwidth-multiplied-by-bit-time filter value.

The filter BbT value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +5.00000000E–001

Range 0.000–1.000

Key Entry **Filter BbT**

Remarks This command is effective only after choosing a Gaussian filter. It does not have an effect on other types of filters.

To change the current filter type, refer to "[:FORWard]:FILTer" on page 428.

[:FORWard]:FILTer:CHANnel

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer:CHANnel EVM|ACP
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FILTer:CHANnel?
```

This command optimizes the Nyquist and root Nyquist filters to minimize error vector magnitude (EVM) or to minimize adjacent channel power (ACP).

EVM This choice provides the most ideal passband.

ACP This choice improves stopband rejection.

***RST** EVM

Key Entry **Optimize FIR For EVM ACP**

Remarks To change the current filter type, refer to "[:FORWard]:FILTer" on page 428.

[:FORWard]:LCSTate

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:LCSTate <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:LCSTate?
```

This command sets the long code seed used to generate the long code for the forward link.

***RST** #H00000000000

Range #H0–#H3FFFFFFFFF

Field Entry `Long Code State`

Remarks The storage register for the long code state allows a 42-bit binary number to be entered.

[:FORWard]:FFCH:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:DATA PN9|PN15|FIX4|
"<file name>"|EXT
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:DATA?
```

This command configures the data field for the forward fundamental channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File** **Ext**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

[:FORWard]:FFCH:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:DATA:FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern to be repeated as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

[:FORWard]:FFCH:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the forward fundamental channel.

***RST** +0.00000000E+000

Range

$$\text{min EbNo: } 10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right] + \text{Normalized Power} + \text{RCFactor}$$

$$\text{max EbNo: } 10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right] + \text{Normalized Power} + \text{RCFactor}$$

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to "[:FORWard]:PADJust" on page 455 for adjusting the code domain power.

RCFactor is dependent on the selected radio configuration. The following table shows the RCFactor by radio configuration.

RC	RCFactor
1	$10\log_{10}\left[\frac{1}{2}\left(\frac{11}{11+\frac{9600}{\text{Bit Rate}}}\right)\right]$
2	$10\log_{10}\left[\frac{1}{2}\left(\frac{23}{23+\frac{14400}{\text{Bit Rate}}}\right)\right]$
3, 4	$10\log_{10}\left[\frac{11}{11+\frac{9600}{\text{Bit Rate}}}\right]$
5	$10\log_{10}\left[\frac{11}{11+\frac{14400}{\text{Bit Rate}}}\right]$

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

[:FORWard]:FFCH:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:FOFFset?
```

This command sets the frame offset value for the forward fundamental channel.

***RST** +0

Range 0–15

Field Entry Frame Offset

Remarks Changing this value also changes the frame offset value for the forward supplemental channels (FSCH1 and FSCH2).

[:FORWard]:FFCH:LCMask

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:LCMask?
```

This command outputs the contents of the long code mask field for the forward fundamental channel.

***RST** #H31800000000

Range N/A

Key Entry N/A

Remarks This value is shared by the forward supplemental channels (FSCH1 and FSCH2).

[:FORWard]:FFCH:LCMask:ESN

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:LCMask:ESN <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:LCMask:ESN?
```

This command sets the permuted electronic serial number (ESN) for the long code mask, which is used to identify a particular mobile.

***RST** #H00000000

Range #H0–#HFFFFFFFF

Field Entry Permuted ESN

Remarks Changing this value also changes the permuted ESN for the long code mask in the forward supplemental channels (FSCH1 and FSCH2).

[:FORWard]:FFCH:LCMask:HEADer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:LCMask:HEADer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:LCMask:HEADer?
```

This command sets the header for the long code mask, which is used to identify a particular mobile.

***RST** #H318

Range 000–3FF

Field Entry Header

Remarks Changing this value also changes the header for the long code mask in the forward supplemental channels (FSCH1 and FSCH2).

[:FORWard]:FFCH:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:POWer?
```

This command sets the power for the forward fundamental channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

[:FORWard]:FFCH:PRAMp

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:PRAMp ON|OFF|1|0
```

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:PRAMp?`

This command sets the power puncturing operating state for the forward fundamental channel.

***RST** 1

Field Entry Ramp

Remarks N/A

[:FORWard]:FFCH:PRTime

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:PRTime <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:PRTime?`

This command sets the power ramp time indicator values for the forward fundamental channel.

Power frame indicators are used to command the mobile (increasing or decreasing power). For example, if 4 is the selected value, it will cause the mobile to respond with 4 sequential power increases, then 4 power decreases. This pattern will continue indefinitely.

The variable <val> is expressed in

***RST** +1

Range 1–80

Field Entry Ramp Time

Remarks N/A

[:FORWard]:FFCH:QOF

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:QOF <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:QOF?`

This command sets the quasi-orthogonal function channel value.

***RST** +0

Range 0–3

Field Entry QOF

Remarks N/A

[:FORWard]:FFCH:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:RATE 1.2kbps|1.5kbps|
1.8kbps|2.4kbps|2.7kbps|3.6kbps|4.8kbps|7.2kbps|9.6kbps|14.4kbps
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:RATE?
```

This command sets the data rate for the forward paging channel.

The variable <val> is expressed in units of bits per second (bps–Mbps).

***RST** +9.60000000E+003

Range 1.2E3–1.44E4

Field Entry `Bit Rate`

Remarks N/A

[:FORWard]:FFCH:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:RCONfig <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:RCONfig?
```

This command sets the radio configuration value for the forward fundamental channel.

***RST** +3

Range 1–5

Field Entry `Radio Config`

Remarks N/A

[:FORWard]:FFCH:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:WALSh <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH:WALSh?
```

Execute this command to set the Walsh code for the forward fundamental channel.

***RST** +10

Range *RC1,2,3, & 5*: 0–63 *RC4*: 0–127

Field Entry `Walsh`

Remarks N/A

[:FORWard]:FFCH[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FFCH[:STATe]?
```

This command enables or disables the operating state of the forward fundamental channel.

***RST** 0

Field Entry `State`

Remarks N/A

[:FORWard]:FPCH:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:DATA DEFault|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:DATA?
```

This command configures the data field for the forward paging channel.

***RST** DEFAULT

Key Entry **Default** **User File**

Remarks A user-defined file can have a maximum length of 512 bytes.

Refer to "File Name Variables" on page 13 for information on the file name syntax.

[:FORWard]:FPCH:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the forward paging channel.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

dB. Refer to "[:FORWard]:PADJust" on page 455 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

[:FORWard]:FPCH:LCMask

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask?
```

This command outputs the contents of the long code mask field for the forward paging channel.

***RST** +0.00000000E+000

Range N/A

Key Entry N/A

Remarks N/A

[:FORWard]:FPCH:LCMask:F1

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask:F1 <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask:F1?
```

This command sets the value of field one for the forward paging channel long code mask.

***RST** #H18CD

Range #H0–#H1FFF

Field Entry Field 1

Remarks N/A

[:FORWard]:FPCH:LCMask:F2

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask:F2 <val>
```

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask:F2?`

This command sets the value of field two for the forward paging channel long code mask.

***RST** #H00

Range #H00–#H1F

Field Entry `Field 2`

Remarks N/A

[:FORWard]:FPCH:LCMask:F3

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask:F3 <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:LCMask:F3?`

This command sets the value of field three for the forward paging channel long code mask.

***RST** #H000

Range #H0–#HFFF

Field Entry `Field 3`

Remarks N/A

[:FORWard]:FPCH:MESSage

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:MESSage <bit_count>, <datablock>`

This command sends a bit count and a data block (to queue up messaging), generated as a one-time paging message (asynchronous paging message), to the paging channel.

After a one-time paging message is generated, the signal generator reverts to synchronous paging file messages.

***RST** N/A

Range N/A

Key Entry N/A

Remarks N/A

[:FORWard]:FPCH:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:POWer?
```

Execute this command to set the power for the forward paging channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

[:FORWard]:FPCH:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:RATE 4.8kbps|9.6kbps
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:RATE?
```

This command sets the data rate for the forward paging channel.

The variable <val> is expressed in units of bits per second (bps–Mbps).

***RST** +9.60000000E+003

Field Entry `Bit Rate`

Remarks N/A

[:FORWard]:FPCH:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:WALSh <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH:WALSh?
```

This command sets the Walsh code for the forward paging channel.

***RST** +1

Range 0–63

Field Entry `Walsh`

Remarks N/A

[:FORWard]:FPCH[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPCH[:STATe]?
```

Execute this command to set the operating state for the forward paging channel.

***RST** 0

Field Entry State

Remarks N/A

[:FORWard]:FPICh:ECNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPICh:ECNO <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPICh:ECNO?
```

This command sets the ratio of energy per chip to the noise power spectral density (expressed in dB) for the forward pilot channel.

***RST** +0.00000000E+000

Range *min EcNo*: –30 + Normalized Power

max EcNo: 30 + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to "[:FORWard]:PADJust" on page 455 for adjusting the code domain power.

Field Entry EcNo

Remarks Changes to the EcNo values also change the EbNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

[:FORWard]:FPICh:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPICh:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPICh:POWer?
```

This command sets the power for the forward pilot channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

[:FORWard]:FPICh[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPICh[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FPICh[:STATe]?
```

This command enables or disables the operating state of the forward pilot channel.

***RST** 1

Field Entry State

Remarks N/A

[:FORWard]:FSCH[1]|2:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:DATA PN9|PN15|FIX4|
"<file name>"|EXT
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:DATA?
```

This command configures the data field for the forward supplemental traffic channels.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File** **EXT**

Remarks N/A

[:FORWard]:FSCH[1]|2:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:DATA:FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern that repeats as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

[:FORWard]:FSCH[1]|2:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the reverse access channel.

***RST** +0.00000000E+000

Range $\text{min EbNo: } 10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right] + \text{Normalized Power}$

$\text{max EbNo: } 10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right] + \text{Normalized Power}$

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to "[:FORWard]:PADJust" on page 455 for adjusting the code domain power.

Field Entry `EbNo`

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

[:FORWard]:FSCH[1]|2:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:FOFFset?
```

This command sets the frame offset value for the forward supplemental traffic channels.

***RST** +0

Range 0–15

Field Entry `Frame Offset`

Remarks Changing this value also changes the frame offset value for the forward

fundamental channel (FFCH).

[:FORWard]:FSCH[1]|2:LCMask

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:LCMask?`

This query outputs the contents of the long code mask field for the forward supplemental traffic channels.

***RST** 0

Range N/A

Key Entry N/A

Remarks This value is shared with the forward fundamental channel (FFCH).

[:FORWard]:FSCH[1]|2:LCMask:ESN

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:LCMask:ESN <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:LCMask:ESN?`

This command defines the permuted electronic serial number (ESN) for the long code mask, which is used to identify a particular mobile.

***RST** #H00000000

Range #H0–#HFFFFFFFF

Field Entry `Permuted ESN`

Remarks Changing this value also changes the permuted ESN for the long code mask in the forward fundamental channel (FFCH).

[:FORWard]:FSCH[1]|2:LCMask:HEADer

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:LCMask:HEADer <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:LCMask:HEADer?`

This command sets the header for the long code mask, which is used to identify a particular mobile.

***RST** #H318

Range 000–3FF

Field Entry Header

Remarks Changing this value also changes the header for the long code mask in the forward fundamental channel (FFCH).

[:FORWard]:FSCH[1]|2:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:POWer?
```

This command sets the power for the forward supplemental traffic channels.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

[:FORWard]:FSCH[1]|2:QOF

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:QOF <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:QOF?
```

This command sets the quasi-orthogonal function value for the forward supplemental traffic channels.

***RST** +0

Range 0–3

Field Entry QOF

Remarks N/A

[:FORWard]:FSCH[1]|2:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:RATE 19.2kbps|
28.8kbps|38.4kbps|57.6kbps|76.8kbps|115.2kbps|153.6kbps|230.4kbps|
307.2kbps
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:RATE?
```

This command sets the data rate for the forward supplemental traffic channels.

***RST** +1.92000000E+004

Field Entry `Bit Rate`

Remarks Values preceded by an asterisk indicate data rate values that are eligible for turbo coding.

[:FORWard]:FSCH[1]|2:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:RCONfig 3|4|5
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:RCONfig?
```

This command sets the radio configuration value for the forward supplemental channels.

***RST** +3

Field Entry `Radio Config`

Remarks N/A

[:FORWard]:FSCH[1]|2:TCODe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:TCODe ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:TCODe?
```

This command enables or disables the turbo coding operating state for the forward supplemental traffic channels.

***RST** 0

Field Entry `Turbo Coding`

Remarks Turbo coding is available for all data rates, excluding the following radio configurations (highest data rate of each radio configuration):

RC3: 153.6
RC4: 307.2
RC5: 230.4

To change the data rate for the forward supplemental traffic channel, refer to “[:FORWard]:FSCH[1]|2:RATE” on page 444.

[:FORWard]:FSCH[1]|2:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:WALSh <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2:WALSh?
```

This command sets the Walsh code for the forward supplemental traffic channels.

***RST** *FSCH1*: 12 *FSCH2*: 14

Range	*RC3*	*RC4*	*RC5*
	Data Rate=19.2: 0–31	*Data Rate=19.2*: 0–63	*Data Rate=28.8*: 0–31
	Data Rate=38.4: 0–15	*Data Rate=38.4*: 0–31	*Data Rate=57.6*: 0–15
	Data Rate=76.8: 0–7	*Data Rate=76.8*: 0–15	*Data Rate=115.2*: 0–7
	Data Rate=307.2: 0–3	*Data Rate=153.6*: 0–7	*Data Rate=230.4*: 0–3
		Data Rate=307.2: 0–3	

Field Entry `Walsh`

Remarks N/A

[:FORWard]:FSCH[1]|2[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSCH[1]|2[:STATe]?
```

This command enables or disables the operating state of the forward supplemental traffic channel.

***RST** 0

Field Entry `State`

Remarks N/A

[:FORWard]:FSYNc:CFRequency

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:CFRequency <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:CFRequency?
```

This command directs the mobile station to a CDMA channel having a primary paging channel.

***RST** +50

Range 0–2047

Field Entry `CDMA Freq`

Remarks N/A

[:FORWard]:FSYNc:DAYLt

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:DAYLt 1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:DAYLt?
```

This command sets the daylight savings time offset for the forward synchronization channel, where 1 = on and 0 = off.

***RST** +0

Field Entry DAYLT

Remarks N/A

[:FORWard]:FSYNc:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the quick paging channel.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to "[:FORWard]:PADJust" on page 455 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

[:FORWard]:FSYNc:ECFRequency

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:ECFRequency <val>
```

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:ECFRequency?`

This command direct the mobile station to a CDMA channel having a primary paging channel. The mobile tunes to the `Ext CDMA Freq` field when it has a protocol revision level of 6 or greater, and it supports either the quick paging channel or radio configurations greater than 2. Otherwise, the mobile tunes to the `CDMA Freq` field for the CDMA channel.

This command sets the extended CDMA frequency for the forward synchronization channel.

***RST** +0

Range 0–2047

Field Entry `Ext CDMA Freq`

Remarks N/A

[:FORWard]:FSYNc:LPSec

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:LPSec <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:LPSec?`

This command sets the leap seconds value for the forward synchronization channel.

***RST** +0

Range 0–255

Field Entry `Leap Seconds`

Remarks N/A

[:FORWard]:FSYNc:LTMoff

Supported All with Option 401

`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:LTMoff <val>`
`[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:LTMoff?`

This command sets the current local time offset from the basestation for the forward synchronization channel, where 1= 30 minutes, 2= 60 minutes, 3= 90 minutes, and so on.

***RST** +0

Range 0–63

Field Entry `LTM OFF`

Remarks N/A

[:FORWard]:FSYNc:MPREv

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:MPREv <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:MPREv?
```

This command sets the minimum protocol revision level for the forward synchronization channel.

***RST** +1

Range 0–255

Field Entry `P Rev Min`

Remarks N/A

[:FORWard]:FSYNc:MSGType

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:MSGType <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:MSGType?
```

This command sets the message type value for the forward synchronization channel.

***RST** +1

Range 0–255

Field Entry `Message Type`

Remarks N/A

[:FORWard]:FSYNc:NID

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:NID <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:NID?
```

This command sets the network identification value for the forward synchronization channel.

***RST** +1

Range 0–65535

Key Entry **Network ID**

Remarks N/A

[:FORWard]:FSYNc:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:POWer?
```

This command sets the power for the forward synchronization channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

[:FORWard]:FSYNc:PRATe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:PRATe <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:PRATe?
```

This command sets the base station paging rate for the forward supplemental channel.

***RST** +0

Range 0–3

Field Entry PRAT

Remarks N/A

[:FORWard]:FSYNc:PREV

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:PREV <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:PREV?
```

This command sets the protocol revision level for the forward synchronization channel.

***RST** +1

Range 0–255

Field Entry P Rev

Remarks N/A

[:FORWard]:FSYNc:RESErved

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:RESErved <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:RESErved?
```

This command sets the reserved field value for the forward synchronization channel.

***RST** +0

Range 0–7

Key Entry **Reserved**

Remarks Currently, base stations and mobiles ignore reserved bits, so the reserved field should be set to “0” with the query returning the same value.

[:FORWard]:FSYNc:SID

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:SID <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:SID?
```

This command sets the system identification for the forward synchronization channel.

***RST** +7

Range 0–32767

Field Entry `System ID`

Remarks N/A

[:FORWard]:FSYNc:STYPe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:STYPe IS95|JSTD8|IS2000
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:STYPe?
```

This command selects the forward synchronization channel type.

IS95 This choice selects a channel type that is compatible with the IS95 CDMA standard.

JSTD8 This choice selects a channel type that is compatible with PCS CDMA standard personal station requirements for 1.9 to 2.0 GHz.

IS2000 This choice selects a channel type that is compatible with the IS2000 CDMA

standard.

***RST** JSTD8

Key Entry **IS95** **JSTD8** **IS2000**

Remarks N/A

[:FORWard]:FSYNc:SYSTime

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:SYSTime <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:SYSTime?
```

This command sets the system time value for the forward synchronization channel.

***RST** #H000000000

Range #H0–#HFFFFFFFFF

Field Entry `Time`

Remarks N/A

[:FORWard]:FSYNc:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:WALSh <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc:WALSh?
```

This command sets the Walsh code for the forward synchronization channel.

***RST** +32

Range 0–63

Field Entry `Walsh`

Remarks N/A

[:FORWard]:FSYNc[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:FSYNc[:STATe]?
```

This command enables or disables the operating state for the forward synchronization channel.

***RST** 0

Field Entry State

Remarks N/A

[:FORWard]:NOISe:CN

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:NOISe:CN <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:NOISe:CN?
```

This command sets the carrier to noise ratio for the forward link.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –30 to 30

Key Entry **C/N**

Remarks The carrier to noise ratio is the ratio of the carrier power to in-channel noise power.

A change to the carrier to noise ratio will change all EbNo/EcNo field values.

[:FORWard]:NOISe[:STATe]

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:NOISe[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:NOISe[:STATe]?
```

This command enables or disables the noise function for the CDMA2000 baseband forward link.

NOTE When this command is enabled, an immediate increase in the Even Second Delay value will occur. The Even Second Delay value will increase by an increment of 11.5 chips. The chip increase will be seen in the appropriate fields on the display.

Changes to Even Second Delay and Trigger Advance will not affect synchronization; automatic compensation is performed internally.

***RST** 0

Key Entry **Noise Off On**

Remarks Both the carrier and noise power value will be adjusted to match the specified carrier to noise ratio. Refer to "[:FORWard]:NOISe:CN" on page 453 to change the carrier to noise ratio.

The noise function can only be turned on with Option 403 installed.

[:FORWard]:OCNS:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio[1]|2|3|4:CDMA2000[:BBG][:FORWard]:OCNS:EBNO <val>
[:SOURce]:RADio[1]|2|3|4:CDMA2000[:BBG][:FORWard]:OCNS:EBNO?
```

This command sets the energy per bit to noise power (EbNo) density ratio for the forward link orthogonal channel noise simulator (OCNS).

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range $\text{min EbNo: } 10\log_{10}\left(\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right) + \text{Normalized Power}$

$\text{max EbNo: } 10\log_{10}\left(\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right) + \text{Normalized Power}$

The OCNS bit rate is fixed at 19.2 kilo-bits per second.

The Normalized Power is the channel amplitude after adjusting the code domain power to 0 dB. Refer "[:FORWard]:PADJust" on page 455.

Field Entry EbNo

Remarks EbNo is available for all channels except the pilot channel.

The noise function must be turned on for this setting to work. Refer to "[:FORWard]:NOISe[:STATe]" on page 453 for turning on the noise.

[:FORWard]:OCNS:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:OCNS:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:OCNS:POWer?
```

This command sets the power level for the orthogonal channel noise simulator.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

[:FORWard]:OCNS:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:OCNS:WALSh <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:OCNS:WALSh?
```

This command sets the Walsh code for the orthogonal channel noise simulator.

***RST** +61

Range 0–63

Field Entry Walsh

Remarks N/A

[:FORWard]:OCNS[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:OCNS[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:OCNS[:STATe]?
```

This command turns the orthogonal channel noise simulator on or off.

***RST** 0

Field Entry State

Remarks N/A

[:FORWard]:PADJust

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:PADJust EQUal|SCALe
```

This command sets the code domain power (the relative power in each of the channels).

EQUal Sets all channels to equal power, and the total power to 0 dB.

SCALe Scales all of the current channel powers so that the total power equals 0 dB, keeping the previous power ratios between the individual channels.

***RST** N/A

Key Entry **Equal Powers** **Scale To 0dB**

Remarks N/A

[:FORWard]:POLarity

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:POLarity NORMal|INVerted
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:POLarity?
```

This command sets the rotation direction for the phase modulation vector.

NORMal This choice selects normal phase polarity.

INVerted This choice inverts the internal Q signal.

***RST** NORM

Field Entry Phase Polarity

Remarks N/A

[:FORWard]:QPCH:CCI

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:CCI <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:CCI?
```

This command selects the configuration change indicator for the quick paging channel.

***RST** +3

Range 0–3

Field Entry Change

Remarks N/A

[:FORWard]:QPCH:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the quick paging channel.

***RST** +0.00000000E+000

Range

$$min\ EbNo: 10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right] + \text{Normalized Power}$$

$$max\ EbNo: 10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right] + \text{Normalized Power}$$

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to "[:FORWard]:PADJust" on page 455 for adjusting the code domain power.

Field Entry `EbNo`

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

[:FORWard]:QPCH:PI

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:PI <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:PI?
```

This command selects the paging slots for the quick paging channel.

***RST** +0

Field Entry `Paging Indicator`

Remarks When the bit rate is 2400, a value of 191 turns all paging slots on.

When the bit rate is 4800, a value of 383 turns all paging slots on.

When the bit rate is either 2400 or 4800, a value of –1 turns all paging slots off.

To change the bit rate value, refer to "[:FORWard]:QPCH:RATE" on page 458.

[:FORWard]:QPCH:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:POWer?
```

This command sets the power value for the quick paging channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

[:FORWard]:QPCH:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:RATE 2.4kbps|4.8kbps
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:RATE?
```

This command sets the bit rate for the quick paging channel.

***RST** +4.80000000E+003

Field Entry Bit Rate

Remarks N/A

[:FORWard]:QPCH:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:WALSh <val>
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH:WALSh?
```

This command sets the Walsh code for the quick paging channel.

***RST** +80

Range 0–127

Field Entry Walsh

Remarks N/A

[:FORWard]:QPCH[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:QPCH[:STATe]?
```

This command enables or disables the operating state of the quick paging channel.

***RST** 0

Field Entry State

Remarks N/A

[:FORWard]:SRATe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:FORWard]:SRATe?
```

This command returns the value of the current spreading rate.

***RST** +1

Range N/A

Key Entry N/A

Remarks N/A

:PNOFfset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:PNOffset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:PNOFfset?
```

This command sets the current pseudorandom number (PN) offset value.

***RST** +1

Range 0–511

Field Entry `PN Offset`

Remarks The PN offset value is the time offset in the short code assigned to each basestation, allotting a unique identity for each.

:REVerse:BBCLock

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:BBCLock INT[1]|EXT[1]
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:BBCLock?
```

This command selects the data clock source.

***RST** INT

Key Entry **Internal** **External**

Remarks If the EXT choice is selected, the REFerence selection will automatically be set to internal. The external data clock source must be connected to the DATA CLOCK front panel BNC input connector, and its frequency must match the specified chip rate.

:REVerse:CHIPrate

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:CHIPrate <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:CHIPrate?
```

Execute this command to adjust the chip rate.

The variable <val> is expressed in units of chips per second (cps–Mcps).

***RST** +1.22880000E+006

Range 1E3–1.3E6

Field Entry `Chip Rate`

Remarks The default value (1.228800 Mcps) is in accordance with the IS-2000 specification.

:REVerse:ESDelay

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:ESDelay <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:ESDelay?
```

This command modifies the even second clock pulse.

***RST** +2.75000000E+001

Range 0.5–128.0

Field Entry `Even Second Delay`

Remarks The even second clock pulse sets the delay to align the RF with the trigger.

When the noise function is set to ON, this value will increase. Refer to ":REVerse:NOISe[:STATe]" on page 464 for more information.

:REVerse:FILTer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer RNYQuist|NYQuist|GAUSsian|
RECTangle|IS95|IS95_EQ|IS95_MOD|IS95_MOD_EQ|AC4Fm|UGGaussian|
"<user FIR>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer?
```

This command specifies the filter type for the reverse link.

IS95	This choice selects a filter that meets the criteria of the IS-95 standard.
IS95_EQ	This choice selects a filter which is a combination of the IS-95 filter (above) and the equalizer filter described in the IS-95 standard. This filter is only used for IS-95 baseband filtering.
IS95_MOD	This choice selects a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance) with lower passband rejection than the filter specified in the IS-95 standard.
IS95_MOD_EQ	This choice selects a filter which is a combination of the equalizer filter described in the IS-95 standard and a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance), with lower passband rejection.
AC4Fm	This choice selects a predefined Association of Public Safety Communications Officials (APCO) specified compatible 4-level frequency modulation (C4FM) filter.
UGGaussian	This choice selects a backwards compatible GSM Gaussian filter (Gaussian filter with a fixed BbT value of 0.300) for the ESG E44xxB Option UN3 or UN4.
"<user FIR>"	This variable is any filter file that you have stored into memory.
***RST**	IS95
Key Entry	**Root Nyquist** **Nyquist** **Gaussian** **Rectangle** **IS-95** **IS-95 w/EQ** **IS-95 Mod** **IS-95 MOD w/EQ** **APCO 25 C4FM** **UN3/4 GSM Gaussian** **User FIR**
Remarks	Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:FILTer:ALPHa

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer:ALPHa <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer:ALPHa?
```

This command changes the alpha value on the Nyquist or root Nyquist filter.

The filter alpha value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +2.20000000E–001

Range 0.000–1.000

Key Entry **Filter Alpha**

Remarks This command is effective only after choosing the root Nyquist or Nyquist filter. It does not effect other types of filters.

To change the current filter type, refer to ":REVerse:FILTer" on page 460.

:REVerse:FILTer:BBT

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer:BBT <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer:BBT?
```

This command changes the bandwidth-multiplied-by-bit-time filter value.

The filter BbT value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +5.00000000E–001

Range 0.500–1.000

Key Entry **Filter BbT**

Remarks This command is effective only after choosing the Gaussian filter. It does not effect other types of filters.

To change the current filter type, refer to ":REVerse:FILTer" on page 460.

:REVerse:FILTer:CHANnel

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer:CHANnel EVM|ACP
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:FILTer:CHANnel?
```

This command optimizes the Nyquist and root Nyquist filters to minimize error vector magnitude (EVM) or to minimize adjacent channel power (ACP).

EVM This choice provides the most ideal passband.

ACP This choice improves stopband rejection.

***RST** EVM

Key Entry **Optimize FIR For EVM ACP**

Remarks To change the current filter type, refer to ":REVerse:FILTer" on page 460.

:REVerse:LCMask

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:LCMask <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:LCMask?
```

This command specifies a unique serial number code to identify a mobile station.

***RST** #H00000000000

Range #H0–#H3FFFFFFFFF

Field Entry `Long Code Mask`

Remarks N/A

:REVerse:LCSTate

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:LCSTate <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:LCSTate?
```

This command sets a unique code to address a mobile station.

***RST** #H00000000000

Range #H0–#H3FFFFFFFFF

Field Entry `Long Code State`

Remarks The storage register for the long code state allows a 42-bit binary number to be entered.

:REVerse:PADJust

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:PADJust EQUal|SCALe
```

Execute this command to set the code domain power.

EQUal Sets all channels to equal power, and the total power to 0 dB.

SCALe Scales all of the current channel powers so that the total power equals 0 dB, keeping the previous power ratios between the individual channels.

***RST** N/A

Key Entry **Equal Powers** **Scale To 0dB**

Remarks N/A

:REVerse:POLarity[:ALL]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:POLarity[:ALL] NORMal|INVerted
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:POLarity[:ALL]?
```

This command sets the phase polarity to either normal or inverted.

NORMal This choice selects normal phase polarity.

INVerted This choice inverts the internal Q signal.

***RST** NORM

Key Entry **Normal** **Inverted**

Remarks N/A

:REVerse:NOISe:CN

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:NOISe:CN <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:NOISe:CN?
```

This command sets the carrier to noise ratio for the reverse link.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –30 to 30

Key Entry C/N

Remarks The carrier to noise ratio is the ratio of the carrier power to in-channel noise power, expressed in decibels (dB).

A change to the carrier to noise ratio will only align the EbNo/EcNo field values in the active operating mode.

:REVerse:NOISe[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:NOISe[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:NOISe[:STATe]?
```

This command enables or disables the noise function for the baseband reverse link.

NOTE When this command is enabled, an immediate increase in the Even Second Delay and Trigger Advance values will occur. The Even Second Delay value will increase by an increment of 11.5 chips and the Trigger Advance value will increase by an increment of 12 chips. The chip increase will be seen in the appropriate field on the display.

Changes to Even Second Delay and Trigger Advance will not affect synchronization; automatic compensation is performed internally.

***RST** 0

Key Entry **Noise Off On**

Remarks Both the carrier and noise power value will be adjusted to match the specified carrier to noise ratio. Refer to ":REVerse:NOISe:CN" on page 464 to change the carrier to noise ratio.

The noise function can only be turned on with Option 403 installed.

:REVerse:RC12:ACCess:RACH:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:DATA PN9|PN15|
FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:DATA?
```

Execute this command to configure the data field for the reverse access channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:RC12:ACCess:RACH:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:DATA:FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern to be repeated as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry FIX4

Remarks N/A

:REVerse:RC12:ACCess:RACH:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the reverse access channel.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC12:ACCess:RACH:FLENgth

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:FLENgth?
```

This command queries the frame length for the reverse access channel.

The frame length is expressed as seconds (ms).

***RST** +20

Range N/A

Field Entry Frame Length

Remarks N/A

:REVerse:RC12:ACCess:RACH:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:FOFFset?
```

This command sets the frame offset value for the reverse access channel.

***RST** +0

Range 0–15

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC12:ACCess:RACH:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:POWer?
```

This command sets the power for the reverse access channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC12:ACCess:RACH:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:RCONfig 1|2
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:RCONfig?
```

This command select the radio configuration value for the reverse access channel.

***RST** +1

Field Entry `Radio Config`

Remarks N/A

:REVerse:RC12:ACCess:RACH:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH:RATE?
```

This command queries the data rate for the reverse access channel.

***RST** +4.80000000E+003

Range N/A

Field Entry `Bit Rate`

Remarks N/A

:REVerse:RC12:ACCess:RACH[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH[:STATe] ON|OFF|
1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:ACCess:RACH[:STATe]?
```

This command enables or disables the operating state for the reverse access channel.

***RST** +1

Field Entry `State`

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:DATA PN9|PN15|
FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:DATA?
```

This command configures the data field for the reverse supplemental traffic channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:RC12:TRAFfic:RSCH:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:DATA:FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:DATA:FIX4?
```

This command sets a fixed 4-bit data pattern that repeats as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH:FLENgth

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:FLENgth?
```

This command queries the frame length value for the reverse supplemental traffic channel.

***RST** +20

Range N/A

Field Entry N/A

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:FOFFset?
```

This command sets the frame offset value for the reverse supplemental traffic channel.

***RST** +0

Range 0–15

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:POWer?
```

This command sets the power for the reverse supplemental traffic channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:RATE 1.2kbps|
1.8kbps|2.4kbps|3.6kbps|4.8kbps|7.2kbps|9.6kbps|14.4kbps
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:RATE?
```

This command sets the data rate for the reverse supplemental traffic channel.

***RST** +9.60000000E+003

Field Entry `Bit Rate`

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:RCONfig 1|2
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH:RCONfig?
```

This command sets the data rate for the reverse supplemental traffic channel.

***RST** +1

Field Entry `Radio Config`

Remarks N/A

:REVerse:RC12:TRAFfic:RSCH[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH[:STATe] ON|OFF|
1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC12:TRAFfic:RSCH[:STATe]?
```

This command sets the operating state for the reverse supplemental traffic channel.

***RST** 0

Field Entry `State`

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:DATA PN9|
PN15|FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:DATA?
```

This command configures the data field for the reverse common control channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:RC34:CCONtrol:RCCCh:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:DATA:
FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern to be repeated as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the reverse common control channel.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:CCONtrol:RCCCh:FLENgth

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:FLENgth 5|10|
20
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:FLENgth?
```

This command sets the frame length value for the reverse common control channel.

The frame length is expressed as seconds (ms).

***RST** +20

Field Entry Frame Length

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:FOFFset?
```

This command sets the frame offset value for the reverse common control channel.

The frame offset value is expressed as seconds (ms).

***RST** +0

Range *Frame Length=5*: 0–3
Frame Length=10: 0–7
Frame Length=20: 0–20

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:POWer?
```

This command sets the power for the reverse common control channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:RCONfig 3|4
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:RCONfig?
```

This command selects the radio configuration value for the reverse common control channel.

***RST** +3

Field Entry `Radio Config`

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:RATE 9.6kbps|
19.2kbps|38.4kbps
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:RATE?
```

This command adjusts the data rate value for the reverse common control channel.

***RST** +9.60000000E+003

Field Entry `Bit Rate`

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh:WALSh?
```

This command queries the Walsh code for the reverse common control channel.

***RST** +2

Range N/A

Field Entry `Walsh`

Remarks N/A

:REVerse:RC34:CCONtrol:RCCCh[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh[:STATe] ON|
OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RCCCh[:STATe]?
```

This command sets the operating state for the reverse common control channel.

***RST** 0

Field Entry `State`

Remarks N/A

:REVerse:RC34:CCONtrol:RPICh:ECNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:ECNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:ECNO?
```

This command sets the ratio of energy per chip to the noise power spectral density (expressed in dB) for the reverse common control pilot channel.

***RST** +0.00000000E+000

Range *min EcNo*: −30 + Normalized Power

max EcNo: 30 + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EcNo

Remarks Changes to the EcNo values also change the EbNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:CCONtrol:RPICh:GRATe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:GRATe FULL|
HALF|QUARter
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:GRATe?
```

This command configures the gating data field for the reverse common control pilot channel.

FULL This choice transmits all sixteen power control bits.

HALF This choice transmits eight power control bits.

QUARter This choice transmits four power control bits.

***RST** FULL

Key Entry **Full** **Half** **Quarter**

Remarks N/A

:REVerse:RC34:CCONtrol:RPICh:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:POWer?
```

This command sets the power for the reverse common control pilot channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry Power

Remarks N/A

:REVerse:RC34:CCONtrol:RPICh:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh:WALSh?
```

This command queries the Walsh code for the reverse common control pilot channel.

***RST** +0

Range N/A

Field Entry Walsh

Remarks N/A

:REVerse:RC34:CCONtrol:RPICh[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh[:STATe] ON|
OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:CCONtrol:RPICh[:STATe]?
```

This command sets the operating state for the reverse common control pilot channel.

***RST** 1

Field Entry State

Remarks N/A

:REVerse:RC34:EACCess:REACh:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:DATA PN9|PN15|
FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:DATA?
```

This command configures the data field for the reverse enhanced access channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:RC34:EACCess:REACh:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:DATA:
FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern to be repeated as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

:REVerse:RC34:EACCess:REACh:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the reverse enhanced access channel.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:EACCess:REACh:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:FOFFset?
```

This command sets the frame offset value for the reverse enhanced access channel.

***RST** +0

Range *Frame Length=5*: 0–3 *Frame Length=10*: 0–7

Frame Length=20: 0–15

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC34:EACCess:REACh:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:POWer?
```

This command sets the power level for the reverse enhanced access channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC34:EACCess:REACh:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:RCONfig 3|4
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:RCONfig?
```

This command sets the radio configuration for the reverse enhanced access channel.

***RST** +3

Field Entry Radio Config

Remarks N/A

:REVerse:RC34:EACCess:REACh:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:RATE 9.6kbps|
19.2kbps|38.4kbps
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:RATE?
```

This command adjusts the data rate value for the reverse enhanced access channel.

***RST** +9.60000000E+003

Field Entry Bit Rate

Remarks N/A

:REVerse:RC34:EACCess:REACh:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh:WALSh?
```

This command queries the Walsh code for the reverse enhanced access channel.

***RST** +2

Range N/A

Field Entry Walsh

Remarks N/A

:REVerse:RC34:EACCess:REACh[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh[:STATe] ON|
OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:REACh[:STATe]?
```

This command sets the operating state for the reverse enhanced access channel.

***RST** 0

Field Entry State

Remarks N/A

:REVerse:RC34:EACCess:RPICh:ECNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:ECNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:ECNO?
```

This command sets the ratio of energy per chip to the noise power spectral density (expressed in dB) for the reverse enhanced access pilot channel.

***RST** +0.00000000E+000

Range *min EcNo*: –30 + Normalized Power

max EcNo: 30 + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EcNo

Remarks Changes to the EcNo values also change the EbNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:EACCess:RPICh:GRATe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:GRATe FULL|
HALF|QUARter
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:GRATe?
```

This command configures the gating data field for the reverse enhanced access pilot channel.

FULL This choice transmits all sixteen power control bits.

HALF This choice transmits eight power control bits.

QUARter This choice transmits four power control bits.

***RST** FULL

Key Entry **Full** **Half** **Quarter**

Remarks N/A

:REVerse:RC34:EACCess:RPICh:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:POWer?
```

This command sets the power for the reverse enhanced access pilot channel.

The variable <val> is expressed in unit of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC34:EACCess:RPICh:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh:WALSh?
```

This command queries the Walsh code for the reverse enhanced access pilot channel.

***RST** +0

Range N/A

Field Entry `Walsh`

Remarks N/A

:REVerse:RC34:EACCess:RPICh[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh[:STATe] ON|
OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:EACCess:RPICh[:STATe]?
```

This command sets the operating state for the reverse enhanced access pilot channel.

***RST** 1

Field Entry `State`

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:DATA PN9|
PN15|FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:DATA?
```

This command configures the data field for the reverse traffic dedicated control channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:RC34:TRAFfic:RDCCh:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:DATA:
FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern to be repeated as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:EBNO?
```

This command sets the ratio of energy per bit, per the noise power spectral density (expressed in dB) for the reverse traffic dedicated control channel.

***RST** +0.00000000E+000

Range $\text{min EbNo: } 10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right] + \text{Normalized Power}$

$$\text{max EbNo: } 10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right] + \text{Normalized Power}$$

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry `EbNo`

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:TRAFfic:RDCCh:FLENgth

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:FLENgth 5|20
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:FLENgth?
```

This command sets the frame length value for the reverse traffic dedicated control channel.

The frame length is expressed as seconds (ms).

***RST** +20

Field Entry `Frame Length`

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:FOFFset?
```

This command sets the frame offset value for the reverse traffic dedicated control channel.

***RST** +0

Range *Frame Length=5*: 0–3 *Frame Length=20*: 0–7

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:POWer?
```

This command sets the power for the reverse traffic dedicated control channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:RATE?
```

This command queries the data rate for the reverse traffic dedicated control channel.

***RST** *Frame Length=5*: RC3/4= +9.60000000E+003

Frame Length=10: RC3= +9.60000000E+003

Frame Length=20: RC3= +1.44000000E+004

Range N/A

Field Entry `Bit Rate`

Remarks N/A

:REVerse:RC34:TRAFfic:RDDCh:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDDCh:RCONfig 3|4
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDDCh:RCONfig?
```

This command selects the radio configuration value for the reverse traffic dedicated control channel.

***RST** +3

Field Entry `Radio Config`

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh:WALSh?
```

This command queries the Walsh code for the reverse traffic dedicated control channel.

***RST** +8

Range 0–15

Field Entry `Walsh`

Remarks N/A

:REVerse:RC34:TRAFfic:RDCCh[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh[:STATe] ON|
OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RDCCh[:STATe]?
```

This command sets the operating state for the reverse traffic dedicated control channel.

***RST** 0

Field Entry `State`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:DATA PN9|PN15|
FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:DATA?
```

This command configures the data field for the reverse fundamental traffic channel.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to “File Name Variables” on page 13 for information on the file name syntax.

:REVerse:RC34:TRAFfic:RFCH:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:DATA:FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:DATA:FIX4?
```

This command selects a fixed 4-bit data pattern to be repeated as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:EBNO?
```

This command sets the ratio of energy per bit, per the noise power spectral density (expressed in dB) for the reverse fundamental traffic channel.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other

channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:TRAFfic:RFCH:FLENgth

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:FLENgth 5|20
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:FLENgth?
```

This command sets the frame length value for the reverse fundamental traffic channel.

The frame length is expressed as seconds (ms).

***RST** +20

Field Entry `Frame Length`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:FOFFset?
```

This command sets the frame offset value for the reverse fundamental traffic channel.

***RST** +0

Range *Frame Length=5*: 0–3

Frame Length=20: 0–15

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:POWer?
```

This command sets the power for the reverse fundamental traffic channel.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:RCONfig 3|4
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:RCONfig?
```

This command sets the radio configuration value for the reverse fundamental traffic channel.

***RST** +3

Field Entry `Radio Config`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:RATE 1.2kbps|
1.5kbps|1.8kbps|2.7kbps|3.6kbps|4.8kbps|7.2kbps|9.6kbps|14.4kbps
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:RATE?
```

This command sets the data rate value for the reverse fundamental traffic channel.

***RST** +9.60000000E+003

Field Entry `Bit Rate`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH:WALSh?
```

This command queries the Walsh code for the reverse fundamental traffic channel.

***RST** +4

Range N/A

Field Entry `Walsh`

Remarks N/A

:REVerse:RC34:TRAFfic:RFCH[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH[:STATe] ON|OFF|
1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RFCH[:STATe]?
```

This command sets the operating state for the reverse fundamental traffic channel.

***RST** 0

Field Entry `State`

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA PN9|
PN15|FIX4|"<file name>"
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA?
```

This command configures the data field for the reverse supplemental channels.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA:FIX4

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA:
FIX4 <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA:FIX4?
```

This command sets a fixed 4-bit data pattern that repeats as necessary to fill the selected data area.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2:DATA:EBNO

Supported All with Options 401 and 403

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:EBNO <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:EBNO?
```

This command sets the ratio of energy per bit to noise power spectral density (expressed in dB) for the reverse supplemental traffic channels.

***RST** +0.00000000E+000

Range $min\ EbNo$: $10\log_{10}\left[\frac{\text{Chip Rate}}{1000(\text{Bit Rate})}\right]$ + Normalized Power

$max\ EbNo$: $10\log_{10}\left[\frac{1000(\text{Chip Rate})}{\text{Bit Rate}}\right]$ + Normalized Power

Normalized Power is the channel amplitude after adjusting the code power to 0 dB. Refer to ":REVerse:PADJust" on page 463 for adjusting the code domain power.

Field Entry EbNo

Remarks Changes to the EbNo values also change the EcNo values for all other channels in the current link (forward or reverse).

Queries of this command are only valid for the current operating state.

:REVerse:RC34:TRAFfic:RSCH[1]|2:FLENgth

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:
FLENgth 20|40|80
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:FLENgth?
```

This command sets the frame length value for the reverse supplemental channels.

***RST** +20

Field Entry Frame Length

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2:FOFFset

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:
```

```
FOFFset <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:FOFFset?
```

This command sets the frame offset value for the reverse supplemental channels.

***RST** +0

Range 0–63

Range *Frame Length=20*: 0–15 *Frame Length=40*: 0–31
Frame Length=80: 0–63

Field Entry `Frame Offset`

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2:POWer

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:
POWer <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:POWer?
```

This command sets the power level for the reverse supplemental channels.

The variable <val> is expressed in units of decibels (dB).

***RST** +0.00000000E+000

Range –40 to 0

Field Entry `Power`

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2:RCONfig

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:RCONfig 3|
4
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:RCONfig?
```

This command selects the radio configuration value for the reverse supplemental channels.

***RST** +3

Field Entry `Radio Config`

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2:RATE

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:
RATE 1.2ksbps|1.350kbps|1.5kbps|1.8kbps|2.4kbps|2.7kbps|3.6kbps|4.8kbps|
7.2kbps|9.6kbps|14.4kbps
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:RATE?
```

Execute this command to set the data rate for the reverse supplemental channels.

***RST** +9.60000000E+003

Field Entry `Bit Rate`

Remarks To change the frame length value, refer to ":REVerse:RC34:TRAFfic:RSCH[1]|2:FLENgth" on page 490

:REVerse:RC34:TRAFfic:RSCH[1]|2:TCODe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:TCODe ON|
OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:TCODe?
```

This command enables or disables the operating state of the turbo coding function for the reverse supplemental channels.

***RST** 0

Field Entry `Turbo Coding`

Remarks To ensure that this function is being executed with the correct data rate, refer to ":REVerse:RC34:TRAFfic:RSCH[1]|2:RATE" on page 492.

:REVerse:RC34:TRAFfic:RSCH[1]|2:WALSh

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH1:WALSh <1|2>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH2:WALSh <2|6>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2:WALSh?
```

This command sets the Walsh code value for the reverse supplemental channels.

***RST** *Channel 1*: +1 *Channel 2*: +2

Field Entry `Walsh`

Remarks N/A

:REVerse:RC34:TRAFfic:RSCH[1]|2[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|
2[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:RC34:TRAFfic:RSCH[1]|2[:STATe]?
```

This command enables or disables the operating state of the reverse supplemental channels.

***RST** 0

Field Entry State

Remarks N/A

:REVerse:REFerence:EXTernal:FREQuency

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:REFerence:EXTernal:
FREQuency <val><unit>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:REFerence:EXTernal:FREQuency?
```

This command sets the expected frequency of the external reference signal.

***RST** +1.96608000E+007

Range 1–100 MHz

Field Entry Ext BBG Ref Freq

Remarks This setting must match the frequency of the signal that is supplied to the BASEBAND GEN REF IN rear panel BNC connector.

:REVerse:REFerence[:SOURce]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:REFerence[:SOURce] INTernal|
EXTernal
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:REFerence[:SOURce]?
```

This command selects the reference clock source.

EXTernal This choice sets the instrument to use an external reference signal. The external reference frequency must be entered and the signal must be applied to the

BASEBAND GEN REF IN rear panel connector.

INTernal — This choice sets the instrument to use the internal reference.

***RST** — INT

Field Entry — BBG Reference

Remarks — If the EXT choice is selected, the BBCLock selection will automatically be set to internal.

:REVerse:TADVance

Supported — All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:TADVance <val>
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:TADVance?
```

This command selects the number of chips to advance the trigger time slot for the reverse link.

***RST** — +28

Range — 0–2457599

Field Entry — Trigger Advance

Remarks — When the noise function is set to ON, this value will increase. Refer to ":REVerse:NOISe[:STATe]" on page 464 for more information.

:REVerse:TEDGe

Supported — All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:TEDGe RISing|FALLing
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:TEDGe?
```

This command selects a falling or rising trigger edge state for the reverse link.

RISing — This choice selects a trigger on the rising edge of the signal applied to the PATT TRIG IN rear panel connector.

FALLing — This choice selects a trigger on the falling edge of the signal applied to the PATT TRIG IN rear panel connector.

***RST** — FALL

Key Entry — **Rising** **Falling**

Remarks — N/A

:REVerse:SRATe

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG]:REVerse:SRATe?
```

This command returns the value of the current spreading rate for the reverse channel.

***RST** +1

Range N/A

Key Entry N/A

Remarks N/A

[:STATe]

Supported All with Option 401

```
[:SOURce]:RADio:CDMA2000[:BBG][:STATe] ON|OFF|1|0
[:SOURce]:RADio:CDMA2000[:BBG][:STATe]?
```

This command enables or disables the CDMA2000 baseband generator modulation format.

***RST** 0

Key Entry CDMA2000 Off On

Remarks N/A

Custom Subsystem–Option 001/601 or 002/602 ([:SOURce]:RADio:CUSTom)

:ALPha

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:ALPHa <val>
[:SOURce]:RADio:CUSTom:ALPHa?
```

This command changes the Nyquist or root Nyquist filter's alpha value.

The filter alpha value can be set to a minimum level (0), a maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +3.50000000E–001

Range 0.000–1.000

Key Entry **Filter Alpha**

Remarks To change the current filter type, refer to ":FILTer" on page 506.

:BBCLock

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BBCLock INT[1]|EXT[1]
[:SOURce]:RADio:CUSTom:BBCLock?
```

This command toggles the data (bit) clock input to the baseband generator board to either internal or external. This command is independent in each mode and works for both non-burst (continuous) and burst modes. This allows for a matrix of selections between burst/non-burst, internal/external data generation, internal/external data clock, and external bit/symbol data clock.

INT[1] This choice selects the signal generator internal data clock.

EXT[1] This choice selects an external data clock input.

***RST** INT

Key Entry **BBG Data Clock Ext Int**

Remarks A data clock or continuous symbol sync input must be supplied when external mode is used.

This will be ignored if the external reference is set to EXTernal. To change the external reference type, refer to ":EREFerence" on page 505.

:BBT

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BBT <val>
[:SOURce]:RADio:CUSTom:BBT?
```

This command changes the bandwidth-multiplied-by-bit-time (BbT) filter parameter.

The filter BbT value can be set to the maximum level (1) or in between the minimum level (0.100) and maximum level by using fractional numeric values (0.101–0.999).

***RST** +5.00000000E–001

Range 0.100–1.000

Key Entry **Filter BbT**

Remarks This command is effective only after choosing a Gaussian filter. It does not have an effect on other types of filters.

To change the current filter type, refer to ":FILTer" on page 506.

:BRATe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BRATe <val>
[:SOURce]:RADio:CUSTom:BRATe?
```

This command sets the bit rate.

The variable <val> is expressed in units of bits per second (bps–Mbps) and the maximum range value is dependent upon the source of data (internal or external), the modulation type, and filter.

***RST** +4.86000000E+004

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
BPSK	1	1–50 Mbps	1–50 Mbps
FSK2			
MSK			

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
C4FM	2	2–100 Mbps	2–50 Mbps
FSK4			
OQPSK			
OQPSK195			
P4QPPSK			
QAM4			
QPSK			
QPSKIS95			
QPSKISAT			
D8PSK	3	3–100 Mbps	3–50 Mbps
EDGE			
FSK8			
PSK8			
FSK16	4	4–100 Mbps	4–50 Mbps
PSK16			
QAM16			
QAM32	5	5–100 Mbps	5–50 Mbps
QAM64	6	6–100 Mbps	6–50 Mbps
QAM256	7	8–100 Mbps	8–50 Mbps

Field Entry `SymRate`

Remarks When user-defined filters are selected using the command in section ":FILTer" on page 506, the upper bit rate will be restricted in line with the following symbol rate restriction:

- FIR filter length > 32 symbols: upper limit is 12.5 Msps
- FIR filter length > 16 symbols: upper limit is 25 Msps

When internal FIR filters are used, the limits of the above table always apply. For higher symbol rates, the FIR filter length will be truncated and will impact the relative timing of the modulated data, as well as the actual filter response (see ":SRATe" on page 510).

A change in the bit rate value will affect the symbol rate value; refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 509.

:BURSt:SHAPe:FALL:DELay

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FALL:DELay <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FALL:DELay?
```

This command sets the burst shape fall delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –22.3750 to 99

Key Entry **Fall Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FDELay" on page 499 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FALL:TIME

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FALL:TIME <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FALL:TIME?
```

This command sets the burst shape fall time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.1250–255.8750

Key Entry **Fall Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FTIMe" on page 500 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FDELay

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FDELay <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FDELay?
```

This command sets the burst shape fall delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –22.3750 to 99

Key Entry **Fall Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FALL:DELay" on page 498 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FTIMe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FTIMe <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:FTIMe?
```

This command sets the burst shape fall time.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range 0.1250–255.8750

Key Entry **Fall Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FALL:TIME" on page 499 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RDELay

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RDELay <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RDELay?
```

This command sets the burst shape rise delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –17.3750 to 99

Key Entry **Rise Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RISE:DELay" on page 501 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RISE:DELay

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RISE:DELay <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RISE:DELay?
```

This command sets the burst shape rise delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –17.3750 to 99

Key Entry **Rise Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RDELay" on page 500 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RISE:TIME

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RISE:TIME <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RISE:TIME?
```

This command sets the burst shape rise time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.1250–121.5000

Key Entry **Rise Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RTIMe" on page 502 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RTIMe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RTIMe <val>
[:SOURce]:RADio:CUSTom:BURSt:SHAPe:RTIMe?
```

This command sets the burst shape rise time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.1250–121.5000

Key Entry **Rise Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509. Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RISE:TIME" on page 501 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe[:TYPE]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:BURSt:SHAPe[:TYPE] SINE|"<file name>"
[:SOURce]:RADio:CUSTom:BURSt:SHAPe[:TYPE]?
```

This command specifies the burst shape ("<file name>").

SINE	This choice selects a state that is defined by the burst rise and fall *RST values, as the default burst shape type.
"<file name>"	This choice selects a user designated file from signal generator memory (non-volatile).

***RST** SINE

Key Entry **Sine** **User File**

Remarks N/A

:CHANnel

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:CHANnel EVM|ACP
[:SOURce]:RADio:CUSTom:CHANnel?
```

This command optimizes the Nyquist and root Nyquist filters to minimize error vector magnitude (EVM) or to minimize adjacent channel power (ACP).

EVM	This choice provides the most ideal passband.
ACP	This choice improves stopband rejection.

***RST** ACP

Key Entry **Optimize FIR For EVM ACP**

Remarks To change the current filter type, refer to ":FILTer" on page 506.

:DATA

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:DATA PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|
EXT|P4|P8|P16|P32|P64
[:SOURce]:RADio:CUSTom:DATA?
```

This command sets the data pattern for unframed transmission.

***RST** PN23

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext**

4 1's & 4 0's **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's**

64 1's & 64 0's

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:DATA:FIX4

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:DATA:FIX4 <val>
[:SOURce]:RADio:CUSTom:DATA:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern for unframed transmission according to the modulation type, symbol rate, filter, and burst shape selected for the custom modulation format.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must be already be defined as the data type.

:DENCode

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:DENCode ON|OFF|1|0
[:SOURce]:RADio:CUSTom:DENCode?
```

This command enables or disables the differential data encoding function.

***RST** 0

Key Entry **Diff Data Encode Off On**

Remarks Executing this command encodes the data bits prior to modulation; each modulated bit is 1 if the data bit is different from the previous one, or 0 if the data bit is the same as the previous one.

:EDATa:DELay

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:EDATa:DELay?
```

This query returns the amount of delay (in symbols) from the external data input to the beginning of the symbol on the I OUT and Q OUT rear panel connectors and the front panel RF OUTPUT connector.

***RST** N/A

Range N/A

Key Entry N/A

Remarks When the format is turned off, the delay value is unchanged; the query will return the same delay value if the format is on or off.

:EDCLock

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:EDCLock SYMBol|NORMal
[:SOURce]:RADio:CUSTom:EDCLock?
```

This command sets the external data clock use.

SYMBol This choice specifies that a continuous symbol clock signal must be provided to the SYMBOL SYNC input connector.

NORMal This choice specifies that the DATA CLOCK input connector requires a bit clock. The SYMBOL SYNC input connector requires a (one-shot or continuous) symbol sync signal.

***RST** NORM

Key Entry **Ext Data Clock Normal Symbol**

Remarks Both choices have no effect in internal clock mode. Refer to ":BBCLock" on page 496 to select EXT as the data clock type.

:EREFerence

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:EREFerence INTernal|EXTernal
[:SOURce]:RADio:CUSTom:EREFerence?
```

This command selects either an internal or external bit-clock reference for the data generator.

***RST** INT

Key Entry **BBG Ref Ext Int**

Remarks If the EXTernal choice is selected, the external frequency value must be applied to the BASEBAND GEN REF IN rear panel connector.

Refer to ":EREFerence:VALue" on page 506 to enter the external reference frequency.

:EREFerence:VALue

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:EREFerence:VALue <val>
[:SOURce]:RADio:CUSTom:EREFerence:VALue?
```

This command conveys the expected reference frequency value of an externally applied reference to the signal generator.

The variable <val> is expressed in units of Hertz (Hz–MHz).

***RST** +1.30000000E+007

Range 2.5E5–1E8

Key Entry **Ext BBG Ref Freq**

Remarks The value specified by this command is effective only when you are using an external ARB reference applied to the BASEBAND GEN REF IN rear panel connector.

Refer to ":EREFerence" on page 505 to select EXTernal as the reference for the bit clock reference of the data generator.

:FILTer

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:FILTer RNYQuist|NYQuist|GAUSsian|RECTangle|IS95|
IS95_EQ|IS95_MOD|IS95_MOD_EQ|AC4Fm|UGGaussian|"<user FIR>"
[:SOURce]:RADio:CUSTom:FILTer?
```

This command selects the pre-modulation filter type.

IS95	This choice selects a filter that meets the criteria of the IS-95 standard.
IS95_EQ	This choice selects a filter which is a combination of the IS-95 filter (above) and the equalizer filter described in the IS-95 standard. This filter is only used for IS-95 baseband filtering.
IS95_MOD	This choice selects a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance) with lower passband rejection than the filter specified in the IS-95 standard.
IS95_MOD_EQ	This choice selects a filter which is a combination of the equalizer filter described in the IS-95 standard and a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance), with lower passband rejection.
AC4Fm	This choice selects a predefined Association of Public Safety Communications

Officials (APCO) specified compatible 4-level frequency modulation (C4FM) filter.

UGGaussian — This choice selects a backwards compatible GSM Gaussian filter (Gaussian filter with a fixed BbT value of 0.300) for the ESG E44xxB Option UN3 or UN4.

"<user FIR>" — This variable is any filter file that you have stored into memory.

***RST** RNYQ

Key Entry **Root Nyquist** **Nyquist** **Gaussian** **Rectangle** **IS-95** **IS-95 w/EQ** **IS-95 Mod** **IS-95 Mod w/EQ** **APCO 25 C4FM** **UN3/4 GSM Gaussian** **User FIR**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:IQ:SCALe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:IQ:SCALe <val>
[:SOURce]:RADio:CUSTom:IQ:SCALe?
```

This command sets the amplitude of the I/Q outputs for better adjacent channel power (ACP); lower scaling values equate to better ACP.

The variable <val> is expressed in units of percent.

***RST** +70

Range 1–200

Key Entry **I/Q Scaling**

Remarks This command has no effect with MSK or FSK modulation.

:MODulation:FSK[:DEViation]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:MODulation:FSK[:DEViation] <val>
[:SOURce]:RADio:CUSTom:MODulation:FSK[:DEViation]?
```

This command sets the symmetric FSK frequency deviation value.

The variable <val> is expressed in units of Hertz and the maximum range value equals the current symbol rate value multiplied by four, limited to 20 MHz.

***RST** +4.00000000E+002

Range 0–2E7

Key Entry **Freq Dev**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 509.

Refer to ":SRATe" on page 510 for a list of the minimum and maximum symbol rate values.

To set an asymmetric FSK deviation value, refer to the *User's Guide* for more information.

:MODulation:MSK[:PHASe]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:MODulation:MSK[:PHASe] <val>
[:SOURce]:RADio:CUSTom:MODulation:MSK[:PHASe]?
```

This command sets the MSK phase deviation value.

The variable <val> is expressed in units of degrees.

***RST** +9.00000000E+001

Range 0–100

Key Entry **Phase Dev**

Remarks N/A

:MODulation:UFSK

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:MODulation:UFSK "<file name>"
[:SOURce]:RADio:CUSTom:MODulation:UFSK?
```

This command selects a user-defined FSK file from the signal generator memory.

***RST** N/A

Range N/A

Key Entry **User FSK**

Remarks The user-defined FSK file is held in signal generator memory until the command that selects user FSK as the modulation type is sent. Refer to ":MODulation[:TYPE]" on page 509 to change the current modulation type.

Refer to "File Name Variables" on page 13 for information on the file name

syntax.

:MODulation:UIQ

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:MODulation:UIQ "<file name>"
[:SOURce]:RADio:CUSTom:MODulation:UIQ?
```

This command selects a user-defined I/Q file from the signal generator memory.

***RST** N/A

Range N/A

Key Entry **User I/Q**

Remarks The user-defined I/Q file is held in signal generator memory until the command that selects user I/Q as the modulation type is sent. Refer to ":MODulation[:TYPE]" on page 509 to change the current modulation type.

Refer to "File Name Variables" on page 13 for information on the file name syntax.

:MODulation[:TYPE]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:MODulation[:TYPE] BPSK|QPSK|IS95QPSK|GRAYQPSK|
OQPSK|IS95OQPSK|P4DQPSK|PSK8|PSK16|D8PSK|MSK|FSK2|FSK4|FSK8|FSK16|C4FM|
QAM4|QAM16|QAM32|QAM64|QAM128|QAM256|UIQ|UFSK
[:SOURce]:RADio:CUSTom:MODulation[:TYPE]?
```

This command sets the modulation type for the Custom personality.

***RST** P4DQPSK

Key Entry **BPSK** **QPSK** **IS-95 QPSK** **Gray Coded QPSK** **OQPSK** **IS-95 OQPSK** **π/4 DQPSK** **8PSK** **16PSK** **D8PSK** **MSK** **2-Lvl FSK** **4-Lvl FSK** **8-Lvl FSK** **16-Lvl FSK** **C4FM** **4QAM** **16QAM** **32QAM** **64QAM** **128QAM** **256QAM** **User I/Q** **User FSK**

Remarks N/A

:POLarity[:ALL]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:POLarity[:ALL] NORMal|INVerted
[:SOURce]:RADio:CUSTom:POLarity[:ALL]?
```

This command sets the rotation direction of the phase modulation vector.

NORMal — This choice selects normal phase polarity.

INVerted — This choice inverts the internal Q signal.

***RST** NORM

Key Entry **Phase Polarity Normal Invert**

Remarks N/A

:SRATe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:SRATe <val>
[:SOURce]:RADio:CUSTom:SRATe?
```

This command sets the transmission symbol rate.

The variable <val> is expressed in units of bits per second (bps–Mbps) and the maximum range value is dependent upon the source of data (internal or external), the modulation type, and filter.

***RST** +2.43000000E+004

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
BPSK	1	1–50 Msps	1–50 Msps
FSK2			
MSK			
C4FM	2	1–50 Msps	1–25 Msps
FSK4			
OQPSK			
OQPSK195			
P4QPPSK			
QAM4			
QPSK			
QPSKIS95			
QPSKISAT	2	1–50 Msps	1–25 Msps
D8PSK	3	1–50 Msps	1–16.67 Msps
EDGE			
FSK8			
PSK8			

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
FSK16	4	1–50 Msps	1–12.5 Msps
PSK16			
QAM16			
QAM32	5	1–50 Msps	1–10 Msps
QAM64	6	1–50 Msps	1–8.33 Msps
QAM256	8	1–50 Msps	1–6.25 Msps

Key Entry **Symbol Rate**

Remarks When user-defined filters are selected using the command in section ":FILTer" on page 506, the upper bit rate will be restricted in line with the following symbol rate restriction:

- FIR filter length > 32 symbols: upper limit is 12.5 Msps
- FIR filter length > 16 symbols: upper limit is 25 Msps

When internal FIR filters are used, the limits of the above table always apply. For higher symbol rates, the FIR filter length will be truncated as follows:

- Above 12.5 Msps, the FIR length will be truncated to 32 symbols
- Above 25 Msps, the FIR length will be truncated to 16 symbols

  This will impact the relative timing of the modulated data, as well as the actual filter response (see ":BRATe" on page 497).

A change in the symbol rate value will affect the bit rate value; refer to ":BRATe" on page 497 for a list of the minimum and maximum symbol rate values.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 509.

:STANdard:SELect

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:STANdard:SELect NONE|AC4Fm|ACQPsk|BLUEtooth|CDPD
[:SOURce]:RADio:CUSTom:STANdard:SELect?
```

This command selects a predefined setup for Custom (with the appropriate defaults) and/or clears the selection.

NONE This choice clears the current predefined Custom format.

AC4Fm This choice sets up an Association of Public Safety Communications Officials (APCO) compliant, compatible 4-level frequency modulation (C4FM) format.

ACQPsk	This choice sets up an Association of Public Safety Communications Officials (APCO) compliant, compatible quadrature phase shift keying (CQPSK) format.
BLUEtooth	This choice sets up a Bluetooth (2-level frequency shift keying) format.
CDPD	This choice sets up a minimum shift keying Cellular Digital Packet Data (CDPD) format.

***RST** NONE

Key Entry **None** **APCO 25w/C4FM** **APCO 25 w/CQPSK** **Bluetooth** **CDPD**

Remarks N/A

:TRIGger:TYPE

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger:TYPE CONTinuous|SINGle|GATE
[:SOURce]:RADio:CUSTom:TRIGger:TYPE?
```

This command sets the trigger type.

CONTinuous	The framed data sequence repeats continuously; the sequence restarts every time the previous playback is completed. To customize continuous triggering, refer to ":TRIGger:TYPE:CONTinuous[:TYPE]" on page 512.
SINGle	The framed data sequence plays once for every trigger received.
GATE	An external trigger signal interrupts the playback while the gating signal is in the inactive state. Playback resumes when the external control signal returns to the active state. The active state can be set to high or low.

***RST** CONT

Key Entry **Continuous** **Single** **Gated**

Remarks N/A

:TRIGger:TYPE:CONTinuous[:TYPE]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger:TYPE:CONTinuous[:TYPE] FREE|TRIGger|RESet
[:SOURce]:RADio:CUSTom:TRIGger:TYPE:CONTinuous[:TYPE]?
```

This command customizes the continuous trigger selection.

FREE	This choice immediately transmits a framed data sequence that is continuously repeated.

TRIGger	This choice causes the framed data sequence to wait for a trigger. Once a trigger is received, the transmission of a continuously repeated framed data sequence begins.
RESet	This choice immediately restarts a continuously repeated framed data sequence upon receiving a trigger.
***RST**	FREE
Key Entry	**Free Run** **Trigger & Run** **Reset & Run**
Remarks	To select CONTinuous as the trigger type, refer to ":TRIGger:TYPE" on page 512.

:TRIGger:TYPE:GATE:ACTive

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger:TYPE:GATE:ACTive LOW|HIGH
[:SOURce]:RADio:CUSTom:TRIGger:TYPE:GATE:ACTive?
```

This command toggles the polarity of the active state of the external gating input signal; GATE must be selected as the arb trigger type.

LOW	The sequence runs while the selected external control gating signal is low and stops when the gate returns to the high level.
HIGH	The sequence runs while the selected external control gating signal is high and stops when the gate returns to the low level.
***RST**	HIGH
Key Entry	**Gate Active Low High**
Remarks	To select GATE as the ARB trigger type, refer to ":TRIGger:TYPE" on page 512.

:TRIGger[:SOURce]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce] KEY|EXT|BUS
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]?
```

This command sets the trigger source.

KEY	This choice enables triggering by pressing the front panel **Trigger** hardkey.
EXT	This choice enables triggering using an externally applied signal at the PATT TRIG IN rear panel connector or the PATT TRIG IN 2 pin on the rear panel AUX I/O connector. To select the appropriate connector, refer to

":TRIGger[:SOURce]:EXTernal[:SOURce]" on page 514.

BUS — This choice enables GPIB triggering using the `*TRG` or `GET` command or LAN and RS-232 triggering using the `*TRG` command.

***RST** KEY

Key Entry **Trigger Key** **Ext** **Bus**

Remarks N/A

:TRIGger[:SOURce]:EXTernal[:SOURce]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal[:SOURce] EPT1|EPT2|
EPTRIGGER1|EPTRIGGER2
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal[:SOURce]?
```

This command specifies which PATT TRIG IN connection, rear panel connector or AUX I/O connector, will be used to accept an externally applied trigger signal.

EPT1 — This choice is synonymous with EPTRIGGER1 and selects the PATT TRIG IN rear panel connector for the external signal connection.

EPT2 — This choice is synonymous with EPTRIGGER2 and selects the PATT TRIG IN 2 pin on the rear panel AUX I/O connector for the external signal connection.

EPTRIGGER1 — This choice is synonymous with EPT1 and selects the PATT TRIG IN rear panel connector for the external signal connection.

EPTRIGGER2 — This choice is synonymous with EPT2 and selects the PATT TRIG IN 2 pin on the rear panel AUX I/O connector for the external signal connection.

***RST** EPT1

Key Entry **Patt Trig In 1** **Patt Trig In 2**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 513.

For more information about the rear panel AUX I/O connector pin configuration, refer to the *User's Guide*.

:TRIGger[:SOURce]:EXTernal:DELay

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal:DELay <val>
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal:DELay?
```

This command specifies the number of delay bits for the external trigger delay.

The variable <val> is expressed in bits.

***RST** +0

Range 0–1048575

Key Entry **Ext Delay Bits**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 513.

:TRIGger[:SOURce]:EXTernal:DELay:STATe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal:DELay:STATe ON|OFF|1|0
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal:DELay:STATe?
```

This command enables or disables the operating state of the external trigger delay function.

***RST** 0

Key Entry **Ext Delay Off On**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 513.

:TRIGger[:SOURce]:EXTernal:SLOPe

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal:SLOPe POSitive|NEGative
[:SOURce]:RADio:CUSTom:TRIGger[:SOURce]:EXTernal:SLOPe?
```

This command sets the polarity of the external trigger.

***RST** NEG

Key Entry **Ext Polarity Neg Pos**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 513.

[:STATe]

Supported All with Option 001/601 or 002/602

```
[:SOURce]:RADio:CUSTom[:STATe] ON|OFF|1|0
[:SOURce]:RADio:CUSTom[:STATe]?
```

This command enables or disables the Custom modulation.

***RST** 0

Key Entry Custom Off On

Remarks Although the Custom modulation is enabled with this command, the RF carrier is not modulated unless you also activate the front panel **Mod On/Off** hardkey.

DECT Subsystem–Option 402 ([:SOURce]:RADio:DECT)

:ALPha

Supported All with Option 402

```
[:SOURce]:RADio:DECT:ALPHa <val>
[:SOURce]:RADio:DECT:ALPHa?
```

This command changes the Nyquist or root Nyquist filter's alpha value.

The filter alpha value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +5.00000000E–001

Range 0.000–1.000

Key Entry **Filter Alpha**

Remarks To change the current filter type, refer to ":FILTer" on page 528.

:BBCLock

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BBCLock INT[1]|EXT[1]
[:SOURce]:RADio:DECT:BBCLock?
```

This command toggles the data (bit) clock input to the baseband generator board to either internal or external. This command is independent in each mode and works for both non-burst (continuous) and burst modes. This allows for a matrix of selections between burst/non-burst, internal/external data generation, internal/external data clock, and external bit/symbol data clock.

INT[1] This choice selects the signal generator internal data clock.

EXT[1] This choice selects an external data clock input.

***RST** INT

Key Entry **BBG Data Clock Ext Int**

Remarks A data clock or continuous symbol sync input must be supplied when external mode is used.

:BBT

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BBT <val>
[:SOURce]:RADio:DECT:BBT?
```

This command changes the bandwidth-multiplied-by-bit-time (BbT) filter parameter.

The filter BbT value can be set to the maximum level (1) or in between the minimum level (0.100) and maximum level by using fractional numeric values (0.101–0.999).

***RST** +5.00000000E–001

Range 0.100–1.000

Key Entry **Filter BbT**

Remarks This command is effective only after choosing a Gaussian filter. It does not have an effect on other types of filters.

To change the current filter type, refer to ":FILTer" on page 528.

:BRATe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BRATe <val>
[:SOURce]:RADio:DECT:BRATe?
```

This command sets the bit rate.

The variable <val> is expressed in units of bits per second (bps–Mbps) and the maximum range value is dependent upon the source of data (internal or external), the modulation type, and filter.

***RST** +1.15200000E+006

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
BPSK	1	1–50 Mbps	1–50 Mbps
FSK2			
MSK			
C4FM	2	2–100 Mbps	2–50 Mbps
FSK4			
OQPSK			
OQPSK195			
P4QPPSK			
QAM4			

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
QPSK	2	2–100 Mbps	2–50 Mbps
QPSKIS95			
QPSKISAT			
D8PSK	3	3–100 Mbps	3–50 Mbps
EDGE			
FSK8			
PSK8			
FSK16	4	4–100 Mbps	4–50 Mbps
PSK16			
QAM16			
QAM32	5	5–100 Mbps	5–50 Mbps
QAM64	6	6–100 Mbps	6–50 Mbps
QAM256	7	8–100 Mbps	8–50 Mbps

Key Entry **Symbol Rate**

Remarks When user-defined filters are selected using the command in section ":FILTer" on page 528, the upper bit rate will be restricted in line with the following symbol rate restriction:

- FIR filter length > 32 symbols: upper limit is 12.5 Msps
- FIR filter length > 16 symbols: upper limit is 25 Msps

When internal FIR filters are used, the limits of the above table always apply. For higher symbol rates, the FIR filter length will be truncated and will impact the relative timing of the modulated data, as well as the actual filter response (see ":SRATe" on page 557).

A change in the bit rate value will affect the symbol rate value; refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 531.

:BURSt:PN9

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:PN9 NORMal|QUICk
[:SOURce]:RADio:DECT:BURSt:PN9?
```

This command controls the software PN9 generation.

NORMal This choice produces a maximum length PN9 sequence.

QUICk This choice produces a truncated PN9 sequence.

***RST** NORM

Key Entry **PN9 Mode Normal Quick**

Remarks Use Normal mode for bit-error-rate tests where a maximum length PN9 sequence is required.

:BURSt:SHAPe:FALL:DELay

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:FALL:DELay <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:FALL:DELay?
```

This command sets the burst shape fall delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –10.5625 to 99

Key Entry **Fall Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FDELay" on page 521 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FALL:TIME

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:FALL:TIME <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:FALL:TIME?
```

This command sets the burst shape fall time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.0625–127.9375

Key Entry **Fall Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531.

Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FTIMe" on page 521 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FDELay

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:FDELay <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:FDELay?
```

This command sets the burst shape fall delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –10.5625 to 99

Key Entry **Fall Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FALL:DELay" on page 520 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FTIMe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:FTIMe <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:FTIMe?
```

This command sets the burst shape fall time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.0625–127.9375

Key Entry **Fall Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:FALL:TIME" on page 520 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RDELay

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:RDELay <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:RDELay?
```

This command sets the burst shape rise delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –0.5625 to 99

Key Entry **Rise Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RISE:DELay" on page 522 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RISE:DELay

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:RISE:DELay <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:RISE:DELay?
```

This command sets the burst shape rise delay.

The variable <val> is expressed in bits.

***RST** +0.00000000E+000

Range –0.5625 to 99

Key Entry **Rise Delay**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RDELay" on page 522 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RISE:TIME

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:RISE:TIME <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:RISE:TIME?
```

This command sets the burst shape rise time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.0625–10.6250

Key Entry **Rise Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RTIMe" on page 523 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RTIMe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe:RTIMe <val>
[:SOURce]:RADio:DECT:BURSt:SHAPe:RTIMe?
```

This command sets the burst shape rise time.

The variable <val> is expressed in bits.

***RST** +1.00000000E+001

Range 0.0625–10.6250

Key Entry **Rise Time**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531. Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

":BURSt:SHAPe:RISE:TIME" on page 523 performs the same function; in compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt:SHAPe[:TYPE] SINE|"<file name>"
[:SOURce]:RADio:DECT:BURSt:SHAPe[:TYPE]?
```

This command specifies the burst shape as either `SINE` or a user-defined file (`"<file name>"`).

SINE — This choice selects a state that is defined by the burst rise and fall *RST values, as the default burst shape type.

"<file name>" — This choice selects a user-defined file from signal generator memory (non-volatile).

***RST** SINE

Key Entry **Sine** **User File**

Remarks N/A

:BURSt[:STATe]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:BURSt[:STATe] ON|OFF|1|0
[:SOURce]:RADio:DECT:BURSt[:STATe]?
```

This command enables or disables the burst function.

ON (1) — This choice enables the transmission of framed data. If all timeslots which are switched on are up traffic channels or custom, you will be bursting the timeslots that are on; there will be no RF carrier during the off timeslots.

If you have switched on any timeslot that you have configured as a down traffic channel, the RF carrier is not switched off between any of the timeslots. The off timeslots are transmitted as a continuous series of ones for the time period of the off timeslots.

OFF (0) This choice enables the transmission of unframed data.

***RST** 0

Key Entry **Data Format Pattern Framed**

Remarks N/A

:CHANnel

Supported All with Option 402

```
[:SOURce]:RADio:DECT:CHANnel EVM|ACP
[:SOURce]:RADio:DECT:CHANnel?
```

This command optimizes the Nyquist and root Nyquist filters to minimize error vector magnitude (EVM) or to minimize adjacent channel power (ACP).

EVM This choice provides the most ideal passband.

ACP This choice improves stopband rejection.

***RST** EVM

Key Entry **Optimize FIR For EVM ACP**

Remarks To change the current filter type, refer to ":FILTer" on page 528.

:DATA

Supported All with Option 402

```
[:SOURce]:RADio:DECT:DATA PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|
P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:DATA?
```

This command sets the data pattern type (pseudo-random number sequence, 4-bit pattern, sequence of 1's and 0's, data from an external source, or a user file) for unframed data transmission.

***RST** PN23

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext**
4 1's & 4 0's **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's**
64 1's & 64 0's

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:DATA:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:DATA:FIX4 <val>
[:SOURce]:RADio:DECT:DATA:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern for unframed transmission according to the modulation type, symbol rate, filter, and burst shape selected for the DECT modulation format.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type. To change the data type, refer to ":DATA" on page 525.

:DEFault

Supported All with Option 402

```
[:SOURce]:RADio:DECT:DEFault
```

This command returns all of the DECT modulation format parameters to factory settings. It does not affect any other signal generator parameters.

***RST** N/A

Range N/A

Key Entry **Restore Dect Factory Default**

Remarks N/A

:EDATa:DELay

Supported All with Option 402

```
[:SOURce]:RADio:DECT:EDATa:DELay?
```

This query returns the amount of delay (in symbols) from the external data input to the beginning of the symbol on the I OUT and Q OUT rear panel connectors and the front panel RF OUTPUT connector.

***RST** N/A

Range N/A

Key Entry N/A

Remarks When the format is turned off, the delay value is unchanged; the query will return the same delay value if the format is on or off.

:EDCLock

Supported All with Option 402

```
[:SOURce]:RADio:DECT:EDCLock SYMBol|NORMal
[:SOURce]:RADio:DECT:EDCLock?
```

This command sets the external data clock use.

SYMBol This choice specifies that a continuous symbol clock signal must be provided to the SYMBOL SYNC input connector.

NORMal This choice specifies that the DATA CLOCK input connector requires a bit clock. The SYMBOL SYNC input connector requires a (one-shot or continuous) symbol sync signal.

***RST** NORM

Key Entry **Ext Data Clock Normal Symbol**

Remarks Both choices have no effect in internal clock mode. Refer to ":BBCLock" on page 517 to select EXT as the data clock type.

:EREFerence

Supported All with Option 402

```
[:SOURce]:RADio:DECT:EREFerence INT|EXT
[:SOURce]:RADio:DECT:EREFerence?
```

This command selects either an internal or external bit-clock reference for the data generator.

***RST** INT

Key Entry **BBG Ref Ext Int**

Remarks If the EXT choice is selected, the external source's frequency value must be applied to the BASEBAND GEN REF IN rear panel connector. The external reference and external data clock are not applicable at the same time. If both are selected, then the external reference takes precedence.

Refer to, ":EREFerence:VALue" on page 528 to enter the external reference frequency setting.

:EREFerence:VALue

Supported All with Option 402

```
[:SOURce]:RADio:DECT:EREFerence:VALue <val>
[:SOURce]:RADio:DECT:EREFerence:VALue?
```

This command sets the expected bit-clock reference frequency value for an externally applied reference signal.

The variable <val> is expressed in units of hertz (Hz–MHz).

***RST** +1.30000000E+007

Range 2.5E5–1E8

Key Entry **Ext BBG Ref Freq**

Remarks The value specified by this command is effective only when you are using an external reference applied to the BASEBAND GEN REF IN rear panel connector.

Refer to ":EREFerence" on page 527 to select EXT (external source) as the reference for the bit-clock.

:FILTer

Supported All with Option 402

```
[:SOURce]:RADio:DECT:FILTer RNYQuist|NYQuist|GAUSsian|RECTangle|IS95|
IS95_EQ|IS95_MOD|IS95_MOD_EQ|AC4Fm|UGGaussian|"<user FIR>"
[:SOURce]:RADio:DECT:FILTer?
```

This command specifies the pre-modulation filter type.

IS95	This choice selects a filter that meets the criteria of the IS-95 standard.
IS95_EQ	This choice selects a filter which is a combination of the IS-95 filter (above) and the equalizer filter described in the IS-95 standard. This filter is only used for IS-95 baseband filtering.
IS95_MOD	This choice selects a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance) with lower passband rejection than the filter specified in the IS-95 standard.
IS95_MOD_EQ	This choice selects a filter which is a combination of the equalizer filter described in the IS-95 standard and a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance), with lower passband rejection.
AC4Fm	This choice selects a predefined Association of Public Safety Communications Officials (APCO) specified compatible 4-level frequency modulation (C4FM)

filter.

UGGaussian — This choice selects a backwards compatible GSM Gaussian filter (Gaussian filter with a fixed BbT value of 0.300) for the ESG E44xxB Option UN3 or UN4.

"<user FIR>" — This variable is any filter file that you have stored into memory.

***RST** GAUS

Key Entry **Root Nyquist** **Nyquist** **Gaussian** **Rectangle** **IS-95** **IS-95 w/EQ** **IS-95 Mod** **IS-95 Mod w/EQ** **UN3/4 GSM Gaussian** **APCO 25 C4FM** **User FIR**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:IQ:SCALe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:IQ:SCALe <val>
[:SOURce]:RADio:DECT:IQ:SCALe?
```

This command sets the amplitude of the I/Q outputs for better adjacent channel power (ACP); lower scaling values equate to better ACP.

The variable <val> is expressed in units of percent.

***RST** +100

Range 1–200

Key Entry **I/Q Scaling**

Remarks This command has no effect with MSK or FSK modulation.

:MODulation:FSK[:DEViation]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:MODulation:FSK[:DEViation] <val>
[:SOURce]:RADio:DECT:MODulation:FSK[:DEViation]?
```

This command sets the symmetric FSK frequency deviation value.

The variable <val> is expressed in units of Hertz and the maximum range value equals the current symbol rate value multiplied by four, limited to 20 MHz.

***RST** +2.88000000E+005

Range 0–2E7

Key Entry **Freq Dev**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 531.

Refer to ":SRATe" on page 557 for a list of the minimum and maximum symbol rate values.

To set an asymmetric FSK deviation value, refer to the *User's Guide* for more information.

:MODulation:MSK[:PHASe]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:MODulation:MSK[:PHASe] <val>
[:SOURce]:RADio:DECT:MODulation:MSK[:PHASe]?
```

This command sets the MSK phase deviation value.

The variable <val> is expressed in units of degrees.

***RST** +9.00000000E+001

Range 0–100

Key Entry **Phase Dev**

Remarks N/A

:MODulation:UFSK

Supported All with Option 402

```
[:SOURce]:RADio:DECT:MODulation:UFSK "<file name>"
[:SOURce]:RADio:DECT:MODulation:UFSK?
```

This command selects a user-defined FSK file from the signal generator memory.

***RST** N/A

Range N/A

Key Entry **User FSK**

Remarks The user-defined FSK file is held in signal generator memory until the command that selects user FSK as the modulation type is sent. Refer to ":MODulation[:TYPE]" on page 531 to change the current modulation type.

Refer to "File Name Variables" on page 13 for information on the file name

syntax.

:MODulation:UIQ

Supported All with Option 402

```
[:SOURce]:RADio:DECT:MODulation:UIQ "<file name>"
[:SOURce]:RADio:DECT:MODulation:UIQ?
```

This command selects a user-defined I/Q file from the signal generator memory.

***RST** N/A

Range N/A

Key Entry **User I/Q**

Remarks The user-defined I/Q file is held in signal generator memory until the command that selects user I/Q as the modulation type is sent. Refer to ":MODulation[:TYPE]" on page 531 to change the current modulation type.

Refer to "File Name Variables" on page 13 for information on the file name syntax.

:MODulation[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:MODulation[:TYPE] BPSK|QPSK|IS95QPSK|GRAYQPSK|
OQPSK|IS95OQPSK|P4DQPSK|PSK8|PSK16|D8PSK|MSK|FSK2|FSK4|FSK8|FSK16|C4FM|
QAM4|QAM16|QAM32|QAM64|QAM128|QAM256|UIQ|UFSK
[:SOURce]:RADio:DECT:MODulation[:TYPE]?
```

This command sets the modulation type for the DECT personality.

***RST** FSK2

Key Entry **BPSK** **QPSK** **IS-95 QPSK** **Gray Coded QPSK** **OQPSK** **IS-95 OQPSK** **π/4 DQPSK** **8PSK** **16PSK** **D8PSK** **MSK** **2-Lvl FSK** **4-Lvl FSK** **8-Lvl FSK** **16-Lvl FSK** **C4FM** **4QAM** **16QAM** **32QAM** **64QAM** **128QAM** **256QAM** **User I/Q** **User FSK**

Remarks N/A

:POLarity[:ALL]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:POLarity[:ALL] NORMal|INVerted
[:SOURce]:RADio:DECT:POLarity[:ALL]?
```

This command sets the rotation direction of the phase modulation vector.

NORMal	This choice selects normal phase polarity.
INVerted	This choice inverts the internal Q signal.
***RST**	NORM
Key Entry	**Phase Polarity Normal Invert**
Remarks	N/A

:PPart:SLOT0|[1]|2|3|4[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4[:TYPE] CUSTom|TRAFfic|
LCAPacity|ZTRaffic|ZLCapacity
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4[:TYPE]?
```

This command specifies the timeslot type for the selected timeslot in the portable part link.

***RST**	*Timeslot 0*: TRAF *Timeslots 1–4*: CUST
Key Entry	**Custom** **Traffic Bearer** **Low Capacity** **Traffic Bearer with Z field** **Low Capacity with Z field**
Remarks	N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom PN9|
PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|FDEV1_FS|FDEV2_FS|
FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom?
```

This command customizes the selected custom timeslot for a portable part link.

***RST**	PN9
Key Entry	**PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom:
FIX4 <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern which is used in the portable part custom data field of the selected timeslot.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type. To change the data type, refer to ":PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom" on page 532.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
A <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:A?
```

This command customizes the A field for the selected low-capacity timeslot in the portable part link.

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks The A field carries signaling data (48 bits) and error correction (16 bits).

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
P <val>
```

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:P?
```

This command customizes the preamble (P) field of the selected low-capacity timeslot in the portable part link.

***RST** #H5555

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
S <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:S?
```

This command customizes the synchronization pattern of the selected low-capacity timeslot in the portable part link.

***RST** #H1675

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B]?
```

This command sets the data pattern type (pseudo-random number sequence, 4-bit pattern, sequence of 1’s and 0’s, data from an external source, or a user file) for the B field of the selected portable part low-capacity timeslot.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1’s & 4 0’s**

8 1's & 8 0's **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B]:FIX4 <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B]:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected portable part low-capacity timeslot B field.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type. Refer to ":PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity[:B]" on page 534 to change the data type.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:POWer

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
POWer MAIN|DELTa
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
POWer?
```

This command defines the RF output power level for the selected timeslot.

MAIN This choice specifies RF output as the main power level.

DELTa This choice specifies RF output as the alternative power level.

***RST** MAIN

Key Entry **Timeslot Ampl Main Delta**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:STATe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:STATe ON|OFF|
1|0
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:STATe?
```

This command enables or disables the operating state of the selected portable part timeslot.

***RST** *Timeslot 0*: 1 *Timeslots 1–11*: 0

Key Entry **Timeslot Off On**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
A <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:A?
```

This command customizes the A field for the selected traffic bearer timeslot in the portable part link. The A field carries signaling data (48 bits) and error correction (16 bits).

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
P <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:P?
```

This command customizes the preamble (P) field of the selected traffic bearer timeslot in the portable part link.

***RST** #H5555

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
S <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
S?
```

This command sets the synchronization pattern for the selected traffic bearer timeslot in the portable part link.

***RST** #H1675

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
TRAFfic[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]?
```

This command sets the B field data pattern for the selected traffic bearer timeslot in the portable part link.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]:
FIX4 <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]:
FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the portable part traffic bearer B field of the selected timeslot.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
A <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:A?
```

This command customizes the A field for the selected low-capacity with Z field timeslot in the portable part link.

The A field carries signaling data (48 bits) and error correction (16 bits).

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
P <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:P?
```

This command customizes the preamble (P) field of the selected low-capacity with Z field timeslot in the portable part link.

***RST** #H5555

Range #H0–#HFFFF

Key Entry P

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
S <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:S?
```

This command customizes the synchronization pattern of the selected low-capacity with Z field timeslot in the portable part link.

***RST** #H1675

Range #H0–#HFFFF

Key Entry S

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B]?
```

This command sets the data pattern for the B field of the selected portable part low-capacity with Z field timeslot.

***RST** PN9

Key Entry PN9 PN11 PN15 PN20 PN23 FIX4 User File Ext FDEV1_HS FDEV1_FS FDEV2_FS FACC DM1 DM0 4 1's & 4 0's 8 1's & 8 0's 16 1's & 16 0's 32 1's & 32 0's 64 1's & 64 0's

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B]:FIX4 <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B]:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the portable part low-capacity with Z field B field of the selected timeslot.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:
A <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:A?
```

This command customizes the A field for the selected traffic bearer with Z field timeslot in the portable part link. The A field carries signaling data (48 bits) and error correction (16 bits).

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:
P <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:P?
```

This command customizes the preamble (P) field of the selected traffic bearer with Z field timeslot in the portable part link.

***RST** #H5555

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:
S <val>
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:S?
```

This command sets the synchronization pattern for the selected traffic bearer with Z field timeslot in the portable part link.

***RST** #H1675

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZTRaffic[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]?
```

This command sets the B field data pattern for the selected traffic bearer with Z field timeslot in the portable part link.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]:
FIX4 <val>
```

```
[:SOURce]:RADio:DECT:PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]:
FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the portable part traffic bearer with Z field B field of the selected timeslot.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type. Refer to ":PPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]" on page 541 to change the data type.

:RFPart:SLOT0|[1]|2|3|4[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4[:TYPE] CUSTom|DUMM[1]|DUMM2|
TRAFfic|LCAPacity|ZTRaffic|ZLCapacity
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4[:TYPE]?
```

This command selects the timeslot type for the selected timeslot in the radio fixed part link.

***RST** *Timeslot 0*: TRAF *Timeslots 1–4*: CUST

Key Entry **Custom** **Dummy Bearer 1** **Dummy Bearer 2** **Traffic Bearer** **Low Capacity** **Traffic Bearer with Z field** **Low Capacity with Z field**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom PN9|
PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|FDEV1_FS|FDEV2_FS|
FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom?
```

This command sets the data pattern for the data field of the selected custom timeslot in the radio fixed part link.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's**

8 1's & 8 0's **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom:
FIX4 <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom:
FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected radio fixed part custom timeslot.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type. Refer to ":RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:CUSTom" on page 542 to change the data type.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:
A <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:A?
```

This command customizes the A field for the selected dummy 2 timeslot in the radio fixed part link.

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks The A field carries signaling data (48 bits) and error correction (16 bits).

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:
```

```
P <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:P?
```

This command customizes the preamble (P) field for the selected dummy 2 timeslot in the radio fixed part link.

***RST** #HAAAA

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:
S <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM2:S?
```

This command customizes the synchronization (S) field of the selected dummy 2 timeslot in the radio fixed part link.

***RST** #HE98A

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:
A <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:A?
```

This command customizes the A field for the selected dummy 1 timeslot in the radio fixed part link.

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks The 64-bit A field carries signaling data (48 bits) and error correction (16 bits).

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:
P <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:P?
```

This command customizes the preamble (P) field for the selected dummy 1 timeslot in the radio fixed part link.

***RST** #HAAAA

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:
S <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:DUMM[1]:S?
```

This command customizes the synchronization (S) field of the selected dummy 1 timeslot in the radio fixed part link.

***RST** #HE98A

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
A <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:A?
```

This command customizes the A field for the selected low-capacity timeslot in the radio fixed part link.

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
P <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:P?
```

This command customizes the preamble (P) field of the selected low-capacity timeslot in the portable part link.

***RST** #HAAAA

Range #H0–#H1111

Key Entry **P**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:
S <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:S?
```

This command customizes the synchronization pattern of the selected low-capacity timeslot in the portable part link.

***RST** #HE98A

Range #H0–#H1111

Key Entry **S**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
```

```
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B]?
```

This command sets the data pattern for the B field of the selected portable part low-capacity timeslot.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B]:FIX4 <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
LCAPacity[:B]:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected radio fixed part low-capacity timeslot B field.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:LCAPacity:POWer

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:POWer MAIN|
DELTa
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:POWer?
```

This command defines the RF output power level for the selected timeslot.

MAIN This choice specifies RF output as the main power level.

DELTa This choice specifies RF output as the alternative power level.

***RST** MAIN

Key Entry **Timeslot Ampl Main Delta**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:STATe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:STATe ON|
OFF|1|0
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:STATe?
```

This command enables or disables the operating state of the selected timeslot in the radio fixed part.

***RST** *Timeslot 0*: 1 *Timeslots 1–11*: 0

Key Entry **Timeslot Off On**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
A <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:A?
```

This command customizes the A field for the selected traffic bearer timeslot in the portable part link.

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks The A field carries signaling data (48 bits) and error correction (16 bits).

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
P <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:P?
```

This command customizes the preamble (P) field of the selected traffic bearer timeslot in the radio fixed part link.

***RST** #HAAAA

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:
S <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic:S?
```

This command customizes the synchronization (S) field of the selected traffic bearer timeslot in the radio fixed part link.

***RST** #HE98A

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
TRAFfic[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]?
```

This command sets the B field's data pattern for the selected traffic bearer timeslot in the radio fixed part during framed data transmission.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]
:FIX4 <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]:
FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected radio fixed part traffic bearer timeslot B field.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type, refer to ":RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:TRAFfic[:B]" on page 549.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:A

Supported All with Option 402

```
[:SOURce]:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
A <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
A?
```

This command customizes the A field for the selected low-capacity with Z field timeslot in the radio fixed part link. The A field carries signaling data (48 bits) and error correction (16 bits).

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
P <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
P?
```

This command customizes the preamble (P) field of the selected low-capacity with Z field timeslot in the radio fixed part link.

***RST** #HAAAA

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
S <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity:
S?
```

This command customizes the synchronization (S) field of the selected low-capacity with Z field timeslot in the radio fixed part link.

***RST** #HE98A

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B] PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|FDEV1_HS|
FDEV1_FS|FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B]?
```

This command sets the B field's data pattern for the selected low-capacity with Z field timeslot in the radio fixed part during framed data transmission.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZLCapacity[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B]:FIX4 <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZLCapacity[:B]:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected radio fixed part low-capacity with Z field timeslot B field.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:A

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:
A <val>
 [:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:A?
```

This command customizes the A field for the selected traffic bearer timeslot in the radio fixed part link. The A field carries signaling data (48 bits) and error correction (16 bits).

***RST** #H0000FFFF0000FFFF

Range #H0–#HFFFFFFFFFFFFFFFF

Key Entry **A field**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:P

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:
P <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:P?
```

This command customizes the preamble (P) field of the selected traffic bearer with Z field timeslot in the radio fixed part link.

***RST** #HAAAA

Range #H0–#HFFFF

Key Entry **P**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:S

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:
S <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic:S?
```

This command customizes the synchronization (S) field of the selected traffic bearer with Z field timeslot in the radio fixed part link.

***RST** #HE98A

Range #H0–#HFFFF

Key Entry **S**

Remarks N/A

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZTRaffic[:B] PN9|PN15|FIX4|"<file name>"|EXT|FDEV1_HS|FDEV1_FS|
FDEV2_FS|FACCuracy|DM1|DM0|P4|P8|P16|P32|P64
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZTRaffic[:B]?
```

This command sets the B field data pattern for the selected traffic bearer with Z field timeslot in the portable part link.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext** **FDEV1_HS** **FDEV1_FS** **FDEV2_FS** **FACC** **DM1** **DM0** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:ZTRaffic[:B]:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZTRaffic[:B]:FIX4 <val>
[:SOURce]:RADio:DECT:RFPart:SLOT0|[1]|2|3|4|5|6|7|8|9|10|11:
ZTRaffic[:B]:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected radio fixed part traffic bearer with Z field timeslot B field.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type.

:SECondary:RECall

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SECondary:RECall
```

This command recalls the secondary frame configuration, overwriting the current state.

***RST** N/A

Range N/A

Key Entry **Recall Secondary Frame State**

Remarks To save a secondary frame state, refer to ":SECondary:SAVE" on page 554.

A secondary frame is not active until the secondary state is enabled. To activate a secondary frame, refer to ":SECondary[:STATe]" on page 555.

:SECondary:SAVE

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SECondary:SAVE
```

This command saves the current frame configuration as the secondary frame with the filename DECT_SECONDARY_FRAME.

***RST** N/A

Range N/A

Key Entry **Save Secondary Frame State**

Remarks To recall the secondary frame (saved in non-volatile signal generator memory), refer to ":SECondary:RECall" on page 554.

:SECondary:TRIGger[:SOURce]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SECondary:TRIGger[:SOURce] KEY|EXT|BUS
[:SOURce]:RADio:DECT:SECondary:TRIGger[:SOURce]?
```

This command selects the type of triggering for the secondary frame.

KEY This choice enables triggering by pressing the front panel **Trigger** hardkey.

EXT This choice enables triggering using an externally applied signal at the PATT TRIG IN rear panel connector or the PATT TRIG IN 2 pin on the rear panel AUX I/O connector. To select the appropriate connector, refer to ":TRIGger[:SOURce]:EXTernal[:SOURce]" on page 560.

BUS This choice enables GPIB triggering using the `*TRG` or `GET` command or LAN and RS-232 triggering using the `*TRG` command.

***RST** N/A

Key Entry **Trigger Key** **Ext** **Bus**

Remarks N/A

:SECondary[:STATe]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SECondary[:STATe] ON|OFF|1|0
[:SOURce]:RADio:DECT:SECondary[:STATe]?
```

This command enables or disables the ability to switch to the secondary frame.

***RST** 0

Key Entry **Secondary Frame Off On**

Remarks A frame must already be saved as the secondary frame in order to turn the secondary state function on.

To save a frame as the secondary frame, refer to ":SECondary:SAVE" on page 554.

:SOUT

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SOUT FRAME|SLOT|ALL
[:SOURce]:RADio:DECT:SOUT?
```

This command sets the synchronization location (within the pattern of data) and the type of output at the EVENT 1 rear panel connector.

FRAME — This choice outputs a 1-bit signal, synchronized to the bit selected by the synchronization output offset command, for a framed data pattern.

SLOT — This choice outputs a 1-bit signal, synchronized to the bit selected by the synchronization output offset command, for a selected timeslot.

ALL — This choice outputs a 1-bit signal, synchronized to the bit selected by the synchronization output offset command, for all active timeslots.

***RST** FRAME

Key Entry **Begin Frame** **Begin Timeslot #** **All Timeslots**

Remarks N/A

:SOUT:OFFSet

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SOUT:OFFSet <val>
[:SOURce]:RADio:DECT:SOUT:OFFSet?
```

This command sets the offset value for the location of the output synchronization signal on the EVENT1 rear panel connector relative to the beginning of the framed data pattern or timeslot.

The variable <val> is expressed in bits.

***RST** +0

Range –479 to 479

Key Entry **Sync Out Offset**

Remarks Negative values move the synchronization output signal earlier; positive values move it later.

To change the output of the EVENT1 rear panel connector to SLOT, refer to ":SOUT" on page 556.

:SOUT:SLOT

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SOUT:SLOT <val>
[:SOURce]:RADio:DECT:SOUT:SLOT?
```

This command selects the timeslot that will trigger a 1-bit signal at the EVENT 1 rear panel connector.

***RST** +1

Range *Radio Fixed Part Link*: 0–12 *Portable Part Link*: 1–11

Key Entry **Begin Timeslot #**

Remarks To change the output of the EVENT1 rear panel connector to SLOT, refer to ":SOUT" on page 556.

:SRATe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:SRATe <val>
[:SOURce]:RADio:DECT:SRATe?
```

This command sets the transmission symbol rate.

The variable <val> is expressed in units of bits per second (bps–Mbps) and the maximum range value is dependent upon the source of data (internal or external), the modulation type, and filter.

***RST** +1.15200000E+006

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
BPSK	1	1–50 Msps	1–50 Msps
FSK2			
MSK			
C4FM	2	1–50 Msps	1–25 Msps
FSK4			
OQPSK			
OQPSK195			
P4QPPSK			
QAM4			
QPSK			
QPSKIS95			
QPSKISAT			

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
D8PSK	3	1–33.33 Msps	1–16.67 Msps
EDGE			
FSK8			
PSK8			
FSK16	4	1–25 Msps	1–12.5 Msps
PSK16			
QAM16			
QAM32	5	1–20 Msps	1–10 Msps
QAM64	6	1–16.67 Msps	1–8.33 Msps
QAM256	7	1–12.50 Msps	1–6.25 Msps

Key Entry **Symbol Rate**

Remarks When user-defined filters are selected using the command in section ":FILTer" on page 528, the upper bit rate will be restricted in line with the following symbol rate restriction:

- FIR filter length > 32 symbols: upper limit is 12.5 Msps
- FIR filter length > 16 symbols: upper limit is 25 Msps

When internal FIR filters are used, the limits of the above table always apply. For higher symbol rates, the FIR filter length will be truncated as follows:

- Above 12.5 Msps, the FIR length will be truncated to 32 symbols
- Above 25 Msps, the FIR length will be truncated to 16 symbols

  This will impact the relative timing of the modulated data, as well as the actual filter response (see ":BRATe" on page 518).

A change in the symbol rate value will affect the bit rate value; refer to ":BRATe" on page 518 for a list of the minimum and maximum symbol rate values.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 531.

:TRIGger:TYPE

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger:TYPE CONTinuous|SINGle|GATE
[:SOURce]:RADio:DECT:TRIGger:TYPE?
```

This command sets the trigger type.

CONTinuous The framed data sequence repeats continuously; the sequence restarts every time the previous playback is completed. To customize continuous triggering, refer to

":TRIGger:TYPE:CONTinuous[:TYPE]" on page 559.

SINGle — The framed data sequence plays once for every trigger received.

GATE — An external trigger signal interrupts the playback while the gating signal is in the inactive state. Playback resumes when the external control signal returns to the active state. The active state can be set to high or low.

***RST** CONT

Key Entry **Continuous** **Single** **Gated**

Remarks N/A

:TRIGger:TYPE:CONTinuous[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger:TYPE:CONTinuous[:TYPE] FREE|TRIGger|RESet
[:SOURce]:RADio:DECT:TRIGger:TYPE:CONTinuous[:TYPE]?
```

This command customizes the continuous trigger selection.

FREE — This choice immediately transmits a framed data sequence that is continuously repeated.

TRIGger — This choice causes the framed data sequence to wait for a trigger. Once a trigger is received, the transmission of a continuously repeated framed data sequence begins.

RESet — This choice immediately restarts a continuously repeated framed data sequence upon receiving a trigger.

***RST** FREE

Key Entry **Free Run** **Trigger & Run** **Reset & Run**

Remarks To select CONTinuous as the trigger type, refer to ":TRIGger:TYPE" on page 558.

:TRIGger:TYPE:GATE:ACTive

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger:TYPE:GATE:ACTive LOW|HIGH
[:SOURce]:RADio:DECT:TRIGger:TYPE:GATE:ACTive?
```

This command toggles the polarity of the active state of the external gating input signal; GATE must be selected as the arb trigger type.

LOW — The sequence runs while the selected external control gating signal is low and

stops when the gate returns to the high level.

HIGH — The sequence runs while the selected external control gating signal is high and stops when the gate returns to the low level.

***RST** HIGH

Key Entry **Gate Active Low High**

Remarks To select GATE as the ARB trigger type, refer to ":TRIGger:TYPE" on page 558.

:TRIGger[:SOURce]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger[:SOURce] KEY|EXT|BUS
[:SOURce]:RADio:DECT:TRIGger[:SOURce]?
```

This command sets the trigger source.

KEY — This choice enables triggering by pressing the front panel **Trigger** hardkey.

EXT — This choice enables triggering using an externally applied signal at the PATT TRIG IN rear panel connector or the PATT TRIG IN 2 pin on the rear panel AUX I/O connector. To select the appropriate connector, refer to ":TRIGger[:SOURce]:EXTernal[:SOURce]" on page 560.

BUS — This choice enables GPIB triggering using the `*TRG` or `GET` command or LAN and RS-232 triggering using the `*TRG` command.

***RST** KEY

Key Entry **Trigger Key** **Ext** **Bus**

Remarks N/A

:TRIGger[:SOURce]:EXTernal[:SOURce]

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal[:SOURce] EPT1|EPT2|
EPTRIGGER1|EPTRIGGER2
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal[:SOURce]?
```

This command specifies which PATT TRIG IN connection, rear panel connector or AUX I/O connector, will be used to accept an externally applied trigger signal.

EPT1 — This choice is synonymous with EPTRIGGER1 and selects the PATT TRIG IN rear panel connector for the external signal connection.

EPT2 — This choice is synonymous with EPTRIGGER2 and selects the PATT TRIG IN 2

pin on the rear panel AUX I/O connector for the external signal connection.

EPTRIGGER1 This choice is synonymous with EPT1 and selects the PATT TRIG IN rear panel connector for the external signal connection.

EPTRIGGER2 This choice is synonymous with EPT2 and selects the PATT TRIG IN 2 pin on the rear panel AUX I/O connector for the external signal connection.

***RST** EPT1

Key Entry **Patt Trig In 1** **Patt Trig In 2**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 560.

For more information about the rear panel AUX I/O connector pin configuration, refer to the *User's Guide*.

:TRIGger[:SOURce]:EXTernal:DELay

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal:DELay <val>
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal:DELay?
```

This command specifies the number of delay bits for the external trigger delay.

The variable <val> is expressed in bits.

***RST** +0

Range 0–1048576

Key Entry **Ext Delay Bits**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 560.

:TRIGger[:SOURce]:EXTernal:SLOPe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal:SLOPe POSitive|NEGative
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal:SLOPe?
```

This command sets the polarity for the external trigger.

***RST** NEG

Key Entry **Ext Polarity Neg Pos**

Remarks This command is effective only if an external trigger is selected as the trigger

source. Refer to ":TRIGger[:SOURce]" on page 560.

:TRIGger[:SOURce]:EXTernal:DELay:STATe

Supported All with Option 402

```
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal:DELay:STATe ON|OFF|1|0
[:SOURce]:RADio:DECT:TRIGger[:SOURce]:EXTernal:DELay:STATe?
```

This command enables or disables the operating state of the external trigger delay function.

***RST** 0

Key Entry **Ext Delay Off On**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 560.

[:STATe]

Supported All with Option 402

```
[:SOURce]:RADio:DECT[:STATe] ON|OFF|1|0
[:SOURce]:RADio:DECT[:STATe]?
```

This command enables or disables the DECT modulation format.

***RST** 0

Key Entry **Dect Off On**

Remarks Although the DECT modulation is enabled with this command, the RF carrier is not modulated unless you enable the modulation by pressing the front panel **Mod On/Off** hardkey.

EDGE Subsystem–Option 402 ([:SOURce]:RADio:EDGE)

:ALPHa

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:ALPHa <val>
[:SOURce]:RADio:EDGE:ALPHa?
```

This command changes the Nyquist or root Nyquist filter's alpha value.

The filter alpha value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

***RST** +5.00000000E–001

Range 0.000–1.000

Key Entry **Filter Alpha**

Remarks To change the current filter type, refer to ":FILTer" on page 573.

:BBCLock

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BBCLock INT[1]|EXT[1]
[:SOURce]:RADio:EDGE:BBCLock?
```

This command toggles the data (bit) clock input to the baseband generator board to either internal or external. This command is independent in each mode and works for both non-burst (continuous) and burst modes. This allows for a matrix of selections between burst/non-burst, internal/external data generation, internal/external data clock, and external bit/symbol data clock.

INT[1] This choice selects the signal generator internal data clock.

EXT[1] This choice selects an external data clock input.

***RST** INT

Key Entry **Ext Data Clock Ext Int**

Remarks A data clock or continuous symbol sync input must be supplied when

external mode is used.

This will be ignored if the external reference is set to EXTernal. To change the external reference type, refer to ":EREFerence" on page 572.

:BBT

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BBT <val>
[:SOURce]:RADio:EDGE:BBT?
```

This command changes the bandwidth-multiplied-by-bit-time (BbT) filter parameter.

The filter BbT value can be set to the maximum level (1) or in between the minimum level (0.100) and maximum level by using fractional numeric values (0.101–0.999).

***RST** +3.00000000E–001

Range 0.100–1.000

Key Entry **Filter BbT**

Remarks This command is effective only after choosing a Gaussian filter. It does not have an effect on other types of filters.

To change the current filter type, refer to ":FILTer" on page 573.

:BURSt:SHAPe:FALL:DELay

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FALL:DELay <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FALL:DELay?
```

This command sets the period of time that the start of the burst fall is delayed.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +0.00000000E+000

Range –16.2000 to 99

Key Entry **Fall Delay**

Remarks The setting enabled by this command is not affected by signal generator power-on, preset, or `*RST`.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

":BURSt:SHAPe:FDELay" on page 565 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FDELay

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FDELay <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FDELay?
```

This command sets the period of time that the start of the burst fall is delayed.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +0.00000000E+000

Range –16.2000 to 99

Key Entry **Fall Delay**

Remarks The setting enabled by this command is not affected by signal generator power-on, preset, or `*RST`.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

":BURSt:SHAPe:FALL:DELay" on page 564 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FALL:TIME

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FALL:TIME <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FALL:TIME?
```

This command sets the period of time where the burst decreases from full power to minimum power.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +1.00000000E+001

Range 0.2000–409.2000

Key Entry **Fall Time**

Remarks The setting enabled by this command is not affected by signal generator

power-on, preset, or *RST.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

":BURSt:SHAPe:FTIMe" on page 566 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:FTIMe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FTIMe <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:FTIMe?
```

This command sets the period of time where the burst decreases from full power to minimum power.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +0.00000000E+000

Range 0.2000–409.2000

Key Entry **Fall Time**

Remarks The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and

maximum symbol rate values.

":BURSt:SHAPe:FALL:TIME" on page 565 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RDELay

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RDELay <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RDELay?
```

This command sets the period of time that the start of the burst rise is delayed.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +0.00000000E+000

Range –7.2000 to 99

Key Entry **Rise Delay**

Remarks The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

":BURSt:SHAPe:RISE:DELay" on page 567 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RISE:DELay

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RISE:DELay <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RISE:DELay?
```

This command sets the period of time that the start of the burst rise is delayed.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +0.00000000E+000

Range –7.2000 to 99

Key Entry **Rise Delay**

Remarks The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

":BURSt:SHAPe:RDELay" on page 566 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RISE:TIME

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RISE:TIME <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RISE:TIME?
```

This command sets the period of time where the burst increases from a minimum power to full power.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +1.00000000E+001

Range 0.2000–16.4000

Key Entry **Rise Time**

Remarks The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

":BURSt:SHAPe:RTIMe" on page 568 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe:RTIMe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RTIMe <val>
[:SOURce]:RADio:EDGE:BURSt:SHAPe:RTIMe?
```

This command sets the period of time where the burst increases from a minimum power to full power.

The variable <val> is expressed in bits. The minimum and maximum values depend upon modulation type and symbol rate.

***RST** +1.00000000E+001

Range 0.2000–16.4000

Key Entry **Rise Time**

Remarks The setting enabled by this command is not affected by signal generator

power-on, preset, or *RST.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576. Refer to ":SRATe" on page 597 for a list of minimum and

maximum symbol rate values.

":BURSt:SHAPe:RISE:TIME" on page 568 performs the same function. In compliance with the SCPI standard, both commands are listed.

For concept information on burst shaping, refer to the *User's Guide*.

:BURSt:SHAPe[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt:SHAPe[:TYPE] SINE|"<file name>"
[:SOURce]:RADio:EDGE:BURSt:SHAPe[:TYPE]?
```

This command sets the burst shape type.

SINE	This choice selects a burst shape defined by the burst rise and fall *RST values.
"<file name>"	This choice selects a user-defined file from signal generator memory.
***RST**	SINE
Key Entry	**Sine** **User File**
Remarks	Refer to "File Name Variables" on page 13 for information on the file name syntax.

:BURSt[:STATe]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:BURSt[:STATe] ON|OFF|1|0
[:SOURce]:RADio:EDGE:BURSt[:STATe]?
```

This command enables or disables the burst function.

ON (1) This choice enables the transmission of framed data. If all timeslots which are switched on are up traffic channels or custom, you will be bursting the timeslots that are on; there will be no RF carrier during the off timeslots.

If you have switched on any timeslot that you have configured as a down traffic channel, the RF carrier is not switched off between any of the timeslots. The off timeslots are transmitted as a continuous series of ones for the time period of the off timeslots.

OFF (0) This choice enables the transmission of unframed data.

***RST** 0

Key Entry **Data Format Pattern Framed**

Remarks N/A

:CHANnel

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:CHANnel EVM|ACP
[:SOURce]:RADio:EDGE:CHANnel?
```

This command optimizes the Nyquist and root Nyquist filters to minimize error vector magnitude (EVM) or to minimize adjacent channel power (ACP).

EVM This choice provides the most ideal passband.

ACP This choice improves stopband rejection.

***RST** ACP

Key Entry **Optimize FIR For EVM ACP**

Remarks To change the current filter type, refer to ":FILTer" on page 573.

:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:DATA PN9|PN11|PN15|PN20|PN23|FIX4|"<file name>"|EXT|
P4|P8|P16|P32|P64
[:SOURce]:RADio:EDGE:DATA?
```

This command sets the data pattern type (pseudo-random number sequence, 4-bit pattern, sequence of 1's and 0's, data from an external source, or a user file) for unframed data transmission.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **Ext**
4 1's & 4 0's **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's**
64 1's & 64 0's

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

:DATA:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:DATA:FIX4 <val>
[:SOURce]:RADio:EDGE:DATA:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern for unframed transmission according to the modulation type, symbol rate, filter, and burst shape selected for the EDGE modulation format.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks `FIX4` must already be defined as the data type.

To change the data type, refer to ":DATA" on page 570.

:DEFault

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:DEFault
```

This command returns all of the EDGE modulation format parameters to factory settings. It does not affect any other signal generator parameters.

***RST** N/A

Range N/A

Key Entry **Restore EDGE Factory Default**

Remarks N/A

:EDATa:DELay

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:EDATa:DELay?
```

This query returns the amount of delay (in symbols) from the external data input to the beginning of the symbol on the I OUT and Q OUT rear panel connectors and the front panel RF OUTPUT connector.

***RST** +0.00000000E+000

Range N/A

Key Entry N/A

Remarks When the EDGE format is turned off, the delay value is unchanged; the query will return the same delay value if the format is on or off.

:EDCLock

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:EDCLock SYMBol|NORMal
[:SOURce]:RADio:EDGE:EDCLock?
```

This command sets the external data clock use.

SYMBol This choice specifies that a continuous symbol clock signal must be provided to the SYMBOL SYNC input connector.

NORMal This choice specifies that the DATA CLOCK input connector requires a bit clock. The SYMBOL SYNC input connector requires a (one-shot or continuous) symbol sync signal.

***RST** NORM

Key Entry **Ext Data Clock Normal Symbol**

Remarks Both choices have no effect in internal clock mode. Refer to ":BBCLock" on page 563 to select EXT as the data clock type.

:EREFerence

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:EREFerence INT|EXT
[:SOURce]:RADio:EDGE:EREFerence?
```

This command selects either an internal or external bit-clock reference for the data generator.

***RST** INT

Key Entry **BBG Ref Ext Int**

Remarks If the EXT choice is selected, the external source's frequency value must be applied to the BASEBAND GEN REF IN rear panel connector. The external reference and external data clock are not applicable at the same time. If both are selected, then the external reference takes precedence.

Refer to, ":EREFerence:VALue" on page 573 to enter the external reference frequency setting.

:EREFerence:VALue

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:EREFerence:VALue <val>
[:SOURce]:RADio:EDGE:EREFerence:VALue?
```

This command sets the expected bit-clock reference frequency value for an externally applied reference signal.

The variable <val> is expressed in units of hertz (Hz–MHz).

***RST** +1.30000000E+007

Range 2.5E5–1E8

Key Entry **Ext BBG Ref Freq**

Remarks The value specified by this command is effective only when you are using an external reference applied to the BASEBAND GEN REF IN rear panel connector.

Refer to ":EREFerence" on page 572 to select EXT (external source) as the reference for the bit-clock.

:FILTer

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:FILTer RNYQuist|NYQuist|GAUSsian|RECTangle|IS95|
IS95_EQ|IS95_MOD|IS95_MOD_EQ|EDGE|AC4Fm|UGGaussian|"<user FIR>"
[:SOURce]:RADio:EDGE:FILTer?
```

This command selects the pre-modulation filter type.

IS95	This choice selects a filter that meets the criteria of the IS-95 standard.
IS95_EQ	This choice selects a filter which is a combination of the IS-95 filter (above) and the equalizer filter described in the IS-95 standard. This filter is only used for IS-95 baseband filtering.
IS95_MOD	This choice selects a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance) with lower passband rejection than the filter specified in the IS-95 standard.
IS95_MOD_EQ	This choice selects a filter which is a combination of the equalizer filter described in the IS-95 standard and a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance), with lower passband rejection.
EDGE	This choice selects Laurant's decomposition of a Gaussian filter with a 0.300 fixed BbT.

AC4Fm	This choice selects a predefined Association of Public Safety Communications Officials (APCO) specified compatible 4-level frequency modulation (C4FM) filter.
UGGaussian	This choice selects a backwards compatible GSM Gaussian filter (Gaussian filter with a fixed BbT value of 0.300) for the ESG E44xxB Option UN3 or UN4.
"<user FIR>"	This variable is any filter file that you have stored into memory.
***RST**	EDGE
Key Entry	**Root Nyquist** **Nyquist** **Gaussian** **Rectangle** **IS-95** **IS-95 w/EQ** **IS-95 Mod** **IS-95 Mod w/EQ** **EDGE** **APCO 25 C4FM** **UN3/4 GSM Gaussian** **User FIR**
Remarks	Refer to "File Name Variables" on page 13 for information on the file name syntax.

:IQ:SCALe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:IQ:SCALe <val>
[:SOURce]:RADio:EDGE:IQ:SCALe?
```

This command sets the amplitude of the I/Q outputs for better adjacent channel power (ACP); lower scaling values equate to better ACP.

The variable <val> is expressed in units of percent.

***RST**	+113
Range	1–200
Key Entry	**I/Q Scaling**
Remarks	This command has no effect with MSK or FSK modulation.

:MODulation:FSK[:DEViation]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:MODulation:FSK[:DEViation] <val>
[:SOURce]:RADio:EDGE:MODulation:FSK[:DEViation]?
```

This command sets the symmetric FSK frequency deviation value.

The variable <val> is expressed in units of Hertz and the maximum range value equals the current symbol rate value multiplied by four, limited to 20 MHz.

***RST** +4.00000000E+002

Range 0–2E7

Key Entry **Freq Dev**

Remarks To change the modulation type, refer to ":MODulation[:TYPE]" on page 576.

Refer to ":SRATe" on page 597 for a list of minimum and maximum symbol rate values.

To set an asymmetric FSK deviation value, refer to the *User's Guide* for more information.

:MODulation:MSK[:PHASe]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:MODulation:MSK[:PHASe] <val>
[:SOURce]:RADio:EDGE:MODulation:MSK[:PHASe]?
```

This command sets the MSK phase deviation value.

The variable <val> is expressed in units of degrees.

***RST** +9.00000000E+001

Range 0–100

Key Entry **Phase Dev**

Remarks N/A

:MODulation:UFSK

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:MODulation:UFSK "<file name>"
[:SOURce]:RADio:EDGE:MODulation:UFSK?
```

This command selects a user-defined FSK file from the signal generator memory.

***RST** N/A

Range N/A

Key Entry **User FSK**

Remarks The user-defined FSK file is held in signal generator memory until the command that selects user FSK as the modulation type is sent. Refer to ":MODulation[:TYPE]" on page 576 to change the current modulation type.

Refer to "File Name Variables" on page 13 for information on the file name syntax.

:MODulation:UIQ

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:MODulation:UIQ "<file name>"
[:SOURce]:RADio:EDGE:MODulation:UIQ?
```

This command selects a user-defined I/Q file from the signal generator memory.

***RST** N/A

Range N/A

Key Entry **User I/Q**

Remarks The user-defined I/Q file is held in signal generator memory until the command that selects user I/Q as the modulation type is sent. Refer to ":MODulation[:TYPE]" on page 576 to change the current modulation type.

Refer to "File Name Variables" on page 13 for information on the file name syntax.

:MODulation[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:MODulation[:TYPE] BPSK|QPSK|IS95QPSK|GRAYQPSK|
OQPSK|IS95OQPSK|P4DQPSK|PSK8|PSK16|D8PSK|MSK|FSK2|FSK4|FSK8|FSK16|C4FM|
QAM4|QAM16|QAM32|QAM64|QAM128|QAM256|EDGE|UIQ|UFSK
[:SOURce]:RADio:EDGE:MODulation[:TYPE]?
```

This command sets the modulation type for the EDGE personality.

***RST** EDGE

Key Entry **BPSK** **QPSK** **IS-95 QPSK** **Gray Coded QPSK** **OQPSK** **IS-95 OQPSK** **π/4 DQPSK** **8PSK** **16PSK** **D8PSK** **MSK** **2-Lvl FSK** **4-Lvl FSK** **8-Lvl FSK** **16-Lvl FSK** **C4FM** **4QAM** **16QAM** **32QAM** **64QAM** **128QAM** **256QAM** **EDGE** **User I/Q** **User FSK**

Remarks N/A

:POLarity[:ALL]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:POLarity[:ALL] NORMal|INVerted
[:SOURce]:RADio:EDGE:POLarity[:ALL]?
```

This command sets the rotation direction for the phase modulation vector.

NORMal — This choice selects normal phase polarity.

INVerted — This choice inverts the internal Q signal.

***RST** NORM

Key Entry **Phase Polarity Normal Invert**

Remarks N/A

:SECondary:RECall

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SECondary:RECall
```

This command recalls the secondary frame configuration, overwriting the current frame.

***RST** N/A

Range N/A

Key Entry **Recall Secondary Frame State**

Remarks To save a secondary frame state, refer to ":SECondary:SAVE" on page 577.

A secondary frame is not active until the secondary state is enabled. To activate a secondary frame, refer to ":SECondary[:STATe]" on page 578.

:SECondary:SAVE

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SECondary:SAVE
```

This command saves the current frame configuration as the secondary frame with the filename EDGE_SECONDARY_FRAME.

***RST** N/A

Range N/A

Key Entry **Save Secondary Frame State**

Remarks To recall the secondary frame (saved in non-volatile signal generator memory), refer to ":SECondary:RECall" on page 577.

:SECondary:TRIGger[:SOURce]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SECondary:TRIGger[:SOURce] KEY|EXT|BUS
[:SOURce]:RADio:EDGE:SECondary:TRIGger[:SOURce]?
```

This command selects the type of triggering for the secondary frame.

KEY — This choice enables triggering by pressing the front panel **Trigger** hardkey.

EXT — This choice enables triggering using an externally applied signal at the PATT TRIG IN rear panel connector or the PATT TRIG IN 2 pin on the rear panel AUX I/O connector. To select the appropriate connection, refer to ":TRIGger[:SOURce]:EXTernal[:SOURce]" on page 600.

BUS — This choice enables GPIB triggering using the `*TRG` or `GET` command or LAN and RS-232 triggering using the `*TRG` command.

***RST** N/A

Key Entry **Trigger Key** **Ext** **Bus**

Remarks N/A

:SECondary[:STATe]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SECondary[:STATe] ON|OFF|1|0
[:SOURce]:RADio:EDGE:SECondary[:STATe]?
```

This command enables or disables the ability to switch to the secondary frame.

***RST** 0

Key Entry **Secondary Frame Off On**

Remarks A frame must already be saved as the secondary frame in order to turn the secondary state function on.

To save a frame as the secondary frame, refer to ":SECondary:SAVE" on page 577.

:SLOT0|[1]|2|3|4|5|6|7:CUSTom

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:CUSTom PN9|PN11|PN15|PN20|
PN23|FIX4|"<file name>"|EXT|P4|P8|P16|P32|P64
```

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:CUSTom?
```

This command sets the data pattern type (pseudo-random number sequence, 4-bit pattern, sequence of 1's and 0's, data from an external source, or a user file) for framed data transmission.

***RST** PN9

Key Entry **PN9** **PN15** **FIX4** **User File** **Ext** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

Refer to ":SLOT0|[1]|2|3|4|5|6|7[:TYPE]" on page 595

:SLOT0|[1]|2|3|4|5|6|7:CUSTom:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:CUSTom:FIX4 <val>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:CUSTom:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern that is used in the selected custom timeslot.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be defined as the data type.

To change the data type, refer to ":SLOT0|[1]|2|3|4|5|6|7:CUSTom" on page 578.

:SLOT0|[1]|2|3|4|5|6|7:CUSTom:GUARd

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:CUSTom:
GUARd <24 or 27 bit_pattern>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:CUSTom:GUARd?
```

This command defines the hexadecimal value for the guard time field in the selected custom timeslot.

***RST** *Timeslots 0 & 4*: #H7FFFFF

Timeslots: 1, 2, 3, 5, 6, &7: #H0FFFFF

Range *Timeslots 0 & 4*: #H0–#H7FFFFF

Timeslots: 1, 2, 3, 5, 6, &7: #H0–#H0FFFFF

Key Entry G

Remarks The guard time field is always modulated (but not bursted), even when the timeslot is off.

If the guard time and T2 symbols of the current timeslot and the T1 symbols of the next timeslot do not match, the burst shape may not be smooth (even if the current timeslot is turned off).

To change the current timeslot type, refer to ":SLOT0|[1]|2|3|4|5|6|7[:TYPE]" on page 595.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption PN9|PN15|
FIX4|"<file name>"|P4|P8|P16|P32|P64|TCHFS|CS1|CS4|DMCS1|UMCS1
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption?
```

This command selects the data pattern type or the multiframe channel (structure) for the selected GMSK timeslot.

There are two types of multiframe structures, a 26 and a 52 frame structure. The 26 frame structure has the following attributes:

- frame 12 contains the slow associated control channel (SACCH)
- frame 25 is idle and incorporates RF blanking

The 52 frame structure has the following attributes:

- frames 12 and 38 contain tail and control bits with the payload bits set to zero.
- Frames 25 and 51 are idle and incorporate RF blanking.

PN9, PN15 — These choices are standard PN sequences. For bursted data, the PN sequences continuously repeat from one timeslot in a frame to the matching timeslot in the next frame.

FIX4 — This choice selects a repeating 4-bit pattern.

"<file name>" — This choice selects a user-defined data file from signal generator memory. The file must supply enough bits to fill the desired number of timeslots. In timeslots where there is not enough bits to fill the encryption fields, the ESG ignores the data.

P4 — This choice selects a data pattern with four ones followed by four zeros. The pattern repeats as needed to fill the encryption fields.

P8 — This choice selects a data pattern with eight ones followed by eight zeros. The

pattern repeats as needed to fill the encryption fields.

P16 — This choice selects a data pattern with 16 ones followed by 16 zeros. The pattern repeats as needed to fill the encryption fields.

P32 — This choice selects a data pattern with 32 ones followed by 32 zeros. The pattern repeats as needed to fill the encryption fields.

P64 — This choice selects a data pattern with 64 ones followed by 64 zeros. The pattern repeats as needed to fill the encryption fields.

TCHFS — This multiframe choice selects a traffic channel with full rate speech (TCH/FS).

CS-1 — This multiframe choice selects the packet data traffic channel that uses the packet data block type 1 coding scheme in accordance with the 3GPP standard GSM 05.03.

CS4 — This multiframe choice selects the packet data traffic channel that uses the packet data block type 4 coding scheme in accordance with the 3GPP standard GSM 05.03.

DMCS1 — This multiframe choice selects the downlink packet data traffic channel that uses the packet data block type 5 modulation and coding scheme in accordance with the 3GPP standard GSM 05.03.

UMCS1 — This multiframe choice selects the uplink packet data traffic channel that uses the packet data block type 5 modulation and coding scheme in accordance with the 3GPP standard GSM 05.03.

***RST** PN9

Key Entry **PN9 PN15 FIX4 User File Ext 4 1's & 4 0's 8 1's & 8 0's 16 1's & 16 0's 32 1's & 32 0's 64 1's & 64 0's TCH/FS CS-1 CS-4 Downlink MCS-1 Uplink MCS-1**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:CS1:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:CS1:DATA PN9|
PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:CS1:DATA?
```

This command selects the encryption field data for the selected GMSK timeslot that uses the packet data block type 1 coding scheme.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks Refer to ":SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption" on page 580 for selecting the coding scheme.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:CS4:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:CS4:DATA PN9|
PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:CS4:DATA?
```

This command selects the encryption field data for the selected GMSK timeslot that uses the packet data block type 4 coding scheme.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks Refer to ":SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption" on page 580 for selecting the coding scheme.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:DLINk:MCS1:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:DLINk:MCS1:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:DLINk:MCS1:
DATA?
```

This command selects the encryption field data for the selected GMSK timeslot that uses the downlink packet data block type 5 modulation and coding scheme.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks Refer to ":SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption" on page 580 for selecting the coding scheme.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:FIX4 <val>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:FIX4?
```

This command sets the encryption field with a 4-bit binary repeating data pattern for the selected GMSK timeslot.

The variable <val> accepts values in binary, hexadecimal, or decimal format, however the query returns only binary values.

***RST** #B0000

Range 0–15

Key Entry **FIX4**

Remarks Refer to ":SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption" on page 580 for selecting the data type.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:TCH:FS:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:TCH:FS:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:TCH:FS:DATA?
```

This command sets the encryption field data for the selected GMSK timeslot configured as the traffic channel with full speech (TCH/FS).

***RST** PN9

Key Entry **PN9** **PN15**

Remarks Refer to ":SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption" on page 580 for selecting the TCH/FS.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:ULINk:MCS1:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:ULINk:MCS1:
DATA {PN9}|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption:ULINk:MCS1:
DATA?
```

This command selects the encryption field data for the selected GMSK timeslot that uses the uplink packet data block type 5 modulation and coding scheme.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks Refer to ":SLOT0|[1]|2|3|4|5|6|7:GMSK:ENCRyption" on page 580 for selecting

the coding scheme.

:SLOT0|[1]|2|3|4|5|6|7:GMSK:STEal

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:STEal 0|1
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:STEal?
```

This command specifies the stealing bit (1-bit S field) for the selected GMSK timeslot. The single bit defines the value for both stealing (S) fields.

The stealing flag field accepts values in binary, hexadecimal, or decimal format, however the query returns only hexadecimal values.

***RST** #H0

Key Entry **S**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:GMSK:TSEQuence

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:TSEQuence TSC0|TSC1|
TSC2|TSC3|TSC4|TSC5|TSC6|TSC7|<26-bit pattern>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:GMSK:TSEQuence?
```

This command changes the 26-bit training sequence (TS) for the selected GMSK timeslot.

The query returns the current training sequence hexadecimal value. Use the following table to match the hexadecimal values to the training sequences of TSC0–TSC7.

Training Sequence	Hexadecimal Value
TSC0	0970897
TSC1	0B778B7
TSC2	10EE90E
TSC3	11ED11E
TSC4	06B906B
TSC5	13AC13A
TSC6	29F629F

Training Sequence	Hexadecimal Value
TSC7	3BC4BBC

***RST** #H0970897

Range *<26-bit pattern>*: #H0–#H3FFFFFF

Remarks N/A

Key Entry **TSC0** **TSC1** **TSC2** **TSC3** **TSC4** **TSC5** **TSC6** **TSC7** **Custom TS**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:MULTislot

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:MULTislot ON|OFF|1|0
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:MULTislot?
```

This command turns bursting (ramping) on or off between the selected timeslot and the next higher numbered adjacent timeslot.

ON (1) This choice turns ramping off between timeslots.

OFF (0) This choice turns ramping on between timeslots.

***RST** 0

Key Entry **Multislot Off On**

Remarks Turning multislot on between an EDGE and GMSK timeslot may produce undesired spectral content. The undesired spectral content is a byproduct of the transition between two different modulation types without ramping.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption

Supported All with Options 402 or 416

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption PN9|PN11|
PN15|PN20|PN23|FIX4|"<filename>"|EXT|P4|P8|P16|P32|P64|DMCS9|UMCS9|DMCS5
|UMCS5|ETCHF43|UNCoded|EBCH1|EBCH2
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption?
```

This command selects the data pattern type or the multiframe channel (structure) for the selected normal timeslot.

There are two types of multiframe structures, a 26 and a 52 frame structure. The 26 frame structure has the following attributes:

- frame 12 contains the slow associated control channel (SACCH)
- frame 25 is idle and incorporates RF blanking

The 52 frame structure has the following attributes:

- frames 12 and 38 contain tail and control bits with the payload bits set to zero.
- Frames 25 and 51 are idle and incorporate RF blanking.

PN9–23	These choices are standard PN sequences. For bursted data, the PN sequences continuously repeat from one timeslot in a frame to the matching timeslot in the next frame.
FIX4	This choice selects a repeating 4-bit binary pattern.
"<file name>"	This choice selects a user-defined data file from signal generator memory. The file must supply enough bits to fill the desired number of timeslots. In timeslots where there are not enough bits to fill the encryption fields, the ESG ignores the data.
EXT	This choice selects an external user signal as the modulating data stream. Connect the externally supplied serial data signal to the front panel DATA BNC connector.

NOTE The EXT selection is not available when configuring both GMSK and EDGE normal timeslots for the same signal.

P4	This choice selects a data pattern with four ones followed by four zeros. The pattern repeats as needed to fill the encryption fields.
P8	This choice selects a data pattern with eight ones followed by eight zeros. The pattern repeats as needed to fill the encryption fields.
P16	This choice selects a data pattern with 16 ones followed by 16 zeros. The pattern repeats as needed to fill the encryption fields.
P32	This choice selects a data pattern with 32 ones followed by 32 zeros. The pattern repeats as needed to fill the encryption fields.
P64	This choice selects a data pattern with 64 ones followed by 64 zeros. The pattern repeats as needed to fill the encryption fields.
DMCS9	This multiframe choice selects the downlink packet data traffic channel that uses the packet data block type 13 modulation and coding scheme in accordance with the 3GPP standard GSM 05.03.

UMCS9 — This multiframe choice selects the uplink packet data traffic channel that uses the packet data block type 13 modulation and coding scheme in accordance with the 3GPP standard GSM 05.03.

DMCS5 — This multiframe choice selects the downlink packet data traffic channel that uses the packet data block type 9 modulation and coding scheme in accordance with the 3GPP standard GSM 05.03.

UMCS5 — This multiframe choice selects the uplink packet data traffic channel that uses the packet data block type 9 modulation and coding scheme in accordance with the 3GPP standard GSM 05.03.

ETCH43 — This multiframe choice selects an enhanced circuit switched full rate traffic channel with a user data rate of 43.2k-bits per second

Uncoded — This choice selects an uncoded channel.

EBCH1 — This multiframe choice selects a *non-combined* broadcast channel for timeslot zero. Use this selection when timeslot zero is the only multiframe timeslot within the frame (timeslots 0–7). Trying to use a multiframe choice for another timeslot (timeslots 1–7) when timeslot zero is configured as a BCH, will create a settings conflict error.

EBCH2 — This multiframe choice selects a *combined* broadcast channel for timeslot zero. Use this selection when timeslot zero is the only multiframe timeslot within the frame (timeslots 0–7). Trying to use a multiframe choice for another timeslot (timeslots 1–7) when timeslot zero is configured as a BCH, will create a settings conflict error.

***RST** PN9

Key Entry **PN9** **PN11** **PN15** **PN20** **PN23** **FIX4** **User File** **EXT** **4 1's & 4 0's** **8 1's & 8 0's** **16 1's & 16 0's** **32 1's & 32 0's** **64 1's & 64 0's** **Downlink MCS-9** **Uplink MCS-9** **Downlink MCS-5** **Uplink MCS-5** **E-TCH / F43.2** **Uncoded**

Remarks Refer to "File Name Variables" on page 13 for information on the file name syntax.

To change the current timeslot type, refer to ":SLOT0|[1]|2|3|4|5|6|7[:TYPE]" on page 595.

:SLOT0:NORMal:ENCRyption:BCH:BCC

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:BCC <val>
```

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:BCC?
```

This command sets the broadcast control code (BCC) which is used to indicate what training sequence is being used by the basestation in the forward channels. This code will allow the mobile station to decode the other channels in the broadcast channel.

***RST** 0

Range 0–7

Remarks N/A

:SLOT0:NORMal:ENCRyption:BCH:CELLid

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:CELLid <val>
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:CELLid?
```

This command sets the cell identification. The purpose of the cell identity information element is to identify a cell within a location area.

***RST** 0

Range 0–65535

Remarks N/A

:SLOT0:NORMal:ENCRyption:BCH:LAC

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:LAC <val>
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:LAC?
```

This command sets the location area code (LAC). The location area code provides 16 bits to allow the administrator to define a location.

***RST** 0

Range 0–65535

Remarks N/A

:SLOT0:NORMal:ENCRyption:BCH:MCC

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:MCC <val>
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:MCC?
```

This command sets the mobile country code (MCC). The mobile country code is a 12 bit number used to represent the country where the basestation is located.

***RST** 0

Range 0–4095

Remarks N/A

:SLOT0:NORMal:ENCRyption:BCH:MNC

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:MNC <val>
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:MNC?
```

This command sets the mobile network code (MNC). The mobile network code is the individual number a network will be assigned.

***RST** 0

Range 0–255

Remarks Federal regulation mandates that a 3-digit MNC will be used. For the ESG implementation the upper four bits are set to 1111.

:SLOT0:NORMal:ENCRyption:BCH:PLMN

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:PLMN <val>
[:SOURce]:RADio:EDGE:SLOT0:NORMal:ENCRyption:BCH:PLMN?
```

This command is used to set the Public Land Mobile Network (PLMN) which is used to indicate the country the phone is in. PLMN is also referred to as the National Country Code (NCC).

***RST** 0

Range 0–7

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:DLINk:MCS5:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:DLINk:MCS5:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:DLINk:MCS5:
DATA?
```

This command sets the data type (pseudo-random number sequence) for the enhanced general packet radio service (EGPRS) modulation and coding scheme 5 (MCS-5) downlink channel.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks To select downlink MCS-5 as the multiframe channel type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:DLINk:MCS9:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:DLINk:MCS9:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:DLINk:MCS9:
DATA?
```

This command sets the data type (pseudo-random number sequence) for the enhanced general packet radio service (EGPRS) modulation and coding scheme 9 (MCS-9) downlink channel.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks To select downlink MCS-9 as the multiframe channel type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ETCH:F43:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ETCH:F43:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ETCH:F43:
DATA?
```

This command sets the data type (pseudo-random number sequence) for the enhanced, circuit switched, full-rate traffic channel with 43.2k-bits per second of user data (E-TCH/F43.2).

***RST** PN9

Key Entry **PN9** **PN15**

Remarks To select E-TCH/F43.2 as the multiframe channel type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:FIX4

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:FIX4 <val>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:FIX4?
```

This command sets the binary, 4-bit repeating sequence data pattern for framed transmission according to the modulation type, symbol rate, filter, and burst shape selected for the EDGE modulation format.

***RST** #B0000

Range #B0000–#B1111 or 0–15

Key Entry **FIX4**

Remarks FIX4 must already be selected as the data type.

To select FIX4 as the data type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ULINk:MCS5:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ULINk:MCS5:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ULINk:MCS5:
DATA?
```

This command sets the data type (pseudo-random number sequence) for the enhanced general packet radio service (EGPRS) modulation and coding scheme 5 (MCS-5) uplink channel.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks To select uplink MCS-5 as the multiframe channel type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ULINk:MCS9:DATA

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ULINk:MCS9:
DATA PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:ULINk:MCS9:
DATA?
```

This command sets the data type (pseudo-random number sequence) for the enhanced general packet radio service (EGPRS) modulation and coding scheme 9 (MCS-9) uplink channel.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks To select uplink MCS-9 as the multiframe channel type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:UNCoded

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:
UNCoded PN9|PN15
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption:
UNCoded?
```

This command sets the data type (pseudo-random number sequence) for an uncoded channel.

***RST** PN9

Key Entry **PN9** **PN15**

Remarks To select uncoded as the multiframe channel type, refer to ":SLOT0|[1]|2|3|4|5|6|7:NORMal:ENCRyption" on page 585.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:GUARd

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:
GUARd <24 or 27 bit_pattern>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:GUARd?
```

This command sets the hexadecimal value for the guard time field in the selected normal timeslot.

***RST** *Timeslots 0 & 4*: #H7FFFFFF

Timeslots: 1, 2, 3, 5, 6, &7: #H0FFFFFF

Range *Timeslots 0 & 4*: #H0–#H7FFFFF

Timeslots: 1, 2, 3, 5, 6, &7: #H0–#H0FFFFFF

Key Entry **G**

Remarks The guard time field is always modulated (but not bursted), even when the timeslot is off.

If the guard time and `T2` symbols of the current timeslot and the `T1` symbols of

the next timeslot do not match, the burst shape may not be smooth (even if the current timeslot is turned off).

To change the current timeslot type, refer to ":SLOT0|[1]|2|3|4|5|6|7[:TYPE]" on page 595.

:SLOT0|[1]|2|3|4|5|6|7:NORMal:T1

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:T1 <9 bit_pattern>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:T1?
```

This command sets the hexadecimal value for the leading 9-bit tail field in the selected normal timeslot.

***RST** #H1FF

Range #H0–#H1FF

Key Entry **T1**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:NORMal:T2

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:T2 <9 bit_pattern>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:T2?
```

This command sets the hexadecimal value for the trailing 9-bit tail field in the selected normal timeslot.

***RST** #H1FF

Range #H0–#H1FF

Key Entry **T2**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:NORMal:TSEQuence

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:TSEQuence TSC0|TSC1|
TSC2|TSC3|TSC4|TSC5|TSC6|TSC7|<78 bit_pattern>
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:NORMal:TSEQuence?
```

This command sets the 78-bit training sequence code for a normal timeslot to one of eight values or to create a custom value.

***RST** #H3F3F9E49FFF3FF3F9E49

Range *<78 bit_pattern>*: #H0–#H3FFFFFFFFFFFFFFFFFF

Key Entry **TSC0** **TSC1** **TSC2** **TSC3** **TSC4** **TSC5** **TSC6** **TSC7** **Custom TS**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:LCAPacity:POWer

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:POWer MAIN|DELTa
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:POWer?
```

This command toggles the RF output power level function for the selected timeslot.

MAIN This choice specifies RF output as the main power level.

DELTa This choice specifies RF output as the alternative power level.

***RST** MAIN

Key Entry **Timeslot Ampl Main Delta**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7:STATe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:STATe ON|OFF|1|0
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7:STATe?
```

This command enables or disables the operating state of the selected timeslot.

***RST** *Timeslot 0*: 1 *Timeslots 1–7*: 0

Key Entry **Timeslot Off On**

Remarks N/A

:SLOT0|[1]|2|3|4|5|6|7[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7[:TYPE] CUSTom|NORMal|GMSK|
```

NORMAL_ALL
[:SOURce]:RADio:EDGE:SLOT0|[1]|2|3|4|5|6|7[:TYPE]?

This command sets the timeslot type for the selected timeslot.

CUSTom	This choice selects a generic, non-standard timeslot configuration that consists of a data field and a guard field.
NORMal	This choice selects a normal timeslot configuration for an EDGE signal.
GMSK	This choice selects a normal GSM timeslot (GMSK modulation). Selecting a different EDGE modulation type does not change the GMSK modulation for a GMSK configured timeslot.
NORMAL_ALL	This choice sets all timeslots to a normal timeslot configuration for an EDGE signal, regardless of the timeslot number selected.

***RST** NORM

Key Entry **Custom** **Normal** **GMSK** **Normal All**

Remarks N/A

:SOUT:

Supported All with Option 402

[:SOURce]:RADio:EDGE:SOUT FRAME|SLOT|ALL
[:SOURce]:RADio:EDGE:SOUT?

This command sets the synchronization location (within the pattern of data) and the type of output at the EVENT 1 rear panel connector.

FRAME	This choice outputs a 1-bit signal, synchronized to the bit selected by the synchronization output offset command, for a framed data pattern.
SLOT	This choice outputs a 1-bit signal, synchronized to the bit selected by the synchronization output offset command, for a selected timeslot.
ALL	This choice outputs a 1-bit signal, synchronized to the bit selected by the synchronization output offset command, for all active timeslots.

***RST** FRAME

Key Entry **Begin Frame** **Begin Timeslot #** **All Timeslots**

Remarks To change the synchronization output offset value, refer to ":SOUT:OFFSet" on page 596.

:SOUT:OFFSet

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SOUT:OFFSet <val>
[:SOURce]:RADio:EDGE:SOUT:OFFSet?
```

This command sets the offset value for the location of the output synchronization signal on the EVENT1 rear panel connector relative to the beginning of the framed data pattern or timeslot.

The variable <val> is expressed in bits.

***RST** +0

Range –155 to 155

Key Entry **Sync Out Offset**

Remarks Negative values move the synchronization output signal earlier; positive values move it later.

To change the output of the EVENT1 rear panel connector to SLOT, refer to ":SOUT:" on page 595.

:SOUT:SLOT

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SOUT:SLOT <val>
[:SOURce]:RADio:EDGE:SOUT:SLOT?
```

This command selects the timeslot that will trigger a 1-bit output signal at the EVENT 1 rear panel connector.

***RST** +0

Range 0–7

Key Entry **Begin Timeslot #**

Remarks To change the output of the EVENT1 rear panel connector to SLOT, refer to ":SOUT:" on page 595.

:SRATe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:SRATe <val>
[:SOURce]:RADio:EDGE:SRATe?
```

This command sets the transmission symbol rate.

The variable <val> is expressed in units of bits per second (bps–Mbps) and the maximum range value is dependent upon the source of data (internal or external), the modulation type, and filter.

***RST** +2.70833333E+005

Range

Modulation Type	*Bits per Symbol*	*Internal Data*	*External Serial Data*
BPSK	1	1–50 Msps	1–50 Msps
FSK2			
MSK			
C4FM	2	1–50 Msps	1–25 Msps
FSK4			
OQPSK			
OQPSK195			
P4QPPSK			
QAM4			
QPSK			
QPSKIS95			
QPSKISAT			
D8PSK	3	1–33.33 Msps	1–16.67 Msps
EDGE			
FSK8			
PSK8			
FSK16	4	1–25 Msps	1–12.5 Msps
PSK16			
QAM16			
QAM32	5	1–20 Msps	1–10 Msps
QAM64	6	1–16.67 Msps	1–8.33 Msps
QAM256	7	1–12.50 Msps	1–6.25 Msps

Key Entry **Symbol Rate**

Remarks When user-defined filters are selected using the command in section ":FILTer" on page 573, the upper bit rate will be restricted in line with the following symbol rate restriction:

- FIR filter length > 32 symbols: upper limit is 12.5 Msps
- FIR filter length > 16 symbols: upper limit is 25 Msps

When internal FIR filters are used, the limits of the above table always apply. For higher symbol rates, the FIR filter length will be truncated as follows:

- Above 12.5 Msps, the FIR length will be truncated to 32 symbols
- Above 25 Msps, the FIR length will be truncated to 16 symbols

  This will impact the relative timing of the modulated data, as well

as the actual filter response.

To change the modulation type, refer to ":MODulation[:TYPE]" on page 576.

:TRIGger:TYPE

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger:TYPE CONTinuous|SINGle|GATE
[:SOURce]:RADio:EDGE:TRIGger:TYPE?
```

This command sets the trigger type.

CONTinuous — The framed data sequence repeats continuously; the sequence restarts every time the previous playback is completed. To customize continuous triggering, refer to ":TRIGger:TYPE:CONTinuous[:TYPE]" on page 598.

SINGle — The framed data sequence plays once for every trigger received.

GATE — An external trigger signal interrupts the playback while the gating signal is in the inactive state. Playback resumes when the external control signal returns to the active state. The active state can be set to high or low.

***RST** CONT

Key Entry **Continuous** **Single** **Gated**

Remarks N/A

:TRIGger:TYPE:CONTinuous[:TYPE]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger:TYPE:CONTinuous[:TYPE] FREE|TRIGger|RESet
[:SOURce]:RADio:EDGE:TRIGger:TYPE:CONTinuous[:TYPE]?
```

This command customizes the continuous trigger selection.

FREE — This choice immediately transmits a framed data sequence that is continuously repeated.

TRIGger — This choice causes the framed data sequence to wait for a trigger. Once a trigger is received, the transmission of a continuously repeated framed data sequence begins.

RESet — This choice immediately restarts a continuously repeated framed data sequence upon receiving a trigger.

***RST** FREE

Key Entry **Free Run** **Trigger & Run** **Reset & Run**

Remarks To select CONTinuous as the trigger type, refer to ":TRIGger:TYPE" on page 598.

:TRIGger:TYPE:GATE:ACTive

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger:TYPE:GATE:ACTive LOW|HIGH
[:SOURce]:RADio:EDGE:TRIGger:TYPE:GATE:ACTive?
```

This command toggles the polarity of the active state of the external gating input signal; GATE must be selected as the arb trigger type.

LOW The sequence runs while the selected external control gating signal is low and stops when the gate returns to the high level.

HIGH The sequence runs while the selected external control gating signal is high and stops when the gate returns to the low level.

***RST** HIGH

Key Entry **Gate Active Low High**

Remarks To select GATE as the ARB trigger type, refer to ":TRIGger:TYPE" on page 598.

:TRIGger[:SOURce]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger[:SOURce] KEY|EXT|BUS
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]?
```

This command sets the trigger source.

KEY This choice enables triggering by pressing the front panel **Trigger** hardkey.

EXT This choice enables triggering using an externally applied signal at the PATT TRIG IN rear panel connector or the PATT TRIG IN 2 pin on the rear panel AUX I/O connector. To select the appropriate connector, refer to ":TRIGger[:SOURce]:EXTernal[:SOURce]" on page 600.

BUS This choice enables GPIB triggering using the `*TRG` or `GET` command or LAN and RS-232 triggering using the `*TRG` command.

***RST** KEY

Key Entry **Trigger Key** **Ext** **Bus**

Remarks N/A

:TRIGger[:SOURce]:EXTernal[:SOURce]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal[:SOURce] EPT1|EPT2|
EPTRIGGER1|EPTRIGGER2
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal[:SOURce]?
```

This command specifies which PATT TRIG IN connection, rear panel connector or AUX I/O connector, will be used to accept an externally applied trigger signal.

EPT1	This choice is synonymous with EPTRIGGER1 and selects the PATT TRIG IN rear panel connector for the external signal connection.
EPT2	This choice is synonymous with EPTRIGGER2 and selects the PATT TRIG IN 2 pin on the rear panel AUX I/O connector for the external signal connection.
EPTRIGGER1	This choice is synonymous with EPT1 and selects the PATT TRIG IN rear panel connector for the external signal connection.
EPTRIGGER2	This choice is synonymous with EPT2 and selects the PATT TRIG IN 2 pin on the rear panel AUX I/O connector for the external signal connection.

***RST** EPT1

Key Entry **Patt Trig In 1** **Patt Trig In 2**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 599.

For more information about the rear panel AUX I/O connector pin configuration, refer to the *User's Guide*.

:TRIGger[:SOURce]:EXTernal:DELay

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:DELay <val>
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:DELay?
```

This command specifies the number of delay bits for the external trigger delay.

The variable <val> is expressed in bits.

For most TDMA formats, there is one bit per symbol. However, there are 3 bits per symbol for the EDGE format. If the selected number of delay bits is not a multiple of the number of bits per symbol, the entered value is rounded down to the next whole symbol value.

***RST** +0

Range 0–1048576

Key Entry **Ext Delay Bits**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 599.

:TRIGger[:SOURce]:EXTernal:DELay:FINe

Supported All with Option 416

```
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:DELay:FINe <val>
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:DELay:FINe?
```

This command sets the fine trigger delay for synchronizing the ESG.

The fine delay value is added to the coarse delay setting (see ":TRIGger[:SOURce]:EXTernal:DELay" on page 600).

The variable <val> is expressed as a fraction of one symbol. For the EDGE format, there are 3 bits per symbol.

***RST** +0.00000000E+000

Range 0–1

Remarks N/A

:TRIGger[:SOURce]:EXTernal:DELay:STATe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:DELay:STATe ON|OFF|1|0
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:DELay:STATe?
```

This command enables or disables the operating state of the external trigger delay function.

***RST** 0

Key Entry **Ext Delay Off On**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 599.

:TRIGger[:SOURce]:EXTernal:SLOPe

Supported All with Option 402

```
[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:SLOPe POSitive|NEGative
```

`[:SOURce]:RADio:EDGE:TRIGger[:SOURce]:EXTernal:SLOPe?`

This command sets the polarity of the external trigger.

***RST** NEG

Key Entry **Ext Polarity Neg Pos**

Remarks This command is effective only if an external trigger is selected as the trigger source. Refer to ":TRIGger[:SOURce]" on page 599.

[:STATe]

Supported All with Option 402

```
[:SOURce]:RADio:EDGE[:STATe] ON|OFF|1|0
[:SOURce]:RADio:EDGE[:STATe]?
```

This command enables or disables the EDGE modulation format.

***RST** 0

Key Entry **EDGE Off On**

Remarks Although the EDGE modulation is enabled with this command, the RF carrier is not modulated unless you also activate the front panel **Mod On/Off** hardkey.

Symbols

Numerics

A

B

D

E

F

G

M

N

O

P

Q

R

S

T

U

V

W