



3900 Series Digital Radio Test Set

P25 Remote Programming Manual

Issue-6

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3900 Series

Digital Radio Test Set

P25 Remote Programming Manual

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Preface

ABOUT THIS MANUAL

This manual identifies Remote Commands for 3900 Series P25 Options. Refer to the 3900 Series Remote Programming Manual for additional information about 3900 Remote Commands and commands for the 3900 Test Instruments.

Some of the remote commands identified in this manual are only valid when specific P25 Options are installed in the Test Set. The commands are noted as option enabled.

Refer to the 3900 Series Operation Manual for information pertaining to Test Set operation.

NOMENCLATURE STATEMENT

The 3901, 3902 and 3920"x" Digital Radio Test Set is the official nomenclature for the test sets currently included in the 3900 Digital Radio Test Set Series. In this manual, 3900, unit or Test Set, refers to the 3901, 3902 and 3920"x" Digital Radio Test Sets unless otherwise indicated.

INTENDED AUDIENCE

This manual is intended for personnel familiar with the use of remote command language and Test Set operation. Refer to the 3900 Series Operation Manual for information pertaining to Test Set operation.

TEST SET REQUIREMENTS

Refer to the 3900 Series Operation Manual for information on the following:

- Safety Precautions
- Power Requirements
- Platform Performance Data Specifications
- Repacking/Shipping Test Set

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Chapter describes parameters found in P25 UUT Measurement Meter data.

CHAPTER 2 GENERATOR/TRANSMIT CHANNEL REMOTE COMMANDS

Chapter describes commands that define Generator and Transmit Channel parameters.

CHAPTER 3 ANALYZER/RECEIVE CHANNEL REMOTE COMMANDS

Chapter describes commands that define Analyzer and Receive Channel parameters.

CHAPTER 4 P25 SIGNAL RX METER REMOTE COMMANDS

Chapter describes commands that configure and return P25 UUT Measurement data.

CHAPTER 5 AUDIO/DEMOD SIGNAL RX METER REMOTE COMMANDS

Chapter describes commands that configure and return Audio and Demodulated signal measurement data.

CHAPTER 6 MODULATION ACCURACY AND POWER REMOTE COMMANDS

Chapter describes commands that configure and return Modulation Accuracy and Power measurement data.

CHAPTER 7 SYSTEM AND BANDPLAN REMOTE COMMANDS

Chapter describes commands that configure and return P25 System Plan and SmartNet™/SmartZone™ Bandplan parameters.

CHAPTER 8 PROTOCOL REMOTE COMMANDS

Chapter describes commands that configure and return Protocol parameters.

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Chapter 1 - UUT Measurement Meter Data

1.1 REMOTE COMMANDS FILES

This chapter describes P25 Remote Commands. Refer to the 3900 Series Digital Radio Test Set Remote Programming Manual for detailed information about 3900 system remote commands.

NOTE

Upper range value of 2.71 GHz is only valid for some 3900 models/options. Refer to product specifications for valid upper range.

1.2 UUT MEASUREMENT RETURN VALUES

This section describes values present in the UUT Measurement Meter return data string.

1.2.1 P25 Signal Return Data

1.2.1.A Status Byte (Bitmask)

Status Byte returns measurement reading status where:

- 0x0 = Valid
- 0x1 = Invalid
- 0x2 = Inaccurate
- 0x4 = Settling
- 0x8 = Squelch

1.2.1.B Fail Byte (Bitmask)

Fail Byte indicates Pass/Fail status of defined upper and lower limits where:

- 0x80 = Worst Case Lower Limit
- 0x40 = Worst Case Upper Limit
- 0x20 = Average Lower Limit
- 0x10 = Average Upper Limit
- 0x08 = Maximum Lower Limit
- 0x04 = Maximum Upper Limit
- 0x02 = Minimum Lower Limit
- 0x01 = Minimum Upper Limit

1.2.1.C Precision (Numeric)

Precision value indicates the number of numerals that follow the decimal point in the returned average, maximum and minimum readings.

1.2.1.D Percentage (Numeric)

Percentage value indicates the percentage of averaging completed when remote command was issued. For example, if the over *n* burst field is set to 1000 bursts, and only 500 bursts have been obtained when the query command is issued, the returned percentage value is 50.

1.2.1.E Average (Numeric)

Value indicates average measurement reading.

1.2.1.F Maximum (Numeric)

Value indicates maximum measurement reading.

1.2.1.G Minimum (Numeric)

Value indicates minimum measurement reading.

1.2.2 Audio/Demod Signal Return Data

1.2.2.A Status Byte (Decimal)

Status Byte returns measurement reading status where:

- 0 = Valid
- 1 = Invalid
- 2 = Settling
- 4 = Inaccurate
- 6 = Settling and Inaccurate
- 7 = Settling, Inaccurate and Invalid
- 8 = Squelch

1.2.2.B Fail Byte (Decimal)

Fail Byte indicates Pass/Fail status of defined upper and lower limits where:

- 0 = All limit checks passed
- 1 = Peak to peak upper limit failed
- 2 = Peak to peak lower limit failed
- 4 = Positive peak upper limit failed
- 8 = Positive peak lower limit failed
- 16 = Negative peak upper limit failed
- 32 = Negative peak lower limit failed
- 64 = RMS upper limit failed
- 128 = RMS lower limit failed

1.2.2.C Average Count (avgcount)

Value indicates number of readings that have been acquired for calculating Average measurement.

1.2.2.D Average (avg)

Value indicates average measurement reading.

1.2.2.E Worst Case (wc)

Value indicates maximum measurement reading.

1.2.2.F Peak to Peak/2 (pk-pk/2)

Value indicates FM Peak to Peak/2 measurement reading.

1.2.2.G Positive Peak (pospeak)

Value indicates maximum measurement reading.

1.2.2.H Negative Peak (negpeak)

Value indicates minimum measurement reading.

1.2.2.I Root Mean Square (RMS)

Value indicates FM RMS measurement reading.

1.2.3 Message Responses

The following response messages may be received when a TRACE remote command is sent.

“signal not acquired\n”

“timed out waiting for TraceMutex\n”

“timed out waiting for data\n”

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Chapter 2 - Generator/Transmit Channel Remote Commands

2.1 INTRODUCTION

This chapter identifies the Remote Commands for configuring P25 Generator / Transmit Channel Parameters. Remote commands are listed alphabetically under the following headings:

2.2 AF GENERATOR CONFIGURATION

2.2.1 AF Generators - Enable

:AF:GENerator:SOURceN:ENABLE

:AF:GENerator:SOURceN:ENABLE?

Description: Set command Enables/Disables the specified AF Generator.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :AF:GENerator:SOURce2:ENABLE ON
Enables AF Generator 2.

Query Response: :AF:GENerator:SOURce2:ENABLE?
1

NOTE

SourceN = 1, 2 or 3 (AF Generator 1, 2 or 3)

2.2.2 AF Generators - Frequency

:AF:GENerator:SOURceN:FREQuency

:AF:GENerator:SOURceN:FREQuency?

Description: Set command defines the frequency for the specified AF Generator.
Query command returns parameter setting.

Range: 1.0 Hz to 40.0 kHz

Units: Hz | kHz

Default Value: AF 1: 1.0 kHz
AF 2: 300.0 Hz
AF 3: 3.4 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :AF:GENerator:SOURce3:FREQuency 15kHz
Sets AF Generator 3 Frequency to 15.0 kHz.

Query Response: :AF:GENerator:SOURce3:FREQuency?
15000.0

NOTE

SourceN = 1, 2 or 3 (AF Generator 1, 2 or 3)

2.2.3 AF Generators - Impedance

:CONFigure:IMPedance:AF:GENerator
:CONFigure:IMPedance:AF:GENerator?

Description: Set command defines the Impedance of the AF Generator.
Query command returns parameter setting.

Range: 1 to 10,000 Ohms

Units: Ohms

Default Value: 600 Ohms

Set/Query Format: NRf | NR1

Example: :CONFigure:IMPedance:AF:GENerator 500OHMS
Sets AF Generator Impedance to 500 Ohms.

Query Response: :CONFigure:IMPedance:AF:GENerator?
500

2.2.4 AF Generators - Level

:AF:GENerator:SOURceN:LEVel
:AF:GENerator:SOURceN:LEVel?

Description: Set command defines the Level for the specified AF Generator.
Query command returns parameter setting.

Range: 1.0 mV to 5.0 Vrms

Units: mV | V

Default Value: 100.0 mV

Set/Query Format: NRf | NR2 (mV)

Example: :AF:GENerator:SOURce1:LEVel 5V
Sets AF Generator 1 Level (Amplitude) to 5.0 V.

Query Response: :AF:GENerator:SOURce1:LEVel?
5000.0

NOTE

SourceN = 1, 2 or 3 (AF Generator 1, 2 or 3)

2.2.5 AF Generators - Waveform

:AF:GENerator:SOURceN:SHAPE
:AF:GENerator:SOURceN:SHAPE?

Description: Set command defines the Shape (waveform) of the specified AF Generator.
Query command returns parameter setting.

Parameter: SINE | SQUARE | TRIangle | RAMP

Default Value: SINE

Set/Query Format: CPD | CRD

Example: :AF:GENerator:SOURce2:SHAPE SQUARE
Sets AF Generator 2 Waveform shape to Square.

Query Response: :AF:GENerator:SOURce2:SHAPE?
SQU

NOTE

SourceN = 1, 2 or 3 (AF Generator 1, 2 or 3)

2.3 AF GENERATOR - TONE ENCODING

2.3.1 AF Generators - Encoding Enable

:AF:GENerator:ENCODE:ENABLE

:AF:GENerator:ENCODE:ENABLE?

Description: Set command Enables/Disables (sends) one Tone.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :AF:GENerator:ENCODE:ENABLE ON
Sends one Tone from Audio Generator.

Query Response: :AF:GENerator:ENCODE:ENABLE?
1

2.3.2 AF Generators - Encoded Signal Type

:AF:GENerator:ENCODE:TYPE

:AF:GENerator:ENCODE:TYPE?

Description: Set command defines type of signal being Encoded by the AF Generator.
Query command returns parameter setting.

Parameter: TWOTONE | TONESEQ | TONEREM

Default: TWOTONE

Set/Query Format: CPD | CRD

Example: :AF:GENerator:ENCODE:TYPE TWOTONE
Sets Audio Generator Tone Signaling Type to Two Tone Sequential.

Query Response: :AF:GENerator:ENCODE:TYPE?
TWOTONE

2.3.3 AF Generators - Tone Remote Function Duration

:AF:GEN:TONE:REMote:FUNCTION:DURation

:AF:GEN:TONE:REMote:FUNCTION:DURation?

Description: Set command defines length of single Tone.
Query command returns parameter setting.

Range: 20 to 500 ms

Units: ms | s

Default: 40 ms

Set/Query Format: NRf | NR1 (ms)

Example: :AF:GEN:TONE:REMote:FUNCTION:DURation 50ms
Sets length of single Tone to 50 milliseconds.

Query Response: :AF:GEN:TONE:REMote:FUNCTION:DURation?
50

2.3.4 AF Generators - Tone Remote Function Frequency

:AF:GEN:TONE:REMOte:FUNCTio:n:FREQuency

:AF:GEN:TONE:REMOte:FUNCTio:n:FREQuency?

Description: Set command defines the Tone frequency.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: 1.050 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :AF:GEN:TONE:REMOte:FUNCTio:n:FREQuency 15Hz
Sets Tone Frequency to 15.0 Hz.

Query Response: :AF:GEN:TONE:REMOte:FUNCTio:n:FREQuency?
15.0

2.3.5 AF Generators - Tone Remote Function Level

:AF:GEN:TONE:REMOte:FUNCTio:n:LEVEl

:AF:GEN:TONE:REMOte:FUNCTio:n:LEVEl?

Description: Set command defines the Tone Audio Level.
Query command returns parameter setting.

Range: -20.0 to +20.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR2

Example: :AF:GEN:TONE:REMOte:FUNCTio:n:LEVEl 5dB
Sets the Tone Audio Level to 5.0 dB.

Query Response: :AF:GEN:TONE:REMOte:FUNCTio:n:LEVEl?
5.0

2.3.6 AF Generators - Tone Remote Guard Duration

:AF:GEN:TONE:REMOte:GUARD:DURation

:AF:GEN:TONE:REMOte:GUARD:DURation?

Description: Set command defines length of single Tone.
Query command returns parameter setting.

Range: 1 to 6,000,000 ms

Units: ms | s | ks

Default: 120 ms

Set/Query Format: NRf | NR1 (ms)

Example: :AF:GEN:TONE:REMOte:GUARD:DURation 50ms
Sets length of single Tone 50 milliseconds.

Query Response: :AF:GEN:TONE:REMOte:GUARD:DURation?
50

2.3.7 AF Generators - Tone Remote Guard Frequency

:AF:GEN:TONE:REMOte:GUARD:FREQuency
:AF:GEN:TONE:REMOte:GUARD:FREQuency?

Description: Set command defines the Tone frequency.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: 2.175 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :AF:GEN:TONE:REMOte:GUARD:FREQuency 15Hz
Sets Tone Frequency to 15.0 Hz.

Query Response: :AF:GEN:TONE:REMOte:GUARD:FREQuency?
15.0

2.3.8 AF Generators - Tone Remote Guard Level

:AF:GEN:TONE:REMOte:GUARD:LEVel
:AF:GEN:TONE:REMOte:GUARD:LEVel?

Description: Set command defines the Tone Audio Level.
Query command returns parameter setting.

Range: -20.0 to +20.0 dB

Units: dB

Default Value: -20.0 dB

Set/Query Format: NRf | NR2

Example: :AF:GEN:TONE:REMOte:GUARD:LEVel 5dB
Sets the Tone Audio Level to 5.0 dB.

Query Response: :AF:GEN:TONE:REMOte:GUARD:LEVel?
5.0

2.3.9 AF Generators - Tone Remote Maximum Duration

:AF:GEN:TONE:REMOte:MAXimum:DURation
:AF:GEN:TONE:REMOte:MAXimum:DURation?

Description: Set command defines length of single Tone.
Query command returns parameter setting.

Range: 20 to 500 ms

Units: ms | s

Default: 120 ms

Set/Query Format: NRf | NR1 (ms)

Example: :AF:GEN:TONE:REMOte:MAXimum:DURation 50ms
Sets length of single Tone to 50 milliseconds.

Query Response: :AF:GEN:TONE:REMOte:MAXimum:DURation?
50

2.3.10 AF Generators - Tone Remote Maximum Frequency

:AF:GEN:TONE:REMOte:MAXimum:FREQuency
:AF:GEN:TONE:REMOte:MAXimum:FREQuency?

Description: Set command defines the Tone frequency.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: 2.175 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :AF:GEN:TONE:REMOte:MAXimum:FREQuency 15Hz
Sets Tone Frequency to 15.0 Hz.

Query Response: :AF:GEN:TONE:REMOte:MAXimum:FREQuency?
15.0

2.3.11 AF Generators - Tone Remote Maximum Level

:AF:GEN:TONE:REMOte:MAXimum:LEVel
:AF:GEN:TONE:REMOte:MAXimum:LEVel?

Description: Set command defines the Tone Audio Level.
Query command returns parameter setting.

Range: -20.0 to +20.0 dB

Units: dB

Default Value: 10.0 dB

Set/Query Format: NRf | NR2

Example: :AF:GEN:TONE:REMOte:MAXimum:LEVel 5dB
Sets the Tone Audio Level to 5.0 dB.

Query Response: :AF:GEN:TONE:REMOte:MAXimum:LEVel?
5.0

2.3.12 AF Generators - Tone Remote Reference Level

:AF:GEN:TONE:REMOte:REFerence:LEVel
:AF:GEN:TONE:REMOte:REFerence:LEVel?

Description: Set command defines the Tone Reference Audio Level.
Query command returns parameter setting.

Range: 20.0 to 5000.0 mV

Units: mV | V

Default Value: 1.0 V

Set/Query Format: NRf | NR2 (mV)

Example: :AF:GEN:TONE:REMOte:REFerence:LEVel 2.5V
Sets the Tone Reference Audio Level to 2.5 Volts.

Query Response: :AF:GEN:TONE:REMOte:REFerence:LEVel?
2500

2.3.13 AF Generators - Tone Sequential Audio Level

:AF:GEN:TONE:SEQuential:MASTER:LEVel

:AF:GEN:TONE:SEQuential:MASTER:LEVel?

Description: Set command defines the Audio Level for Tone Sequential tones.
Query command returns parameter setting.

Range: 20.0 to 5000.0 mV

Units: mV | V

Default Value: 1.0 V

Set/Query Format: NRf | NR2 (mV)

Example: :AF:GEN:TONE:SEQuential:MASTER:LEVel 2V
Sets the Audio Level for Tone Sequential tones to 2.0 Volts.

Query Response: :AF:GEN:TONE:SEQuential:MASTER:LEVel?
2000.0

2.3.14 AF Generators - Tone Sequential Mode

:AF:GEN:TONE:SEQuential:MODE

:AF:GEN:TONE:SEQuential:MODE?

Description: Set command selects Tone Mode of operation.
Query command returns parameter setting.

Parameter: SINGLE | CONTINUOUS

Default Value: SINGLE

Set/Query Format: CPD | CRD

Example: :AF:GEN:TONE:SEQuential:MODE CONTINUOUS
Sets Mode of Tone Sequential burst to Continuous.

Query Response: :AF:GEN:TONE:SEQuential:MODE?
CONTINUOUS

2.3.15 AF Generators - Tone Sequential Protocol

:AF:GEN:TONE:SEQuential:PROTOcol

:AF:GEN:TONE:SEQuential:PROTOcol?

Description: Set command selects protocol of single tone.
Query command returns parameter setting.

Parameter: ZVEI1 | ZVEI2 | ZVEI3 | PZVEI | DZVEI | PDZVEI | CCIR1 | CCIR2 | PCCIR |
EEA | EUROSIG | NATEL | EIA | MODAT

Default Value: ZVEI1

Set/Query Format: CPD | CRD

Example: :AF:GEN:TONE:SEQuential:PROTOcol PZVEI
Sets Protocol for tone to PZVEI.

Query Response: :AF:GEN:TONE:SEQuential:PROTOcol?
PZVEI

2.3.16 AF Generators - Tone Sequential Sequence

:AF:GEN:TONE:SEQuential:SEQuence

:AF:GEN:TONE:SEQuential:SEQuence?

Description: Set command defines Sequence of single tone.
Query command returns parameter setting.

Parameter: 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F
maximum of 8 characters encased in double quotes “ ”

Default Value: 01234

Set/Query Format: hex string

Example: :AF:GEN:TONE:SEQuential:SEQuence "ABCD1245"
Sets Tone Sequential Sequence to ABCD1245.

Query Response: :AF:GEN:TONE:SEQuential:SEQuence?
ABCD1245

2.3.17 AF Generators - Two Tone Sequential Duration

:AF:GENerator:TTS:nTONE:DURation

:AF:GENerator:TTS:nTONE:DURation?

Description: Set command defines length of single specified Tone.
Query command returns parameter setting.

Range: 100 ms to 10 s

Units: ms | s

Default: 1.0 s

Set/Query Format: NRf | NR1 (ms)

Example: :AF:GENerator:TTS:ATONE:DURation 5s
Sets length of single Tone A burst to 5 seconds.

Query Response: :AF:GENerator:TTS:ATONE:DURation?
5000

NOTE

nTone = A or B (Tone A or B)

2.3.18 AF Generators - Two Tone Sequential Frequency

:AF:GENerator:TTS:nTONE:FREQuency

:AF:GENerator:TTS:nTONE:FREQuency?

Description: Set command defines AF Generator Frequency for specified Tone.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: Tone A: 500.0 Hz
Tone B: 1.0 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :AF:GENerator:TTS:ATONE:FREQuency 150Hz
Sets AF Generator Frequency for Tone A to 150.0 Hz.

Query Response: :AF:GENerator:TTS:ATONE:FREQuency?
150.00

NOTE

nTone = A or B (Tone A or B)

2.3.19 AF Generators - Two Tone Sequential Level

:AF:GENerator:TTS:LEVel

:AF:GENerator:TTS:LEVel?

Description: Set command defines the Level for single tone.
Query command returns parameter setting.

Range: 20.0 mV to 5.0 Vrms

Units: mV | V

Default Value: 1.0 V

Set/Query Format: NRf | NR2 (mV)

Example: :AF:GENerator:TTS:LEVel 3V
Sets AF Generator Level (Amplitude) to 3.0 Volts.

Query Response: :AF:GENerator:TTS:LEVel?
3000.0

2.4 MOD GENERATOR CONFIGURATION

2.4.1 Modulation Generators - Enable

:MOD:GENerator:SOURceN:ENABLE

:MOD:GENerator:SOURceN:ENABLE?

Description: Set command Enables/Disables the specified Modulation Generator.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :MOD:GENerator:SOURce1:ENABLE ON
Enables Modulation Generator 1.

Query Response: :MOD:GENerator:SOURce1:ENABLE?
1

NOTE

:RF:MODulatorN:ENABLE deprecated in software version 1.7.9.
SourceN = 1, 2 or 3 (Modulator 1, 2 or 3)

2.4.2 Modulation Generators - Frequency

:MOD:GENerator:SOURceN:FREQuency

:MOD:GENerator:SOURceN:FREQuency?

Description: Set command defines Frequency for the specified Modulation Generator.
Query command returns parameter setting.

Range: 1.0 Hz to 5.0 kHz

Units: Hz | kHz

Default Value: Mod 1: 1.0 kHz
Mod 2: 300.0 Hz
Mod 3: 3.4 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GENerator:SOURce1:FREQuency 2kHz
Sets Modulation Generator 1 Frequency to 2.0 kHz.

Query Response: :MOD:GENerator:SOURce1:FREQuency?
2000.0

NOTE

RF:MODulatorN:FREQuency deprecated in software version 1.7.9.
SOURceN = 1, 2 or 3 (Mod Generator 1, 2 or 3)

2.4.3 Modulation Generators - Level

:MOD:GENerator:SOURceN:LEVel

:MOD:GENerator:SOURceN:LEVel?

Description: Set command defines Level for specified Modulation Generator.
Query command returns parameter setting.

Range: 1.0 Hz to 150.0 kHz

Units: Hz | kHz

Default Value: 2.5 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GENerator:SOURce3:LEVel 3kHz
Sets Modulation Generator 3 Level to 3.0 kHz.

Query Response: :MOD:GENerator:SOURce3:LEVel?
3000.00

NOTE

:RF:MODulatorN:LEVel deprecated in software version 1.7.9.
SOURceN = 1, 2 or 3 (Modulator 1, 2 or 3)

2.4.4 Modulation Generators - Level as a Percent (%)

:MOD:GENerator:SOURceN:LEVel:PERcent

:MOD:GENerator:SOURceN:LEVel:PERcent?

Description: Set command defines Level for specified Modulation Generator.
Query command returns parameter setting.

Range: 0 to 100%

Units: % (Percent)

Default Value: 1.667%

Set/Query Format: NRf | NR2 (%)

Example: :MOD:GENerator:SOURce3:LEVel:PERcent 15
Sets Modulation Generator 3 Level to 15.0%.

Query Response: :MOD:GENerator:SOURce3:LEVel:PERcent?
15.0

NOTE

:RF:MODulatorN:LEVel:PERcent deprecated in software version 1.7.9.
SOURceN = 1, 2 or 3 (Modulator 1, 2 or 3)

2.4.5 Modulation Generators - Waveform

:MOD:GENerator:SOURceN:SHApe

:MOD:GENerator:SOURceN:SHApe?

Description: Set command defines Waveform Shape for the specified Modulation Generator.
Query command returns parameter setting.

Set Parameters: SINE | SQUare | TRIangle | RAMP | DCS | DCSINV | DTMF

Query Data: SINE | SQUare | TRIangle | RAMP | DCS | DCSINV | DTMF | TRKGEN

Default Value: SINE

Set/Query Format: CPD | CRD

Example: :MOD:GENerator:SOURce2:SHApe SQUare
Sets Modulation Generator 2 Waveform Shape to Square.

Query Response: :MOD:GENerator:SOURce2:SHApe?
SQU

NOTE

:RF:MODulatorN:SHApe deprecated in software version 1.7.9.

SOURceN = 1, 2 or 3 (Mod Generator 1, 2 or 3)

DTMF is not a valid parameter for Modulator 2 and Modulator 3. DTMF may be returned as query data for Modulator 2.

2.5 MODULATION GENERATORS - TONE ENCODING

2.5.1 Modulation Generators - DCS Code

:MOD:GENerator:SOURceN:CODEword "xxx"

:MOD:GENerator:SOURceN:CODEword?

Description: Set command defines the DCS code for specified Mod Generator Source.
Query command returns parameter setting.

Parameter: Refer to Appendix A of 3900 Series Remote Programming Manual for supported DCS codes.

Default Value: 023

Set/Query Format: NR1

Example: :MOD:GENerator:SOURce1:CODEword "071"
Sets Mod Generator 1 DCS Code to 071.

Query Response: :MOD:GENerator:SOURce1:CODEword?
071

NOTE

Command only valid when Mod Generator Shape (Waveform) is set to DCS.
SOURceN = 1, 2 or 3 (Mod Generator 1, 2 or 3)

2.5.2 Modulation Generators - DTMF Burst Length

:MOD:GENerator:SOURce1:MARK

:MOD:GENerator:SOURce1:MARK?

Description: Set command defines length of time a DTMF burst is ON for Mod Generator 1.
Query command returns parameter setting.

Range: 1 to 6,000,000 ms

Units: ms

Default Value: 100 ms

Set/Query Format: NRF | NR1

Example: :MOD:GENerator:SOURce1:MARK 5000ms
Sets length of Mod Generator 1 DTMF burst to 5000 milliseconds.

Query Response: :MOD:GENerator:SOURce1:MARK?
5000

NOTE

DTMF waveform is only supported on Mod Generator 1

2.5.3 Modulation Generators - DTMF Dead Time

:MOD:GENerator:SOURce1:END

:MOD:GENerator:SOURce1:END?

Description: Set command defines the dead time between DTMF tones for Mod Generator 1.
Query command returns parameter setting.

Range: 1 to 6,000,000 ms

Units: ms

Default Value: 500 ms

Set/Query Format: NRf | NR1

Example: :MOD:GENerator:SOURce1:END 1000ms
Sets dead time between DTMF tones to 1000 milliseconds.

Query Response: :MOD:GENerator:SOURce1:END?
1000

NOTE

DTMF waveform is only supported on Mod Generator 1.

2.5.4 Modulation Generators - DTMF Sequence

:MOD:GENerator:SOURce1:SEQuence

:MOD:GENerator:SOURce1:SEQuence?

Description: Set command defines DTMF Sequence when DTMF Waveform is selected.
Query command returns parameter setting.

Parameter: 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | # | *
maximum of 16 characters encased in double quotes “ ”

Default Value: 01234567

Set/Query Format: hex string

Example: :MOD:GENerator:SOURce1:SEQuence “ABCD*1234#5678”
Sets Mod Generator DTMF Sequence to ABCD*1245#5678.

Query Response: :MOD:GENerator:SOURce1:SEQuence?
ABCD*1245#5678

NOTE

Command only valid when Mod Generator 1 Waveform is set to DTMF.
DMTF waveform is only supported on Mod Generator 1.

2.5.5 Modulation Generators - DTMF Sequence Mode

:MOD:GENErator:SOURce1:SEQuence:Mode

:MOD:GENErator:SOURce1:SEQuence:Mode?

Description: Set command defines DTMF sequence mode of operation for Mod Generator 1.
Query command returns parameter setting.

Parameter: SINGLE | CONTINUOUS

Default Value: SINGLE

Set/Query Format: NR1

Example: :MOD:GENErator:SOURce1:SEQuence:Mode CONTINUOUS
Sets DTMF Sequence Mode of Mod Generator 1 to Continuous.

Query Response: :MOD:GENErator:SOURce1:SEQuence:Mode?
CONTINUOUS

NOTE

Command only valid when Mod Generator 1 Waveform is set to DTMF.
DTMF waveform is only supported on Mod Generator 1.

2.5.6 Modulation Generators - DTMF Sequence Spacing

:MOD:GENErator:SOURce1:SPACe

:MOD:GENErator:SOURce1:SPACe?

Description: Set command defines the dead time between DTMF tone sequence when operating in Continuous Sequence mode of operation for RF Mod Generator 1.
Query command returns parameter setting.

Range: 1 to 6,000,000 ms

Units: ms

Default Value: 500 ms

Set/Query Format: NRf | NR1

Example: :MOD:GENErator:SOURce1:SPACe 1000ms
Sets dead time between DTMF tone sequences to 1000 milliseconds.

Query Response: :MOD:GENErator:SOURce1:SPACe?
1000

NOTE

Command only valid when Continuous Sequence Mode is selected.
DTMF waveform is only supported on Mod Generator 1.

2.5.7 Modulation Generators - Encoding Enable

:MOD:GENErator:ENCODE:ENABLE

:MOD:GENErator:ENCODE:ENABLE?

Description: Set command Enables/Disables (sends) one Tone from Modulation Generator.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :MOD:GENErator:ENCODE:ENABLE ON
Sends one Tone from Modulation Generator.

Query Response: :MOD:GENErator:ENCODE:ENABLE?
1

2.5.8 Modulation Generators - Encoded Signal Type

:MOD:GENerator:ENCODE:TYPE

:MOD:GENerator:ENCODE:TYPE?

Description: Set command defines type of signal being Encoded by the Modulation Generator.

Query command returns parameter setting.

Parameter: TWOTONE | TONESEQ | TONEREM

Default: TWOTONE

Set/Query Format: CPD | CRD

Example: :MOD:GENerator:ENCODE:TYPE TWOTONE

Sets Modulation Generator Tone Signaling Type to Two Tone Sequential.

Query Response: :MOD:GENerator:ENCODE:TYPE?
TWOTONE

2.5.9 Modulation Generators - Tone Remote Functional Duration

:MOD:GEN:TONE:REMOte:FUNCTION:DURATION

:MOD:GEN:TONE:REMOte:FUNCTION:DURATION?

Description: Set command defines length of single Tone.
Query command returns parameter setting.

Range: 20 to 500 ms

Units: ms | s

Default: 40 ms

Set/Query Format: NRf | NR1 (ms)

Example: :MOD:GEN:TONE:REMOte:FUNCTION:DURATION 50ms
Sets length of single Tone burst to 50 milliseconds.

Query Response: :MOD:GEN:TONE:REMOte:FUNCTION:DURATION?
50

2.5.10 Modulation Generators - Tone Remote Functional Frequency

:MOD:GEN:TONE:REMOte:FUNCTION:FREQUENCY

:MOD:GEN:TONE:REMOte:FUNCTION:FREQUENCY?

Description: Set command defines the Tone frequency.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: 1.050 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GEN:TONE:REMOte:FUNCTION:FREQUENCY 15Hz
Sets Tone Frequency to 15.0 Hz.

Query Response: :MOD:GEN:TONE:REMOte:FUNCTION:FREQUENCY?
15.0

2.5.11 Modulation Generators - Tone Remote Functional Level

:MOD:GEN:TONE:REMOte:FUNctIon:LEVEl

:MOD:GEN:TONE:REMOte:FUNctIon:LEVEl?

Description: Set command defines the Tone Level.
Query command returns parameter setting.

Range: -20.0 to +20.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR2

Example: :MOD:GEN:TONE:REMOte:FUNctIon:LEVEl 5dB
Sets the Tone Level to 5.0 dB.

Query Response: :MOD:GEN:TONE:REMOte:FUNctIon:LEVEl?
5.0

2.5.12 Modulation Generators - Tone Remote Guard Duration

:MOD:GEN:TONE:REMOte:GUARD:DURation

:MOD:GEN:TONE:REMOte:GUARD:DURation?

Description: Set command defines length of single Tone Remote burst.
Query command returns parameter setting.

Range: 1 to 6,000,000 ms

Units: ms | s | ks

Default: 120 ms

Set/Query Format: NRf | NR1 (ms)

Example: :MOD:GEN:TONE:REMOte:GUARD:DURation 50ms
Sets length of single Tone Remote burst to 50 milliseconds.

Query Response: :MOD:GEN:TONE:REMOte:GUARD:DURation?
50

2.5.13 Modulation Generators - Tone Remote Guard Frequency

:MOD:GEN:TONE:REMOte:GUARD:FREQuency

:MOD:GEN:TONE:REMOte:GUARD:FREQuency?

Description: Set command defines Tone Frequency.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: 2.175 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GEN:TONE:REMOte:GUARD:FREQuency 15Hz
Sets Tone Frequency to 15.0 Hz.

Query Response: :MOD:GEN:TONE:REMOte:GUARD:FREQuency?
15.0

2.5.14 Modulation Generators - Tone Remote Guard Level

:MOD:GEN:TONE:REMOte:GUARD:LEVel

:MOD:GEN:TONE:REMOte:GUARD:LEVel?

Description: Set command defines the Tone Level.
Query command returns parameter setting.

Range: -20.0 to +20.0 dB

Units: dB

Default Value: -20.0 dB

Set/Query Format: NRf | NR2

Example: :MOD:GEN:TONE:REMOte:GUARD:LEVel 5dB
Sets the Tone Level to 5.0 dB.

Query Response: :MOD:GEN:TONE:REMOte:GUARD:LEVel?
5.0

2.5.15 Modulation Generators - Tone Remote Maximum Duration

:MOD:GEN:TONE:REMOte:MAXimum:DURation

:MOD:GEN:TONE:REMOte:MAXimum:DURation?

Description: Set command defines length of single Tone.
Query command returns parameter setting.

Range: 20 to 500 ms

Units: ms | s

Default: 120 ms

Set/Query Format: NRf | NR1 (ms)

Example: :MOD:GEN:TONE:REMOte:MAXimum:DURation 50ms
Sets length of single Tone burst to 50 milliseconds.

Query Response: :MOD:GEN:TONE:REMOte:MAXimum:DURation?
50

2.5.16 Modulation Generators - Tone Remote Maximum Frequency

:MOD:GEN:TONE:REMOte:MAXimum:FREQuency

:MOD:GEN:TONE:REMOte:MAXimum:FREQuency?

Description: Set command defines the Tone frequency.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: 2.175 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GEN:TONE:REMOte:MAXimum:FREQuency 15Hz
Sets Tone Frequency to 15.0 Hz.

Query Response: :MOD:GEN:TONE:REMOte:MAXimum:FREQuency?
15.0

2.5.17 Modulation Generators - Tone Remote Maximum Level**:MOD:GEN:TONE:REMOte:MAXimum:LEVel****:MOD:GEN:TONE:REMOte:MAXimum:LEVel?**

Description: Set command defines the Tone Level.
Query command returns parameter setting.

Range: -20.0 to +20.0 dB

Units: dB

Default Value: 10.0 dB

Set/Query Format: NRf | NR2

Example: :MOD:GEN:TONE:REMOte:MAXimum:LEVel 5dB
Sets the Tone Level to 5.0 dB.

Query Response: :MOD:GEN:TONE:REMOte:MAXimum:LEVel?
5.0

2.5.18 Modulation Generators - Tone Sequential Decode Value**:FETCH:MOD:ANALyzer:DECODE:TONESEQ:VALue?**

Description: Command returns decode value of received signal.

Query Format: ascii

Query Response: :FETCH:MOD:ANALyzer:DECODE:TONESEQ:VALue?
047

2.5.19 Modulation Generators - Tone Sequential FM Deviation**:MOD:GEN:TONE:SEQuential:MASTER:DEViation****:MOD:GEN:TONE:SEQuential:MASTER:DEViation?**

Description: Set command defines the Modulation FM Deviation for Tone Sequential Encoding.
Query command returns parameter setting.

Range: 414.0 Hz to 150.0 kHz

Units: Hz | kHz

Default Value: 2.5 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GEN:TONE:SEQuential:MASTER:DEViation 1.75kHz
Sets the Tone FM Deviation to 1.75 kHz.

Query Response: :MOD:GEN:TONE:SEQuential:MASTER:DEViation?
1750.0

2.5.20 Modulation Generators - Tone Sequential Mode

:MOD:GEN:TONE:SEQuential:MODE

:MOD:GEN:TONE:SEQuential:MODE?

Description: Set command selects Tone Mode of operation.
Query command returns parameter setting.

Parameter: SINGLE | CONTINUOUS

Default Value: SINGLE

Set/Query Format: CPD | CRD

Example: :MOD:GEN:TONE:SEQuential:MODE CONTINUOUS
Sets Tone Sequential Mode to Continuous.

Query Response: :MOD:GEN:TONE:SEQuential:MODE?
CONTINUOUS

2.5.21 Modulation Generators - Tone Sequential Protocol

:MOD:GEN:TONE:SEQuential:PROTOcol

:MOD:GEN:TONE:SEQuential:PROTOcol?

Description: Set command selects Tone protocol.
Query command returns parameter setting.

Parameter: ZVEI1 | ZVEI2 | ZVEI3 | PZVEI | DZVEI | PDZVEI | CCIR1 | CCIR2 | PCCIR |
EEA | EUROSIG | NATEL | EIA | MODAT

Default Value: ZVEI1

Set/Query Format: CPD | CRD

Example: :MOD:GEN:TONE:SEQuential:PROTOcol PZVEI
Sets Tone Protocol to PZVEI.

Query Response: :MOD:GEN:TONE:SEQuential:PROTOcol?
PZVEI

2.5.22 Modulation Generators - Tone Sequential Sequence

:MOD:GEN:TONE:SEQuential:SEQuence

:MOD:GEN:TONE:SEQuential:SEQuence?

Description: Set command defines Sequence of Tone.
Query command returns parameter setting.

Parameter: 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F
maximum of 8 characters encased in double quotes “ ”

Default Value: 01234567

Set/Query Format: hex string

Example: :MOD:GEN:TONE:SEQuential:SEQuence “ABCD1245”
Sets Sequence to ABCD1245.

Query Response: :MOD:GEN:TONE:SEQuential:SEQuence?
ABCD1245

2.5.23 Modulation Generators - Two Tone Sequential FM Deviation**:MOD:GENerator:TTS:DEViation****:MOD:GENerator:TTS:DEViation?**

Description: Set command defines the Tone Deviation for Modulation Generator.
Query command returns parameter setting.

Range: 414.0 Hz to 150.0 kHz

Units: Hz | kHz

Default Value: 2.5 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GENerator:TTS:DEViation 4kHz
Sets Mod Generator Deviation to 4.0 kHz

Query Response: :MOD:GENerator:TTS:DEViation?
4000.0

2.5.24 Modulation Generators - Two Tone Sequential Duration**:MOD:GENerator:TTS:nTONE:DURation****:MOD:GENerator:TTS:nTONE:DURation?**

Description: Set command defines length of single Tone.
Query command returns parameter setting.

Range: 100 ms to 10 s

Units: ms | s

Default: Tone A: 1.0 s
Tone B: 3.0 s

Set/Query Format: NRf | NR1 (ms)

Example: :MOD:GENerator:TTS:ATONE:DURation 5s
Sets length of single Tone A burst to 5 seconds.

Query Response: :MOD:GENerator:TTS:ATONE:DURation?
5000

NOTE

nTone = A or B (Tone A or B)

2.5.25 Modulation Generators - Two Tone Sequential Frequency**:MOD:GENerator:TTS:nTONE:FREQuency****:MOD:GENerator:TTS:nTONE:FREQuency?**

Description: Set command defines Tone frequency for Modulation Generator.
Query command returns parameter setting.

Range: 1.0 Hz to 2.999 kHz

Units: Hz | kHz

Default Value: Tone A: 500.0 Hz
Tone B: 1.0 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :MOD:GENerator:TTS:ATONE:FREQuency 150Hz
Sets Mod Generator Frequency for Tone A to 150.0 Hz.

Query Response: :MOD:GENerator:TTS:ATONE:FREQuency?
150.00

NOTE

nTone = A or B (Tone A or B)

2.6 EXTERNAL MODULATION GENERATOR

2.6.1 External Modulation Source - Enable

MOD:GENerator:ESource:ENABle

MOD:GENerator:ESource:ENABle?

Description: Set command Enables/Disables External Modulation source.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: MOD:GENerator:ESource:ENABle ON
Enables selected External Modulation source.

Query Response: MOD:GENerator:ESource:ENABle?
1

NOTE

RF:ESource:ENABle deprecated in software version 1.7.9.

2.6.2 External Modulation Generator - Impedance

MOD:GENerator:ESource:SOURce:LOAD

MOD:GENerator:ESource:SOURce:LOAD?

Description: Set command defines the Impedance of External Modulation source.
Query command returns parameter setting.

Parameter: UNBHI | UNB600

Default Value: UNB600

Set/Query Format: CPD | CRD

Example: MOD:GENerator:ESource:SOURce:LOAD UNBHI
Sets Impedance of External Source to Unbalanced Hi-Z.

Query Response: MOD:GENerator:ESource:SOURce:LOAD?
UNBHI

NOTE

:RF:ESource:SOURce:LOAD deprecated in software version 1.7.9.

2.6.3 External Modulation Generator - Level

MOD:GENerator:ESource:LEVel

MOD:GENerator:ESource:LEVel?

Description: Set command defines level of the External Modulation Generator.
Query command returns parameter setting.

Range: 1.0 Hz to 150.0 kHz

Units: Hz | kHz

Default Value: 2.5 kHz

Set/Query Format: NR2 <units> | NR1 <Hz>

Example: MOD:GENerator:ESource:LEVel 100kHz
Sets Level of the External Modulation Generator to 100.0 kHz

Query Response: MOD:GENerator:ESource:LEVel?
10000

2.6.4 External Modulation Generator - Level in Percent

MOD:GENerator:ESource:LEVel:PERcent

MOD:GENerator:ESource:LEVel:PERcent?

Description: Set command defines level of the External Modulation Generator as a percent.
Query command returns parameter setting.

Range: 0.0% to 100%

Units: %

Default Value: 1.667%

Set/Query Format: NR2

Example: MOD:GENerator:ESource:LEVel:PERcent 25
Sets Level of the External Modulation Generator to 25.0%.

Query Response: MOD:GENerator:ESource:LEVel:PERcent?
25

2.6.5 External Modulation Generator - Source

MOD:GENerator:ESource:SOURce

MOD:GENerator:ESource:SOURce?

Description: Set command defines external source for the Modulation Generator.
Query command returns parameter setting.

Parameter: AUD1 | AUD2 | MIC | BAL

Default Value: AUD1

Set/Query Format: CPD | CRD

Example: MOD:GENerator:ESource:SOURce MIC
Select Microphone as the External Modulation Source.

Query Response: MOD:GENerator:ESource:SOURce?
MIC

NOTE

:RF:ESource:SOURce has been deprecated in software version 1.7.9.

2.7 RF GENERATOR CONFIGURATION

2.7.1 RF Generator - Channel Enable

:RF:GENerator:CHn:ENABle

:RF:GENerator:CHn:ENABle?

Description: Set command Enables/Disables specified RF Channel.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:GENerator:CH2:ENABle ON
Enables RF Channel 2.

Query Response: :RF:GENerator:CH2:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Return value of 2 indicates channel queried in command string is ± 2.5 MHz from primary channel frequency.
RF Generator must also be enabled to transmit signal.

2.7.2 RF Generator - Enable

:RF:GENerator:ENABle

:RF:GENerator:ENABle?

Description: Set command Enables/Disables RF Generator.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:GENerator:ENABle ON
Enables RF Generator.

Query Response: :RF:GENerator:ENABle?
1

2.7.3 RF Generator - Frequency

:RF:GENerator:CHn:FREQuency

:RF:GENerator:CHn:FREQuency?

Description: Set command defines RF Generator Frequency.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units: kHz | MHz

Default Value: 150.0 MHz

Set/Query Format: NRf | NR1 (Hz)

Example: :RF:GENerator:CH2:FREQuency 850MHz
Sets Channel 2 RF Generator Frequency to 850.0 MHz.

Query Response: :RF:GENerator:CH2:FREQuency?
850000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

2.7.4 RF Generator - Level

:RF:GENerator:CHn:LEVel

:RF:GENerator:CHn:LEVel?

Description: Set command defines RF Generator Level.
Query command returns parameter setting.

Range: **TR:** -138.0 to -30.0 dBm

GEN: -130.0 to +10.0 dBm

Units: dBm | μ V | mV | V | dB μ V

Default Value: -80.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :RF:GENerator:CH1:LEVel -75dBm
Set RF Generator Level for Channel 1 to -75.0 dBm.

Query Response: :RF:GENerator:CH1:LEVel?
-75.0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

2.7.5 RF Generator - Level Mode

:RF:GENerator:CHn:LMODe

:RF:GENerator:CHn:LMODe?

Description: Set command defines RF Generator Level type.
Query command returns parameter setting.

Parameter: 0 = PD
1 = EMF

Default Value: 0 (PD)

Set/Query Format: NR1

Example: :RF:GENerator:CH1:LMODe 1
Set RF Generator Level to Display value in EMF.

Query Response: :RF:GENerator:CH1:LMODe?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

2.7.6 RF Generator - Output Connector

:RF:GENerator:PORT

:RF:GENerator:PORT?

Description: Set command selects the RF Output Connector.
Query command returns parameter setting.

Parameter: TR | GEN

Default Value: TR

Set/Query Format: CPD | CRD

Example: :RF:GENerator:PORT GEN
Selects the GEN (Generator) Connector as RF Output Connector.

Query Response: :RF:GENerator:PORT?
GEN

2.7.7 RF Generator - Offset Enable

:CONFigure:OFFSet:GENerator:ENABLE

:CONFigure:OFFSet:GENerator:ENABLE?

Description: Set command Enables/Disables RF Generator Offset.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :CONFigure:OFFSet:GENerator:ENABLE ON
Enables RF Generator Offset.

Query Response: :CONFigure:OFFSet:GENerator:ENABLE?
1

2.7.8 RF Generator - Offset Value

:CONFigure:OFFSet:GENerator:VALue
:CONFigure:OFFSet:GENerator:VALue?

Description: Set command defines RF Generator Offset Value.
Query command returns parameter setting.

Range: -100.0 to +100.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR2 (dB)

Example: :CONFigure:OFFSet:GENerator:VALue 2.5dB
Set RF Generator Offset to 2.5 dB.

Query Response: :CONFigure:OFFSet:GENerator:VALue?
2.5

2.8 TRANSMIT CHANNEL PARAMETERS

2.8.1 Transmit Channel - Modulation

:TRANsmit:CHn:MODulation

:TRANsmit:CHn:MODulation?

Description: Set command selects Transmit Modulation type for specified Channel.
Query command returns parameter setting.

Parameter:

Analog Protocol: FM

Phase 1 Protocol: C4FM | CQPSK | LSM

Phase II Protocol: HDQPSK | HCPM

SNSZ Protocol: FMFSK | ANALOG

X2TDMA Protocol: C4FM | LSM

Default Value:

Analog Protocol: FM

Phase 1 Protocol: C4FM

SNSZ Protocol: FMFSK

X2TDMA Protocol: C4FM

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH1:MODulation CQPSK
Sets Transmit Channel 1 Modulation to CQPSK.

Query Response: :TRANsmit:CH1:MODulation?
CQPSK

NOTE

HDQPSK, HCPM, CQPSK and LSM are option enabled parameters.
CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

2.8.2 Transmit Channel - Pattern

:TRANsmit:CHn:PATtern

:TRANsmit:CHn:PATtern?

Description: Set command defines Pattern for specified transmit channel.
Query command returns parameter setting.

Parameters:

Phase 1: STD1011 | STDAFC | STDCAL | STDSILENCE | STDINTFR | STDBUSY |
STDIDLE | STD511 | STDLDU1TRG | STDLDU2TRG | STDSYMRATE |
STOREDSPEECH | VOICE | NS1011 | NSSILENCE

Default Value: STD1011

Phase 2: STDOB1031 | STDOBCAL | STDOBSIL

Default Value: STDOB1031

X2TDMA: STDIB1031 | STDIBSIL | STDIBCAL | STDOBTST | STDOBCAL |
STOREDSPEECH | VOICE | NS1031

Default Value: STDOB1031

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH1:PATtern STDCAL
Sets Transmit Channel 1 to STD CAL Pattern.

Query Response: TRANsmit:CH1:PATtern?
STDCAL

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Phase 2 and X2TDMA parameters are option enabled.
Standard patterns are not valid when AES or DES encryption are selected
(:SIMulator:VM1:ALG).

2.8.3 Transmit Channel - Primary

:TRANsmit:PRIMary

:TRANsmit:PRIMary?

Description: Set command defines specified Channel as Primary Transmit channel.
Query command returns parameter setting.

Parameter: 1 | 2

Default Value: 1

Set/Query Format: NR1

Example: :TRANsmit:PRIMary 2
Selects Channel 2 as Primary Transmit Channel.

Query Response: :TRANsmit:PRIMary?
2

NOTE

Channel 2 is option enabled.

2.8.4 Transmit Channel - Protocol

:TRANsmit:CHn:PROTOcol

:TRANsmit:CHn:PROTOcol?

Description: Set command selects Transmit Protocol for specified Channel.
Query command returns parameter setting.

Parameter: ANALOG | PHASE1 | PHASE2 | SNSZ | X2TDMA

Default Value: PHASE1

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH2:PROTOcol ANALOG
Sets Rx Channel 2 Protocol to Analog.

Query Response: :TRANsmit:CH2:PROTOcol?
ANALOG

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
PHASE2, SNSZ and X2TDMA are option enabled parameters.

2.8.5 Transmit Channel - Slot Enable

:TRANsmit:CHn:SLOTn:ENABLE

:TRANsmit:CHn:SLOTn:ENABLE?

Description: Set command Enables/Disables generate signal on specified Slot.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :TRANsmit:CH1:SLOT1:ENABLE ON
Enables Channel 1, Slot 1 signal transmission.

Query Response: :TRANsmit:CH1:SLOT1:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).
SLOTN = 0 or 1 (Slot 0 or 1).
Command is *option enabled.

2.8.6 Transmit Channel - Slot Pattern

:TRANsmit:CHn:SLOTn:PATtern

:TRANsmit:CHn:SLOTn:PATtern?

Description: Set command defines Slot Pattern for specified transmit channel.
Query command returns parameter setting.

Parameter: STDSILENCE | STD1031 | STDIB1031 | STDIBSIL | STDIBCAL | STDOBTST |
STDOBCAL | STOREDSPEECH | VOICE

Default Value: STDIB1031

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH2:SLOT1:PATtern STDIBCAL
Sets Transmit Channel 2, Slot 1 to STD IB CAL Pattern.

Query Response: TRANsmit:CH2:SLOT1:PATtern?
STDIBCAL

NOTE

CHn = 1 or 2 (Channel 1 or 2).
SLOTn = 0 or 1 (Slot 0 or 1).
Command is *option enabled.

2.8.7 Transmit Channel - HCPM Sync Mode

:TRANsmit:CHn:HCPM:MODE

:TRANsmit:CHn:HCPM:MODE?

Description: Set command defines Phase II, HCPM modulation mode of operation.
Query command returns parameter setting.

Parameter: Mode of Operation (synchronized or free-running)
SYNC | FREE

Default Value: SYNC

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH1:HCPM:MODE FREE
Sets HCPM Sync Mode to Free-running

Query Response: :TRANsmit:CH1:HCPM:MODE?
FREE

NOTE

Command is option enabled. Applies to Phase 2 Protocol.
Sync Mode Parameter is only valid when Protocol is set to Phase2
(:TRANsmit:CH1:PROTOcol PHASE2) and Modulation Type is set to HCPM
(:TRANsmit:CH1:MODulation HCPM).

2.8.8 Transmit Channel - Validate Frequency

:TRANsmit:CHn:VALId?

Description: Command indicates if Transmit frequency is within ± 2.5 MHz of primary channel.

Query Format: NR1

Query Data: 0 = Invalid ($> \pm 2.5$ MHz from primary Channel frequency)
1 = Valid (within ± 2.5 MHz of primary Channel frequency)

Query Response: :TRANsmit:CH1:VALId?
0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Chapter 3 - Analyzer/Receive Channel Remote Commands

3.1 INTRODUCTION

This chapter identifies the Remote Commands for configuring P25 Analyzer and Receive Channel Parameters. Remote commands are listed alphabetically under the following headings:

3.2 AUDIO MEASUREMENTS CONFIGURATION

3.2.1 AF Measurements - Filter Type

:AF:ANALyzer:MFILter

:AF:ANALyzer:MFILter?

Description: Set command selects the Audio Analyzer Post Detection Filter.
Query command returns parameter setting.

Parameter: PSOPh | None | LP1 | LP2 | LP3 | LP4 | LP5 | LP6 | LP7 | HP1 | HP2 | HP3 | BP0 | BP1 | BP2 | BP3 | BP4 | BP5 | BP6 | BP7 | BP8 | BP9 | BP10 | BP11 | BP12 | BP13 | BP14 | BP15 | BP16

where: NONE = No Filter	BP2 = 0.3 to 5.0 kHz BP
PSOPh = Psoph (CMESS or CCITT)	BP3 = 0.3 to 20.0 kHz BP
LP1 = 300.0 Hz LP	BP4 = 0.3 to 15.0 kHz BP
LP2 = 5.0 kHz LP	BP5 = 0.02 to 300.0 Hz BP
LP3 = 20.0 kHz LP	BP6 = 0.02 to 3.0 kHz BP
LP4 = 15.0 kHz LP	BP7 = 0.02 to 3.4 kHz BP
LP5 = 3.0 kHz LP	BP8 = 0.02 to 5.0 kHz BP
LP6 = 625.0 kHz LP*	BP9 = 0.02 to 15.0 kHz BP
LP7 = 10.0 kHz LP*	BP10 = 0.02 to 20.0 kHz BP
LP8 = 100.0 Hz LP*	BP11 = 0.05 to 300.0 Hz BP
HP1 = 300.0 Hz HP	BP12 = 0.05 to 3.0 kHz BP
HP2 = 20.0 Hz HP	BP13 = 0.05 to 3.4 kHz BP
HP3 = 50.0 Hz HP	BP14 = 0.05 to 5.0 kHz BP
BP0 = 0.3 to 3.0 kHz BP	BP15 = 0.05 to 15.0 kHz BP
BP1 = 0.3 to 3.4 kHz BP	BP16 = 0.05 to 20.0 kHz BP

Default Value: NONE (No Filter)

Set/Query Format: CPD | CRD

Example: :AF:ANALyzer:MFILter LP3
Selects 20.0 kHz Low Pass Filter for AF measurements.

Query Response: :AF:ANALyzer:MFILter?
LP3

NOTE

Filter selected should be appropriate for signal received from UUT.

When PSOPH is selected, Filter weight is defined using :CONFigure:AF:MFILter command.

Test Set does not process any commands following this one until this command is completed.

*LP6, LP7 and LP8 are used by the Audio Analyzer Tracking Generator and can not be defined by user, but may be returned as query data.

3.2.2 AF Measurements - Filter Weight

:CONFigure:AF:MFILter

:CONFigure:AF:MFILter?

Description: Set command defines the weight of psoph filter for AF Analyzer when Psoph filter is selected.
Query command returns parameter setting.

Parameter: CMESs | CCITt

Default Value: CMES

Set/Query Format: CPD | CRD

Example: :CONFigure:AF:MFILter CCITt
Selects CCITT Psoph Filter for AF measurement.

Query Response: :CONFigure:AF:MFILter?
CCIT

NOTE

AF Filter type must be defined as Psoph (:AF:ANALyzer:MFILter PSOPH) for this command to be valid.

3.2.3 AF Measurements - Impedance

:CONFigure:AF:ANALyzer:SOURce:LOAD

:CONFigure:AF:ANALyzer:SOURce:LOAD?

Description: Set command defines the Impedance of selected Audio Frequency (Receiver) source.
Query command returns parameter setting.

Parameter: UNBHI | UNB600

Default Value: Audio Source defined

Set/Query Format: CPD | CRD

Example: :CONFigure:AF:ANALyzer:SOURce:LOAD UNBHI
Sets Impedance of selected Audio Frequency (Receiver) Source to Unbalanced Hi-Z.

Query Response: :CONFigure:AF:ANALyzer:SOURce:LOAD?
UNBHI

NOTE

Command not valid when AF Analyzer Source is set to Balanced (:CONFigure:AF:ANALyzer:SOURce is set to BAL).

3.2.4 AF Measurements - Impedance External Load

:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD

:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD?

Description: Set command defines the Impedance of selected Audio Frequency Analyzer (Receiver) source.
Query command returns parameter setting.

Range: 1 to 9999 Ohms

Units: Ohms

Default Value: 8 Ohms

Set/Query Format: NRf | NR1

Example: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD 100OHMS
Sets External Load to 100 Ohms for Audio Frequency Analyzer (Receiver).

Query Response: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD?
100

NOTE

Command only valid when Impedance is set to Unbalanced Hi-Z (:CONFigure:AF:ANALyzer:SOURce:LOAD UNBHI).

3.2.5 AF Measurements - Impedance External Load Enable

:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE

:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE?

Description: Set command enables External Load for Impedance.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE ON
Enables and applies defined External Impedance Load.

Query Response: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE?
1

NOTE

Command :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD defines the external load applied when External Load is enabled.

3.3 AUTOTUNE SETUP REMOTE COMMANDS

3.3.1 RF Analyzer - AutoTune Frequency Resolution Value

:CONFigure:RF:ANALyzer:FMODE:FRESolution

:CONFigure:RF:ANALyzer:FMODE:FRESolution?

Description: Set command defines AutoTune Frequency Resolution value when AutoTune is enabled.

Query command returns parameter setting.

Parameter: 1 | 10 | 100 | 1000

Units: Hz

Default Value: 1 Hz

Set/Query Format: NRf | NR1

Example: :CONFigure:RF:ANALyzer:FMODE:FRESolution 10

Sets AutoTune Threshold to 10 Hz.

Query Response: :CONFigure:RF:ANALyzer:FMODE:FRESolution?
10

3.3.2 RF Analyzer - AutoTune Mode of Operation

:RF:ANALyzer:FMODE

:RF:ANALyzer:FMODE?

Description: Set command selects AutoTune Frequency mode of operation.

Query command returns parameter setting.

Parameter: AUTo | MANual

Default Value: Manual

Set/Query Format: CPD | CRD

Example: :RF:ANALyzer:FMODE AUTO

Sets RF Analyzer to Autotune received frequency.

Query Response: :RF:ANALyzer:FMODE?
AUT

NOTE

AutoTune must be set to Manual to enter a specific Receive frequency.

3.3.3 RF Analyzer - AutoTune Operating Status

:RF:ANALyzer:FMODE:STATus?

Description: Command indicates whether AutoTune frequency search is running or complete.

Query Format: NR1

Query Data: 0 = Search complete

1 = Search running

Query Response: :RF:ANALyzer:FMODE:STATus?
1

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.3.4 RF Analyzer - AutoTune Start Frequency

:RF:ANALyzer:FMODE:START

:RF:ANALyzer:FMODE:START?

Description: Set command defines Start Frequency of AutoTune range.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: 10.0 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :RF:ANALyzer:FMODE:START 20kHz
Sets AutoTune Start Frequency to 20.0 kHz.

Query Response: :RF:ANALyzer:FMODE:START?
200000.00 (Hz)

NOTE

AutoTune mode must be set to Auto for command to be valid.

3.3.5 RF Analyzer - AutoTune Start Frequency Enable

:RF:ANALyzer:FMODE:START:ENABLE

:RF:ANALyzer:FMODE:START:ENABLE?

Description: Set command activates/deactivates AutoTune Start frequency.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:ANALyzer:FMODE:START:ENABLE ON
Activates AutoTune Start frequency.

Query Response: :RF:ANALyzer:FMODE:START:ENABLE?
1

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.3.6 RF Analyzer - AutoTune Stop Frequency

:RF:ANALyzer:FMODE:STOP

:RF:ANALyzer:FMODE:STOP?

Description: Set command defines the Stop Frequency of AutoTune range.
Query command returns parameter setting.

Parameter: 100.0 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: 500.0 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :RF:ANALyzer:FMODE:STOP 650MHz
Sets RF Analyzer AutoTune Stop Frequency to 650.0 MHz.

Query Response: :RF:ANALyzer:FMODE:STOP?
650000000.00

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.3.7 RF Analyzer - AutoTune Stop Frequency Enable

:RF:ANALyzer:FMODE:STOP:ENABLE

:RF:ANALyzer:FMODE:STOP:ENABLE?

Description: Set command enables/disables AutoTune Stop Frequency.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:ANALyzer:FMODE:STOP:ENABLE ON
Activates AutoTune Stop Frequency.

Query Response: :RF:ANALyzer:FMODE:STOP:ENABLE?
1

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.3.8 RF Analyzer - AutoTune Threshold Value

:RF:ANALyzer:FMODE:THREsh

:RF:ANALyzer:FMODE:THREsh?

Description: Set command defines the AutoTune Threshold value.
Query command returns parameter setting.

Range: -75.0 to +20.0 dBm

Units: dBm

Default Value: -30.0 dBm

Set/Query Format: NRF | NR2

Example: RF:ANALyzer:FMODE:THREsh -45dBm
Sets AutoTune Threshold value to -45.0 dBm.

Query Response: RF:ANALyzer:FMODE:THREsh?
-45.000000

NOTE

:CONFigure:RF:ANALyzer:THREsh command also supported for this function.

3.4 AF ANALYZER - TONE DECODE

3.4.1 AF Analyzer - Clear Decode Log

:AF:ANALyzer:DECODE:LOGS:CLEAR

Description: Command clears all AF data logs for Tone Remote, Tone Sequential and Two Tone Sequential signal types.

Parameter/Query: none

3.4.2 AF Analyzer - DCS Decode Value

:FETCh:AF:ANALyzer:DECODE:DCS:VALue?

Description: Command returns decode value of received signal.

Query Format: ascii

Query Response: :FETCh:AF:ANALyzer:DECODE:DCS:VALue?
047

3.4.3 AF Analyzer - Decode Protocol

:AF:ANALyzer:DECODE:PROTOcol

:AF:ANALyzer:DECODE:PROTOcol?

Description: Set command selects Protocol to be decoded by the AF Analyzer.
Query command returns parameter setting.

Parameter: ZVEI1 | ZVEI2 | ZVEI3 | PZVEI | DZVEI | PDZVEI | CCIR1 | CCIR2 | PCCIR |
EEA | EUROSIG | NATEL | EIA | MODAT

Default Value: ZVEI1

Set/Query Format: CPD | CRD

Example: :AF:ANALyzer:DECODE:PROTOcol PZVEI
Sets AF Analyzer to decode PZVEI Protocol.

Query Response: :AF:ANALyzer:DECODE:PROTOcol?
PZVEI

3.4.4 AF Analyzer - DTMF Decode Value

:FETCh:AF:ANALyzer:DECODE:DTMF:VALue?

Description: Command returns decode value of received signal.

Query Format: ascii

Query Response: :FETCh:AF:ANALyzer:DECODE:DTMF:VALue?
047

3.4.5 AF Analyzer - Tone Remote Decode Data

:FETCh:AF:ANALyzer:DECODE:TONEREM:LOG?

Description: Command returns received Tone Remote data.

Query Data: <frequency>,<spec frequency>,<% error>,<freq error>,<duration>

frequency (NR2): Hz

spec frequency (NR2): Hz

% error (NR2): percent (%)

freq error (NR2): Hz

duration (NR2): ms

no activity: returned when no log data is available

Query Response: :FETCh:AF:ANALyzer:DECODE:TONEREM:LOG?

2173.8,2175.0,0.054,1.2,1422.9

1048.8,1050.0,0.112,1.2,1422.9

2173.8,2175.0,0.054,1.2,1422.9

3.4.6 AF Analyzer - Tone Sequential Decode Data

:FETCh:AF:ANALyzer:DECODE:TONESEQ:LOG?

Description: Command returns received Tone Sequential data.

Query Format: ascii data string

Query Data: <decoded tone>,<frequency>,<spec frequency>,<% error>,<freq error>,<duration>

decoded tone (hex): 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | A | B | C | D | E | F

frequency (NR2): Hz

spec frequency (NR2): Hz

% error (NR2): percent (%)

freq error (NR2): Hz

duration (NR2): ms

no activity: returned when no log data is available

Query Response: :FETCh:AF:ANALyzer:DECODE:TONESEQ:LOG?

0,2399.4,2400.0,0.024,0.6,85.3

1,1060.5,1060.0,0.052,0.5,64.0

2,1160.2,1160.0,0.013,0.2,74.7

3,1280.3,1270.0,0.809,10.3,74.7

4,1400.4,1400.0,0.028,0.4,74.7

3.4.7 AF Analyzer - Two Tone Sequential Decode Data

:FETCh:AF:ANALyzer:DECODE:TWOTONE:LOG?

Description: Command returns received Two Tone Sequential data.

Query Data: <frequency>,<duration>

frequency (NR2): Hz

duration (NR2): ms

no activity: returned when no log data is available

Query Response: :FETCh:AF:ANALyzer:DECODE:TWOTONE:LOG?
1004.9,7349.3
501.0,1013.3
999.0,3008.0
501.0,1013.3
999.0,3008.0

3.4.8 AF Analyzer - Decode Signal Type

:AF:ANALyzer:DECODE:TYPE

:AF:ANALyzer:DECODE:TYPE?

Description: Set command defines type of Signal being Decoded by the Audio Analyzer.
Query command returns parameter setting.

Parameter: OFF | DTMF | TONESEQ | TONEREM | TWOTONE

Default: OFF (Demod)

Set/Query Format: CPD | CRD

Example: :AF:ANALyzer:DECODE:TYPE TONESEQ

Sets type of signal being decoded by Audio Analyzer to Tone Sequential.

Query Response: :AF:ANALyzer:DECODE:TYPE?
TONESEQ

NOTE

:AF:ANALyzer:DECODE:TONETYPE was deprecated in software version 1.7.9.

3.5 MODULATION ANALYZER - TONE DECODING

3.5.1 Modulation Analyzers - Clear Decode Log

:MOD:ANALyzer:DECODE:LOGS:CLEAR

Description: Command clears all modulation data logs for Tone Remote, Tone Sequential and Two Tone Sequential signal types.

Parameter/Query: none

3.5.2 Modulation Analyzers - DCS Decode Value

:FETCh:MOD:ANALyzer:DECODE:DCS:VALue?

Description: Command returns decode value of received signal.

Query Format: ascii

Query Response: :FETCh:MOD:ANALyzer:DECODE:DCS:VALue?
047

3.5.3 Modulation Analyzers - Decode Protocol

:MOD:ANALyzer:DECODE:PROTOcol

:MOD:ANALyzer:DECODE:PROTOcol?

Description: Set command selects Protocol to be decoded by the Modulation Analyzer. Query command returns parameter setting.

Parameter: ZVEI1 | ZVEI2 | ZVEI3 | PZVEI | DZVEI | PDZVEI | CCIR1 | CCIR2 | PCCIR | EEA | EUROSIG | NATEL | EIA | MODAT

Default Value: ZVEI1

Set/Query Format: CPD | CRD

Example: :MOD:ANALyzer:DECODE:PROTOcol PZVEI
Sets Modulation Analyzer to decode PZVEI Protocol.

Query Response: :MOD:ANALyzer:DECODE:PROTOcol?
PZVEI

3.5.4 Modulation Analyzers - Decode Signal Tone

:MOD:ANALyzer:DECODE:TYPE

:MOD:ANALyzer:DECODE:TYPE?

Description: Set command defines type of Signal being Decoded by the Modulation Analyzer. Query command returns parameter setting.

Parameter: OFF | DCS | DCSINV | DTMF | TONESEQ | TONEREM | TWOTONE

Default: OFF (Demod)

Set/Query Format: CPD | CRD

Example: :MOD:ANALyzer:DECODE:TYPE DCS
Sets type of signal being decoded by Modulation Analyzer to DCS.

Query Response: :MOD:ANALyzer:DECODE:TYPE?
DCS

NOTE

:MOD:ANALyzer:DECODE:TONETYPE deprecated in software version 1.7.9.

3.5.5 Modulation Analyzers - DTMF Decode Value

:FETCH:MOD:ANALyzer:DECODE:DTMF:VALue?

Description: Command returns decode value of received signal.

Query Format: ascii

Query Response: :FETCH:MOD:ANALyzer:DECODE:DTMF:VALue?
047

3.5.6 Modulation Analyzers - Tone Remote Decoded Data

:FETCH:MOD:ANALyzer:DECODE:TONEREM:LOG?

Description: Command returns received Tone Remote data.

Query Data: <frequency>,<spec frequency>,<% error>,<freq error>,<duration>

frequency (NR2): Hz

spec frequency (NR2): Hz

% error (NR2): percent (%)

freq error (NR2): Hz

duration (NR2): ms

no activity: returned when no log data is available

Query Response: :FETCH:MOD:ANALyzer:DECODE:TONEREM:LOG?
2173.8,2175.0,0.054,1.2,1422.9
1051.8,1050.0,0.167,1.8,1422.9
2176.8,2175.0,0.081,1.8,1422.9

3.5.7 Modulation Analyzers - Tone Sequential Decoded Data

:FETCH:MOD:ANALyzer:DECODE:TONESEQ:LOG?

Description: Command returns received Modulation Tone Sequential data.

Query Format: ascii data string

Query Data: <decoded tone>,<frequency>,<spec frequency>,<% error>,<freq error>,<duration>

decoded tone (hex): 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | A | B | C | D | E | F

frequency (NR2): Hz

spec frequency (NR2): Hz

% error (NR2): percent (%)

freq error (NR2): Hz

duration (NR2): ms

no activity: returned when no log data is available

Query Response: :FETCH:MOD:ANALyzer:DECODE:TONESEQ:LOG?
0,2399.4,2400.0,0.024,0.6,74.7
1,1057.6,1060.0,0.225,2.4,74.7
2,1163.1,1160.0,0.266,3.1,64.0
3,1274.4,1270.0,0.348,4.4,74.7
4,1400.4,1400.0,0.028,0.4,74.7

3.5.8 Modulation Analyzers - Two Tone Sequential Decoded Data

:FETCh:MOD:ANALyzer:DECODE:TWOTONE:LOG?

Description: Command returns received Two Tone Sequential data.

Query Data: <frequency>,<duration>

frequency (NR2): Hz

duration (NR2): ms

no activity: returned when no log data is available

Query Response: :FETCh:MOD:ANALyzer:DECODE:TWOTONE:LOG?
501.0,1013.3
1002.0,3008.0

3.6 RF ANALYZER CONFIGURATION

3.6.1 Function Generator / Demod Out Connector

:CONFigure:PORT:FGEN

:CONFigure:PORT:FGEN?

Description: Set command selects Function Generator / Demod Out Connector.
Query command returns parameter setting.

Parameter: FGEN | AUDIO | DEMOD

Default Value: FGEN

Set/Query Format: CPD | CRD

Example: :CONFigure:PORT:FGEN DEMOD
Selects Demod as the Function Generator / Demod Out Connector.

Query Response: :CONFigure:PORT:FGEN?
DEM

3.6.2 RF Analyzer - AutoTune Frequency Resolution Value

:CONFigure:RF:ANALyzer:FMODE:FRESolution

:CONFigure:RF:ANALyzer:FMODE:FRESolution?

Description: Set command defines AutoTune Frequency Resolution value when AutoTune is enabled.
Query command returns parameter setting.

Parameter: 1 | 10 | 100 | 1000

Units: Hz

Default Value: 1 Hz

Set/Query Format: NRf | NR1

Example: :CONFigure:RF:ANALyzer:FMODE:FRESolution 10
Sets AutoTune Threshold to 10 Hz.

Query Response: :CONFigure:RF:ANALyzer:FMODE:FRESolution?
10

3.6.3 RF Analyzer - AutoTune Mode of Operation

:RF:ANALyzer:FMODe

:RF:ANALyzer:FMODe?

Description: Set command selects AutoTune Frequency mode of operation.
Query command returns parameter setting.

Parameter: AUTo | MANual

Default Value: Manual

Set/Query Format: CPD | CRD

Example: :RF:ANALyzer:FMODe AUTO

Sets RF Analyzer to Autotune received frequency.

Query Response: :RF:ANALyzer:FMODe?
AUT

NOTE

AutoTune must be set to Manual to enter a specific Receive frequency.

3.6.4

3.6.5 RF Analyzer - AutoTune Operating Status

:RF:ANALyzer:FMODe:STATus?

Description: Command indicates whether AutoTune frequency search is running or complete.

Query Format: NR1

Query Data: 0 = Search complete
1 = Search running

Query Response: :RF:ANALyzer:FMODe:STATus?
1

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.6.6 RF Analyzer - AutoTune Start Frequency

:RF:ANALyzer:FMODe:START

:RF:ANALyzer:FMODe:START?

Description: Set command defines Start Frequency of AutoTune range.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: 10.0 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :RF:ANALyzer:FMODe:START 20kHz

Sets AutoTune Start Frequency to 20.0 kHz.

Query Response: :RF:ANALyzer:FMODe:START?
200000.00 (Hz)

NOTE

AutoTune mode must be set to Auto for command to be valid.

3.6.7 RF Analyzer - AutoTune Start Frequency Enable

:RF:ANALyzer:FMODE:START:ENABLE

:RF:ANALyzer:FMODE:START:ENABLE?

Description: Set command activates/deactivates AutoTune Start frequency.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:ANALyzer:FMODE:START:ENABLE ON

Activates AutoTune Start frequency.

Query Response: :RF:ANALyzer:FMODE:START:ENABLE?
1

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.6.8 RF Analyzer - AutoTune Stop Frequency

:RF:ANALyzer:FMODE:STOP

:RF:ANALyzer:FMODE:STOP?

Description: Set command defines the Stop Frequency of AutoTune range.
Query command returns parameter setting.

Parameter: 100.0 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: 500.0 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :RF:ANALyzer:FMODE:STOP 650MHz

Sets RF Analyzer AutoTune Stop Frequency to 650.0 MHz.

Query Response: :RF:ANALyzer:FMODE:STOP?
650000000.00

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.6.9 RF Analyzer - AutoTune Stop Frequency Enable

:RF:ANALyzer:FMODE:STOP:ENABLE

:RF:ANALyzer:FMODE:STOP:ENABLE?

Description: Set command enables/disables AutoTune Stop Frequency.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:ANALyzer:FMODE:STOP:ENABLE ON

Activates AutoTune Stop Frequency.

Query Response: :RF:ANALyzer:FMODE:STOP:ENABLE?
1

NOTE

Command only valid when AutoTune mode of operation is set to Auto.

3.6.10 RF Analyzer - AutoTune Threshold Value

:RF:ANALyzer:FMODE:THREsh

:RF:ANALyzer:FMODE:THREsh?

Description: Set command defines the AutoTune Threshold value.
Query command returns parameter setting.

Range: -75.0 to +20.0 dBm

Units: dBm

Default Value: -30.0 dBm

Set/Query Format: NRF | NR2

Example: RF:ANALyzer:FMODE:THREsh -45dBm
Sets AutoTune Threshold value to -45.0 dBm.

Query Response: RF:ANALyzer:FMODE:THREsh?
-45.000000

NOTE

:CONFigure:RF:ANALyzer:THREsh command also supported for this function.

3.6.11 RF Analyzer - Channel Enable

:RF:ANALyzer:CHn:ENABLE

:RF:ANALyzer:CHn:ENABLE?

Description: Set command Enables/Disables the specified Receive Channel.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:ANALyzer:CH2:ENABLE ON
Enables Channel 2 Receive channel.

Query Response: :RF:ANALyzer:CH2:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Return value of 2 indicates channel queried in command string is ± 2.5 MHz from primary channel frequency.

3.6.12 RF Analyzer - Channel Offset Value

:RF:ANALyzer:CHn:OFFSet

:RF:ANALyzer:CHn:OFFSet?

Description: Set command defines the Receive Channel Offset Value.
Query command returns parameter setting.

Range: -999.0 to +999.0 MHz

Units: Hz | kHz | MHz | GHz

Default Value: 0.0 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :RF:ANALyzer:CH1:OFFSet 5MHz
Sets Receive Channel Offset to 5.0 MHz.

Query Response: :RF:ANALyzer:CH1:OFFSet?
5000000.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

3.6.13 RF Analyzer - FM IF Bandwidth

:RF:ANALyzer:FMIF

:RF:ANALyzer:FMIF?

Description: Set command defines the FM IF Bandwidth.
Query command returns parameter setting.

Parameter: 12.5 kHz | 30.0 kHz | 100.0 kHz

Default Value: 12.5 kHz

Set/Query Format: NRf | NR2

Example: :RF:ANALyzer:FMIF 30kHz
Sets RF Analyzer FM IF Bandwidth to 30.0 kHz.

Query Response: :RF:ANALyzer:FMIF?
30.0kHz

NOTE

IF Bandwidth applies to ANALOG Protocol.

3.6.14 RF Analyzer - Frequency

:RF:ANALyzer:CHn:FREQuency

:RF:ANALyzer:CHn:FREQuency?

Description: Set command defines the RF Analyzer frequency for specified channel.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units : Hz | kHz | MHz | GHz

Default Value: 150.0 MHz

Set/Query Format: NRF | NR1(Hz)

Example: :RF:ANALyzer:CH1:FREQuency 650MHz
Sets RF Analyzer Channel 1 Frequency to 650.0 MHz.

Query Response: :RF:ANALyzer:CH1:FREQuency?
650000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

3.6.15 RF Analyzer - Input Connector

:RF:ANALyzer:PORT

:RF:ANALyzer:PORT?

Description: Set command selects the RF Input Connector.
Query command returns parameter setting.

Parameter: TR | ANT

Default Value: TR

Set/Query Format: CPD | CRD

Example: :RF:ANALyzer:PORT ANT
Selects Antenna Connector as RF Input Connector.

Query Response: :RF:ANALyzer:PORT?
ANT

NOTE

Refer to 3900 Platform Specifications for maximum input values.

3.6.16 RF Analyzer - Offset Enable

:CONFigure:OFFSet:ANALyzer:ENABLE

:CONFigure:OFFSet:ANALyzer:ENABLE?

Description: Set command Enables/Disables the RF Analyzer Offset.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :CONFigure:OFFSet:ANALyzer:ENABLE ON
Enables RF Analyzer Offset.

Query Response: :CONFigure:OFFSet:ANALyzer:ENABLE?
1

3.6.17 RF Analyzer - Offset Value

:CONFigure:OFFSet:ANALyzer:VALue
:CONFigure:OFFSet:ANALyzer:VALue?

Description: Set command defines the RF Analyzer Offset Value.
Query command returns parameter setting.

Range: -40.0 to +40.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR2 (Hz)

Example: :CONFigure:OFFSet:ANALyzer:VALue -10dB
Sets RF Analyzer Offset to -10.0 dB.

Query Response: :CONFigure:OFFSet:ANALyzer:VALue?
-10.00

3.6.18 RF Analyzer - Pre-Amplifier Enable

:RF:ANALyzer:RECeiver:AMP
:RF:ANALyzer:RECeiver:AMP?

Description: Set command Enables/Disables Receiver Pre-Amplifier.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :RF:ANALyzer:RECeiver:AMP ON
Enables Receiver Pre-Amplifier.

Query Response: :RF:ANALyzer:RECeiver:AMP?
1

3.7 RECEIVE CHANNEL CONFIGURATION

3.7.1 Receive Channel - Direction

:RECeive:CHn:DIRection

:RECeive:CHn:DIRection?

Description: Set command defines if signal is processed as an Inbound or Outbound signal.
Query command returns parameter setting.

Parameter: INbound | OUTbound

Default Value: Inbound

Set/Query Format: CPD | CRD

Example: :RECeive:CHn:DIRection OUTbound
Defines Rx Channel as an Outbound channel.

Query Response: :RECeive:CHn:DIRection?
OUT

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

3.7.2 Receive Channel - Modulation

:RECeive:CHn:MODulation

:RECeive:CHn:MODulation?

Description: Set command selects Modulation type for Channel.
Query command returns parameter setting.

Parameter:

Analog: n/a

Phase 1 Protocol: C4FM

Phase 2 Protocol: HDQPSK | HCPM

SNSZ Protocol: FMFSK | ANALOG

X2TDMA Protocol: C4FM

Default Value:

Analog: n/a

Phase 1 Protocol: C4FM

SNSZ Protocol: FMFSK

X2TDMA Protocol: C4FM

Set/Query Format: CPD | CRD

Example: :RECeive:CH2:MODulation C4FM
Sets Rx Channel 2 Modulation to C4FM.

Query Response: :RECeive:CH2:MODulation?
C4FM

NOTE

HDQPSK, HCPM, CQPSK and LSM are option enabled parameters.
CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

3.7.3 Receive Channel - Primary

:RECeive:PRIMary

:RECeive:PRIMary?

Description: Set command defines specified Channel as Primary Receive channel.
Query command returns parameter setting.

Parameter: 1 | 2

Default Value: 1

Set/Query Format: NR1

Example: :RECeive:PRIMary 2
Selects Channel 2 as Primary Receive Channel.

Query Response: :RECeive:PRIMary?
2

NOTE

Channel 2 is option enabled.

3.7.4 Receive Channel - Protocol

:RECeive:CHn:PROTOcol

:RECeive:CHn:PROTOcol?

Description: Set command selects Protocol for specified Channel.
Query command returns parameter setting.

Parameter: ANALOG | PHASE1 | PHASE2 | SNSZ | X2TDMA

Default Value: PHASE1

Set/Query Format: CPD | CRD

Example: :RECeive:CH1:PROTOcol ANALOG
Sets Rx Channel 1 Protocol to Analog.

Query Response: :RECeive:CH1:PROTOcol?
ANALOG

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
PHASE2, SNSZ and X2TDMA Protocols are option enabled parameters.

3.7.5 Receive Channel - Speaker

:RECeive:SPKR

:RECeive:SPKR?

Description: Set command selects Channel that is controlling the speaker.
Query command returns parameter setting.

Parameter: 1 | 2

Default Value: 1

Set/Query Format: NR1

Example: :RECeive:SPKR 2
Selects Channel 2 for Speaker control.

Query Response: :RECeive:SPKR?
2

NOTE

Channel 2 is option enabled.

3.7.6 Receive Channel - Validate Receiver Frequency

:RECeive:CHn:VALId?

Description: Command indicates if receive frequency is within +2.5 MHz of primary channel.

Query Data: 0 = Invalid ($> \pm 2.5$ MHz from primary Channel frequency)
1 = Valid (within ± 2.5 MHz of primary Channel frequency)

Query Response: :RECeive:CHn:VALId?
0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

3.7.7 Receive Offset - Mode of Operation

:RECeive:CHn:LOCK

:RECeive:CHn:LOCK?

Description: Set command Rx Channel Offset Mode of Operation.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF (Unlocked)

Set/Query Format: Boolean

Example: :RECeive:CH1:LOCK ON
Sets Rx Channel 1 Offset Mode to LOCKED.

Query Response: :RECeive:CH1:LOCK?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Chapter 4 - P25 Signal Rx Meter Remote Commands

4.1 INTRODUCTION

This chapter describes the Remote Commands for configuring and obtaining P25 Signal measurement data. Remote commands are listed alphabetically under meter names.

4.2 ADJACENT CHANNEL POWER CENTER

4.2.1 Adjacent Channel Power Center - Averages

:METERs:ACPC:CHn:AVERaging

:METERs:ACPC:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Adjacent Channel Power Center measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:ACPC:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Average Adjacent Channel Power Center measurement 1 to 100.

Query Response: :METERs:ACPC:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.2 Adjacent Channel Power Center - Average Measurement Reset

:METERs:ACPC:CHn:CLEAR:AVG

Description: Command clears and resets Average Adjacent Channel Power Center measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.3 Adjacent Channel Power Center - Lower Limit Enable

:LIMits:ACPC:CHn:LOWer:ENABle

:LIMits:ACPC:CHn:LOWer:ENABle?

Description: Set command Enables/Disables Lower Limit for Adjacent Channel Power Center measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:ACPC:CH1:LOWer:ENABle ON

Enables Lower Limit for Channel 1 Adjacent Channel Power Center measurement.

Query Response: :LIMits:ACPC:CH1:LOWer:ENABle?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.4 Adjacent Channel Power Center - Lower Limit Value

:LIMits:ACPC:CHn:LOWer:VALue

:LIMits:ACPC:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Adjacent Channel Power Center measurement.

Query command returns parameter setting.

Range: -90.0 to +60.0 dBm

Units: dBm

Default Value: -90.0 dBm

Set/Query Format: NRf | NR2

Example: :LIMits:ACPC:CH1:LOWer:VALue 0dBm

Sets Lower Limit Value for Channel 1 Adjacent Channel Power Center measurement to 0.0 dBm.

Query Response: :LIMits:ACPC:CH1:LOWer:VALue?

0.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.5 Adjacent Channel Power Center - Measurement Query

:METERs:ACPC:CHn:STATus?

Description: Command returns Adjacent Channel Power Center measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit	0x08 = Max Lower Limit
0x40 = WC Upper Limit	0x04 = Max Upper Limit
0x20 = Avg Lower Limit	0x02 = Min Lower Limit
0x10 = Avg Upper Limit	0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):

0 = No Units	5 = dB	10 = dBμV	15 = Vrms
1 = %	6 = dBm	11 = W	16 = dBr
2 = Hz	7 = V	12 = mW	17 = dBV
3 = kHz	8 = mV	13 = μW	18 = mHz
4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:ACPC:CH1:STATus?

0,0,10, 100.000, 0.0099751540,0.0100574717,0.0000000000,0

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.6 Adjacent Channel Power Center - Peak Measurement Reset

:METERs:ACPC:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Adjacent Channel Power Center measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.7 Adjacent Channel Power Center - Upper Limit Enable

:LIMits:ACPC:CHn:UPPer:ENABle

:LIMits:ACPC:CHn:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Adjacent Channel Power Center measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:ACPC:CH1:UPPer:ENABle ON

Enables Upper Limit for Channel 1 Adjacent Channel Power Center measurement.

Query Response: :LIMits:ACPC:CH1:UPPer:ENABle?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.2.8 Adjacent Channel Power Center - Upper Limit Value

:LIMits:ACPC:CHn:UPPer:VALue

:LIMits:ACPC:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Adjacent Channel Power Center measurement.

Query command returns parameter setting.

Range: -90.0 to +60.0 dBm

Units: dBm

Default Value: +60.0 dBm

Set/Query Format: NRf | NR2

Example: :LIMits:ACPC:CH1:UPPer:VALue 0dBm

Sets Upper Limit Value for Channel 1 Adjacent Channel Power Center measurement to 0.0 dBm.

Query Response: :LIMits:ACPC:CH1:UPPer:VALue?

0.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3 ADJACENT CHANNEL POWER LOWER

4.3.1 Adjacent Channel Power Lower - Averages

:METERs:ACPLC:CHn:AVERaging
:METERs:ACPLC:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Adjacent Channel Power Lower measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:ACPLC:CH1:AVERaging 100
Sets the number of readings taken to calculate Channel 1 Average Adjacent Channel Power Lower measurement to 100.

Query Response: :METERs:ACPLC:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.2 Adjacent Channel Power Lower - Average Measurement Reset

:METERs:ACPLC:CHn:CLEAR:AVG

Description: Command clears and resets Average Adjacent Channel Power Lower measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.3 Adjacent Channel Power Lower - Lower Limit Enable

:LIMits:ACPLC:CHn:LOWer:ENABLE
:LIMits:ACPLC:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Adjacent Channel Power Lower measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:ACPLC:CH1:LOWer:ENABLE ON
Enables Lower Limit for Channel 1 Adjacent Channel Power Lower measurement.

Query Response: :LIMits:ACPLC:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.4 Adjacent Channel Power Lower - Lower Limit Value

:LIMits:ACPLC:CHn:LOWer:VALue

:LIMits:ACPLC:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Adjacent Channel Power Lower measurement.

Query command returns parameter setting.

Range: -80.0 to -20.0 dBc

Units: dBc

Default Value: -80.0 dBc

Set/Query Format: NRf | NR2

Example: :LIMits:ACPLC:CH1:LOWer:VALue -35dBc

Sets Lower Limit Value for Channel 1 Adjacent Channel Power Lower measurement to -35.0 dBc.

Query Response: :LIMits:ACPLC:CH1:LOWer:VALue?
-35.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.5 Adjacent Channel Power Lower - Measurement Query

:METERs:ACPLC:CHn:STATus?

Description: Command returns Adjacent Channel Power Lower measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask
0x80 = WC Lower Limit
0x40 = WC Upper Limit
0x20 = Avg Lower Limit
0x10 = Avg Upper Limit
0x08 = Max Lower Limit
0x04 = Max Upper Limit
0x02 = Min Lower Limit
0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:ACPLC:CH1:STATus?
0,0,10, 100.000, 0.0099751540,0.0100574717,0.0000000000,0

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.6 Adjacent Channel Power Lower - Peak Measurement Reset

:METERs:ACPLC:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Adjacent Channel Power Lower measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.7 Adjacent Channel Power Lower - Upper Limit Enable

:LIMits:ACPLC:CHn:UPPer:ENABLE

:LIMits:ACPLC:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Adjacent Channel Power Lower measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:ACPLC:CH1:UPPer:ENABLE ON

Enables Upper Limit for Channel 1 Adjacent Channel Power Lower measurement.

Query Response: :LIMits:ACPLC:CH1:UPPer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.3.8 Adjacent Channel Power Lower - Upper Limit Value

:LIMits:ACPLC:CHn:UPPer:VALue

:LIMits:ACPLC:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Adjacent Channel Power Lower measurement.

Query command returns parameter setting.

Range: -80.0 to -20.0 dBc

Units: dBc

Default Value: -20.0 dBc

Set/Query Format: NRf | NR2

Example: :LIMits:ACPLC:CH1:UPPer:VALue -35dBc

Sets Upper Limit Value for Channel 1 Adjacent Channel Power Lower measurement to -35.0 dBc.

Query Response: :LIMits:ACPLC:CH1:UPPer:VALue?

-35.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4 ADJACENT CHANNEL POWER UPPER

4.4.1 Adjacent Channel Power Upper - Averages

:METERs:ACPUC:CHn:AVERaging

:METERs:ACPUC:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Adjacent Channel Power Upper measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:ACPUC:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Average Adjacent Channel Power Upper measurement to 100.

Query Response: :METERs:ACPUC:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.2 Adjacent Channel Power Upper - Average Measurement Reset

:METERs:ACPUC:CHn:CLEAR:AVG

Description: Command clears and resets Average Adjacent Channel Power Upper measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.3 Adjacent Channel Power Upper - Lower Limit Enable

:LIMits:ACPUC:CHn:LOWer:ENABLE

:LIMits:ACPUC:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Adjacent Channel Power Upper measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:ACPUC:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Adjacent Channel Power Upper measurement.

Query Response: :LIMits:ACPUC:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.4 Adjacent Channel Power Upper - Lower Limit Value

:LIMits:ACPUC:CHn:LOWer:VALue

:LIMits:ACPUC:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Adjacent Channel Power Upper measurement.

Query command returns parameter setting.

Range: -80.0 to -20.0 dBc

Units: dBc

Default Value: -80.0 dBc

Set/Query Format: NRf | NR2

Example: :LIMits:ACPUC:CH1:LOWer:VALue -50dBc

Sets Lower Limit Value for Channel 1 Adjacent Channel Power Upper measurement to -50.0 dBc.

Query Response: :LIMits:ACPUC:CH1:LOWer:VALue?
-50.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.5 Adjacent Channel Power Upper - Measurement Query

:METERs:ACPUC:CHn:STATUs?

Description: Command returns Adjacent Channel Power Upper measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask
0x80 = WC Upper Limit
0x40 = WC Upper Limit
0x20 = Avg Upper Limit
0x10 = Avg Upper Limit
0x08 = Max Upper Limit
0x04 = Max Upper Limit
0x02 = Min Upper Limit
0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:ACPUC:CH1:STATUs?
0,0,10, 100.000, 0.0099751540,0.0100574717,0.0000000000,0

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.6 Adjacent Channel Power Upper - Peak Measurement Reset

:METERs:ACPUC:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Adjacent Channel Power Upper measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.7 Adjacent Channel Power Upper - Upper Limit Enable

:LIMits:ACPUC:CHn:UPPer:ENABLE

:LIMits:ACPUC:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Adjacent Channel Power Upper measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:ACPUC:CH1:UPPer:ENABLE ON

Enables Upper Limit for Channel 1 Adjacent Channel Power Upper measurement.

Query Response: :LIMits:ACPUC:CH1:UPPer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.4.8 Adjacent Channel Power Upper - Upper Limit Value

:LIMits:ACPUC:CHn:UPPer:VALue

:LIMits:ACPUC:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Adjacent Channel Power Upper measurement.

Query command returns parameter setting.

Range: -80.0 to -20.0 dBc

Units: dBc

Default Value: -80.0 dBc

Set/Query Format: NRf | NR2

Example: :LIMits:ACPUC:CH1:UPPer:VALue -50dBc

Sets Upper Limit Value for Channel 1 Adjacent Channel Power Upper measurement to -50.0 dBc.

Query Response: :LIMits:ACPUC:CH1:UPPer:VALue?

-50.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.5 BIT ERROR RATE (RX) MEASUREMENTS

4.5.1 Rx Bit Error Rate - Averages

:METERs:RBER:AVERaging

:METERs:RBER:AVERaging?

Description: Set command defines number of readings taken to calculate Average Rx Bit Error Rate measurement.

Query command returns parameter setting.

Range: 1 to 1000

Default Value: 1

Set/Query Format: NR1

Example: :METERs:RBER:AVERaging 100

Sets the number of readings taken to calculate Average Rx Bit Error Rate measurement to 100.

Query Response: :METERs:RBER:AVERaging?
100

4.5.2 Rx Bit Error Rate - Average Measurement Reset

:METERs:RBER:CLEAR:AVG

Description: Command clears and resets Average Rx Bit Error Rate measurement.

Parameter/Query: none

4.5.3 Rx Bit Error Rate - Baud Rate

:CONFigure:RBER:BAUD

:CONFigure:RBER:BAUD?

Description: Set command defines baud rate for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: B300 | B1200 | B2400 | B4800 | B9600 | B19200 | B38400 | B57600 | B115200 | B230400

Default Value: B19200

Set/Query Format: CPD | CRD

Example: :CONFigure:RBER:BAUD B4800

Sets Baud Rate to B4800.

Query Response: :CONFigure:RBER:BAUD?
B4800

4.5.4 Rx Bit Error Rate - Enable Measurements

:METERs:RBER:ENABle

:METERs:RBER:ENABle?

Description: Set command Enables/Disables Rx Bit Error Rate measurements.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :METERs:RBER:ENABle ON
Enables Rx Bit Error Rate measurements.

Query Response: :METERs:RBER:ENABle?
1

4.5.5 Rx Bit Error Rate - Lower Limit Enable

:LIMits:RBER:LOWer:ENABle

:LIMits:RBER:LOWer:ENABle?

Description: Set command Enables/Disables Lower Limit for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RBER:LOWer:ENABle ON
Enables Lower Limit for Rx Bit Error Rate measurement.

Query Response: :LIMits:RBER:LOWer:ENABle?
1

4.5.6 Rx Bit Error Rate - Lower Limit Value

:LIMits:RBER:LOWer:VALUe

:LIMits:RBER:LOWer:VALUe?

Description: Set command defines Lower Limit Value for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:RBER:LOWer:VALUe 1
Sets Lower Limit Value for Rx BER measurements to 1.0%.

Query Response: :LIMits:RBER:LOWer:VALUe?
1.0000000000

4.5.7 Rx Bit Error Rate - Measurement Query

:METERs:RBER:STATus?

Description: Command returns Rx Bit Error Rate measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit	0x08 = Max Lower Limit
0x40 = WC Upper Limit	0x04 = Max Upper Limit
0x20 = Avg Lower Limit	0x02 = Min Lower Limit
0x10 = Avg Upper Limit	0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:RBER:STATus?

0,0,10, 100.000, 0.0099751540,0.0100574717,0.0000000000,0

NOTE

BER Measurements must be enabled to return valid data.

4.5.8 Rx Bit Error Rate - Peak Measurement Reset

:METERs:RBER:CLEAR:PEAK

Description: Command clears and resets Peak Rx Bit Error Rate measurement.

Parameter/Query: none

4.5.9 Rx Bit Error Rate - Port

:CONFigure:RBER:PORT

:CONFigure:RBER:PORT?

Description: Set command selects Port for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: TTYUSB0 | TTYUSB1 | TTYUSB2 | TTYUSB3 | TTYUSB4 | TTYUSB5 |
TTYUSB6 | TTYUSB7 | TTYUSB8 | TTYUSB9 | TTYUSB10 | TTYUSB11 |
TTYUSB12 | TTYUSB13 | TTYUSB14 | TTYUSB15 | TTYACM0 | TTYS0

Default Value: TTYUSB0

Set/Query Format: CPD | CRD

Example: :CONFigure:RBER:PORT TTYACM0
Selects TTYACM0 for Bit Error Rate measurement.

Query Response: :CONFigure:RBER:PORT?
TTYACM0

4.5.10 Rx Bit Error Rate - Transmit Pattern

:METERs:RBER:PATtern

:METERs:RBER:PATtern?

Description: Set command defines Transmit Pattern for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: STD511 | STD1011 | STDAFC | STDBUSY | STDCAL | STDIDLE | STDINTFR |
STDSILENCE

Default Value: STD1011

Set/Query Format: CPD

Example: :METERs:RBER:PATtern STDCAL
Sets Transmit Pattern for Rx Bit Error Rate measurements to STD CAL Pattern.

Query Response: :METERs:RBER:PATtern?
STDCAL

4.5.11 Rx Bit Error Rate - Upper Limit Enable

:LIMits:RBER:UPPer:ENABLE

:LIMits:RBER:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RBER:UPPer:ENABLE ON
Enables Upper Limit for Rx Bit Error Rate measurement.

Query Response: :LIMits:RBER:UPPer:ENABLE?
1

4.5.12 Rx Bit Error Rate - Upper Limit Value

:LIMits:RBER:UPPer:VALUe

:LIMits:RBER:UPPer:VALUe?

Description: Set command defines Upper Limit Value for Rx Bit Error Rate measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:RBER:UPPer:VALUe 2

Sets Upper Limit Value for Rx BER measurements to 2.0%.

Query Response: :LIMits:RBER:UPPer:VALUe?

2.0000000000

4.6 BIT ERROR RATE (TX) MEASUREMENTS

4.6.1 Tx Bit Error Rate - Averages

:METERs:BER:CHn:AVERaging

:METERs:BER:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Tx Bit Error Rate measurement.

Query command returns parameter setting.

Range: 1 to 1000

Default Value: 1

Set/Query Format: NR1

Example: :METERs:BER:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Average Tx Bit Error Rate measurement to 100.

Query Response: :METERs:BER:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.2 Tx Bit Error Rate - Average Measurement Reset

:METERs:BER:CHn:CLEAR:AVG

Description: Command clears and resets Average Tx Bit Error Rate measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.3 Tx Bit Error Rate - Lower Limit Enable

:LIMits:BER:CHn:LOWer:ENABLE

:LIMits:BER:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Tx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:BER:CH1:LOWer:ENABLE ON

Enables Lower Limit for Tx Bit Error Rate measurement.

Query Response: :LIMits:BER:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.4 Tx Bit Error Rate - Lower Limit Value

:LIMits:BER:CHn:LOWer:VALue

:LIMits:BER:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Tx Bit Error Rate measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:BER:CH1:LOWer:VALue 1

Sets Lower Limit Value for Tx Bit Error Rate measurement to 1.0%.

Query Response: :LIMits:BER:CH1:LOWer:VALue?

1.0000000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.5 Tx Bit Error Rate - Measurement Query

:METERs:BER:CHn:STATUs?

Description: Command returns Tx Bit Error Rate measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
 0x0 = Valid
 0x1 = Invalid
 0x2 = Inaccurate
 0x4 = Settling
 0x8 = Squelch

failbyte (NR1): Bitmask
 0x80 = WC Lower Limit
 0x40 = WC Upper Limit
 0x20 = Avg Lower Limit
 0x10 = Avg Upper Limit
 0x08 = Max Lower Limit
 0x04 = Max Upper Limit
 0x02 = Min Lower Limit
 0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:BER:CH1:STATUs?

0,0,10, 100.000, 0.0099751540,0.0100574717,0.0000000000,0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.6 Tx Bit Error Rate - Peak Measurement Reset

:METERs:BER:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Tx Bit Error Rate measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.7 Tx Bit Error Rate - Receive Pattern

:METERs:BER:CHn:PATtern

:METERs:BER:CHn:PATtern?

Description: Set command defines Receive Pattern for Tx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: STD1011 | STDAFC | STDCAL | STDSILENCE | STDINTFR | STDBUSY |
STDIDLE | STD511

Default Value: STD1011

Set/Query Format: CPD | CRD

Example: :METERs:BER:CH1:PATtern STDCAL

Sets Channel 1 Receive Pattern for Bit Error Rate measurements to STD CAL Pattern.

Query Response: :METERs:BER:CH1:PATtern?
STDCAL

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.8 Tx Bit Error Rate - Upper Limit Enable

:LIMits:BER:CHn:UPPer:ENABLE

:LIMits:BER:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Tx Bit Error Rate measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:BER:CH1:UPPer:ENABLE ON

Enables Upper Limit for Tx Bit Error Rate measurement.

Query Response: :LIMits:BER:CH1:UPPer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.6.9 Tx Bit Error Rate - Upper Limit Value

:LIMits:BER:CHn:UPPer:VALue

:LIMits:BER:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Tx Bit Error Rate measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:BER:CH1:UPPer:VALue 5

Sets Upper Limit Value for Tx Bit Error Rate measurement to 5%.

Query Response: :LIMits:BER:CH1:UPPer:VALue?

5.0000000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.7 BROADBAND POWER MEASUREMENTS

4.7.1 Broadband Power - Averages

:CONFigure:RF:ANALyzer:TRBPower:AVERage

:CONFigure:RF:ANALyzer:TRBPower:AVERage?

Description: Set command defines number of readings taken to calculate Average Broadband Power measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:RF:ANALyzer:TRBPower:AVERage 25
Sets number of readings taken to calculate Average Broadband Power measurement to 25.

Query Response: :CONFigure:RF:ANALyzer:TRBPower:AVERage?
25

4.7.2 Broadband Power - Lower Limit Enable

:LIMits:RF:TRBPower:LOWer:ENABLE

:LIMits:RF:TRBPower:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Broadband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RF:TRBPower:LOWer:ENABLE ON
Enables Lower Limit for Broadband Power measurement.

Query Response: :LIMits:RF:TRBPower:LOWer:ENABLE?
1

4.7.3 Broadband Power - Lower Limit Value

:LIMits:RF:TRBPower:LOWer:VALue

:LIMits:RF:TRBPower:LOWer:VALue?

Description: Set command defines Lower Limit Value for Broadband Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: mW | W | dBW | dBm

Default Value: 100.0 μ W

Set/Query Format: NRf | NR2 (W)

Example: :LIMits:RF:TRBPower:LOWer:VALue -45dBm
Sets Lower Limit Value for Broadband measurement to -45.0 dBm.

Query Response: :LIMits:RF:TRBPower:LOWer:VALue?
0.0

4.7.4 Broadband Power - Measurement Query

:FETCh:RF:ANALyzer:TRBPower? <units>

Description: Command returns Broadband Power measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg (NR2): <units>

Units: W | dBW | dBm

Query Response: :FETCh:RF:ANALyzer:TRBPower? DBW
1,5,1,0.0013

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
RF Input must be set to TR to return valid data.

4.7.5 Broadband Power - Units

:CONFigure:RF:ANALyzer:TRBPower:UNIts

:CONFigure:RF:ANALyzer:TRBPower:UNIts?

Description: Set command defines the unit of measurement for Broadband Power measurement.

Query command returns parameter setting.

Parameter: W | dBW | dBm

Default Value: W

Set/Query Format: CPD | CRD

Example: :CONFigure:RF:ANALyzer:TRBPower:UNIts DBW
Displays Broadband Power measurement in dBW.

Query Response: :CONFigure:RF:ANALyzer:TRBPower:UNIts?
DBW

4.7.6 Broadband Power - Upper Limit Enable

:LIMits:RF:TRBPower:UPPer:ENABLe

:LIMits:RF:TRBPower:UPPer:ENABLe?

Description: Set command Enables/Disables Upper Limit for Broadband Power measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RF:TRBPower:UPPer:ENABLe ON

Enables Upper Limit for Broadband Power measurement.

Query Response: :LIMits:RF:TRBPower:UPPer:ENABLe?

1

4.7.7 Broadband Power - Upper Limit Value

:LIMits:RF:TRBPower:UPPer:VALue

:LIMits:RF:TRBPower:UPPer:VALue?

Description: Set command defines Upper Limit Value for Broadband Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: mW | W | dBW | dBm

Default Value: 100.0 μ W

Set/Query Format: NRf | NR2 (W)

Example: :LIMits:RF:TRBPower:UPPer:VALue -25dBm

Sets Upper Limit Value for Broadband Power measurement to -25.0 dBm.

Query Response: :LIMits:RF:TRBPower:UPPer:VALue?

0.0

4.8 CARRIER FEEDTHROUGH

4.8.1 Carrier Feedthrough - Averages

:METERs:CARRft:CHn:AVERaging

:METERs:CARRft:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Carrier Feedthrough measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:CARRft:CHn:AVERaging 100

Sets the number of readings taken to calculate Average Carrier Feedthrough measurement to 100.

Query Response: :METERs:CARRft:CHn:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.8.2 Carrier Feedthrough - Average Measurement Reset

:METERs:CARRft:CHn:CLEAR:AVG

Description: Command clears and resets Average Carrier Feedthrough measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.8.3 Carrier Feedthrough - Lower Limit Enable

:LIMits:CARRft:CHn:LOWer:ENABLE

:LIMits:CARRft:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Carrier Feedthrough measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:CARRft:CH1:LOWer:ENABLE ON

Enables Lower Limit for Carrier Feedthrough measurement.

Query Response: :LIMits:CARRft:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.8.4 Carrier Feedthrough - Lower Limit Value

:LIMits:CARRft:CHn:LOWer:VALue

:LIMits:CARRft:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Carrier Feedthrough measurement.
Query command returns parameter setting.

Range: -1000.0 to 0.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR2

Example: :LIMits:CARRft:CH1:LOWer:VALue -100dB

Sets Lower Limit Value for Carrier Feedthrough measurement to -100.0 dB

Query Response: :LIMits:CARRft:CH1:LOWer:VALue?

-100.00

CHn = 1 or 2 (Channel 1 or 2).

NOTE

4.8.5 Carrier Feedthrough - Measurement Query

:METERs:CARRft:CHn:STATus?

Description: Command returns Carrier Feedthrough measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Upper Limit	0x08 = Max Upper Limit
0x40 = WC Upper Limit	0x04 = Max Upper Limit
0x20 = Avg Upper Limit	0x02 = Min Upper Limit
0x10 = Avg Upper Limit	0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):

0 = No Units	5 = dB	10 = dBμV	15 = Vrms
1 = %	6 = dBm	11 = W	16 = dBr
2 = Hz	7 = V	12 = mW	17 = dBV
3 = kHz	8 = mV	13 = μW	18 = mHz
4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:CARRft:CH2:STATus?

5, 0, 3, 0.000, 0.000, ,.000, 0.000, 5

CHN = 1 or 2 (Channel 1 or 2)

NOTE

4.8.6 Carrier Feedthrough - Peak Measurement Reset

:METERs:CARRft:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Carrier Feedthrough measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.8.7 Carrier Feedthrough - Upper Limit Enable

:LIMits:CARRft:CHn:UPPer:ENABle

:LIMits:CARRft:CHn:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Carrier Feedthrough measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:CARRft:CH1:UPPer:ENABle ON

Enables Upper Limit for Carrier Feedthrough measurement.

Query Response: :LIMits:CARRft:CH1:UPPer:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2)

4.8.8 Carrier Feedthrough - Upper Limit Value

:LIMits:CARRft:CHn:UPPer:VALue

:LIMits:CARRft:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Carrier Feedthrough measurement.
Query command returns parameter setting.

Range: -1000.0 to 0.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR2

Example: :LIMits:CARRft:CH1:UPPer:VALue -100dB

Sets Upper Limit Value for Carrier Feedthrough measurement to -100.0 dB

Query Response: :LIMits:CARRft:CH1:UPPer:VALue?
-100.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.9 ERROR VECTOR MAGNITUDE MEASUREMENTS

4.9.1 Error Vector Magnitude - Averages

:METERs:EVM:CHn:AVERaging

:METERs:EVM:CHn:AVERaging?

Description: Set command defines number of readings used to calculate Average Error Vector Magnitude measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:EVM:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Error Vector Magnitude measurement to 100.

Query Response: :METERs:EVM:CH1:AVERaging?

100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when P25 LSM Option is installed in Test Set.

4.9.2 Error Vector Magnitude - Average Measurement Reset

:METERs:EVM:CHn:CLEAR:AVG

Description: Command clears and resets Average Error Vector Magnitude measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when P25 LSM Option is installed in Test Set.

4.9.3 Error Vector Magnitude - Lower Limit Enable

:LIMits:EVM:CHn:LOWer:ENABLE

:LIMits:EVM:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Error Vector Magnitude measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:EVM:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Error Vector Magnitude measurement.

Query Response: :LIMits:EVM:CH1:LOWer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when P25 LSM Option is installed in Test Set.

4.9.4 Error Vector Magnitude - Lower Limit Value

:LIMits:EVM:CHn:LOWer:VALue

:LIMits:EVM:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Error Vector Magnitude measurement.

Query command returns parameter setting.

Range: 0.0 to 200.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:EVM:CH1:LOWer:VALue 2.5

Sets Lower Limit Value for Channel 1 Error Vector Magnitude measurement to 2.5%.

Query Response: :LIMits:EVM:CH1:LOWer:VALue?
2.5

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when P25 LSM Option is installed in Test Set.

4.9.5 Error Vector Magnitude - Measurement Query

:METERs:EVM:CHn:STATus?

Description: Command returns EVM measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit	0x08 = Max Lower Limit
0x40 = WC Upper Limit	0x04 = Max Upper Limit
0x20 = Avg Lower Limit	0x02 = Min Lower Limit
0x10 = Avg Upper Limit	0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):

0 = No Units	5 = dB	10 = dBμV	15 = Vrms
1 = %	6 = dBm	11 = W	16 = dBr
2 = Hz	7 = V	12 = mW	17 = dBV
3 = kHz	8 = mV	13 = μW	18 = mHz
4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:EVM:CH2:STATus?
0,0,3 100.000, 0.643, 79.100, 0.494,1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when P25 LSM Option is installed in Test Set.

4.9.6 Error Vector Magnitude - Peak Measurement Reset

:METERs:EVM:CHn:CLear:PEAK

Description: Command clears and resets Peak EVM measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Command only valid when P25 LSM Option is installed in Test Set.

4.9.7 Error Vector Magnitude - Upper Limit Enable

:LIMits:EVM:CHn:UPPer:ENABle

:LIMits:EVM:CHn:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Error Vector Magnitude measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:EVM:CH1:UPPer:ENABle ON

Enables Upper Limit for Channel 1 Error Vector Magnitude measurement.

Query Response: :LIMits:EVM:CH1:UPPer:ENABle?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Command only valid when P25 LSM Option is installed in Test Set.

4.9.8 Error Vector Magnitude - Upper Limit Value

:LIMits:EVM:CHn:UPPer:VALue

:LIMits:EVM:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Error Vector Magnitude measurement.

Query command returns parameter setting.

Range: 0.0 to 200.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:EVM:CH1:UPPer:VALue 5

Sets Upper Limit Value for Channel 1 Error Vector Magnitude measurement to 5.0%.

Query Response: :LIMits:EVM:CH1:UPPer:VALue?

5.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Command only valid when P25 LSM Option is installed in Test Set.

4.10 FM PK- DEVIATION MEASUREMENTS

4.10.1 FM Peak- Deviation - Averages

:CONFigure:MOD:ANALyzer:FMNEG:AVERAge

:CONFigure:MOD:ANALyzer:FMNEG:AVERAge?

Description: Set command defines number of readings taken to calculate Average FM Peak- Deviation measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:FMNEG:AVERAge 75

Sets number of readings taken to calculate Average FM Peak- Deviation measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:FMNEG:AVERAge?
75

4.10.2 FM Peak- Deviation - Average Measurement Reset

:MOD:ANALyzer:FMNEG:CLEAR:AVG

Description: Command clears and resets Average FM Peak- Deviation measurement.

Parameter/Query: none

4.10.3 FM Peak- Deviation - Lower Limit Enable

:LIMits:MOD:FMNEG:LOWer:ENABLE

:LIMits:MOD:FMNEG:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for FM Peak- Deviation measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:FMNEG:LOWer:ENABLE ON

Enables Lower Limit for FM Peak- Deviation measurement.

Query Response: :LIMits:MOD:FMNEG:LOWer:ENABLE?
1

4.10.4 FM Peak- Deviation - Lower Limit Value

:LIMits:MOD:FMNEG:LOWer:VALue

:LIMits:MOD:FMNEG:LOWer:VALue?

Description: Set command defines Lower Limit Value for FM Peak- Deviation measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 150.0 kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FMNEG:LOWer:VALue 1.0Hz

Sets Lower Limit Value for FM Peak- Deviation measurement to 1.0 Hz.

Query Response: :LIMits:MOD:FMNEG:LOWer:VALue?
1.0

4.10.5 FM Peak- Deviation - Measurement Query

:FETCh:MOD:ANALyzer:FMNEG?

Description: Command returns FM Peak- Deviation measurement data.

Query Data: <statusbyte>, <failbyte>, <avgcount>, <avg>, <max>, <min>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid
8 = Squelch

failbyte (NR1): 0 = All limit checks passed
1 = Peak to peak Upper Limit failed
2 = Peak to peak Lower Limit failed
4 = Positive peak Upper Limit failed
8 = Positive peak Lower Limit failed
16 = Negative Upper Limit failed
32 = Negative peak Lower Limit failed
64 = RMS peak Upper Limit failed
128 = RMS peak Lower Limit failed

avgcount (NR1): value

avg, max, min (NR2): Hz

Query Response: :FETCh:MOD:ANALyzer:FMNEG?

0, 0, 1, -18.14,-15.43,-3999.54

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid measurement data.

4.10.6 FM Peak- Deviation - Peak Measurement Reset

:MOD:ANALyzer:FMNEG:CLEAR:PEAK

Description: Command clears and resets Peak FM Peak- Deviation measurement.

Parameter/Query: none

4.10.7 FM Peak- Deviation - Upper Limit Enable

:LIMits:MOD:FMNEG:UPPer:ENABle

:LIMits:MOD:FMNEG:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for FM Peak- Deviation measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:FMNEG:UPPer:ENABle ON

Enables Upper Limit for FM Peak- Deviation measurement.

Query Response: :LIMits:MOD:FMNEG:UPPer:ENABle?

1

4.10.8 FM Peak- Deviation - Upper Limit Value

:LIMits:MOD:FMNEG:UPPer:VALue

:LIMits:MOD:FMNEG:UPPer:VALue?

Description: Set command defines Upper Limit Value for FM Peak- Deviation measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 150.0 kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FMNEG:UPPer:VALue 2.0Hz

Sets Upper Limit Value for FM Peak- Deviation measurement to 2.0 Hz.

Query Response: :LIMits:MOD:FMNEG:UPPer:VALue?

1.0

4.11 FM PK+ DEVIATION MEASUREMENTS

4.11.1 FM Peak+ Deviation - Averages

:CONFigure:MOD:ANALyzer:FMPOS:AVERage

:CONFigure:MOD:ANALyzer:FMPOS:AVERage?

Description: Set command defines number of readings taken to calculate Average FM Peak+ Deviation measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:FMPOS:AVERage 75

Sets number of readings taken to calculate Average FM Peak+ Deviation measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:FMPOS:AVERage?
75

4.11.2 FM Peak+ Deviation - Average Measurement Reset

:MOD:ANALyzer:FMPOS:CLEAR:AVG

Description: Command clears and resets Average FM Peak+ Deviation measurement.

Parameter/Query: none

4.11.3 FM Peak+ Deviation - Lower Limit Enable

:LIMits:MOD:FMPOS:LOWer:ENABLE

:LIMits:MOD:FMPOS:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for FM Peak+ Deviation measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:FMPOS:LOWer:ENABLE ON

Enables Lower Limit for FM Peak+ Deviation measurement.

Query Response: :LIMits:MOD:FMPOS:LOWer:ENABLE?
1

4.11.4 FM Peak+ Deviation - Lower Limit Value

:LIMits:MOD:FMPOS:LOWer:VALue

:LIMits:MOD:FMPOS:LOWer:VALue?

Description: Set command defines Lower Limit Value for FM Peak+ Deviation measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 150.0 kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FMPOS:LOWer:VALue 1.0Hz
Sets Lower Limit Value for FM Peak+ Deviation measurement to 1.0 Hz.

Query Response: :LIMits:MOD:FMPOS:LOWer:VALue?
1.0

4.11.5 FM Peak+ Deviation - Measurement Query

:FETCh:MOD:ANALyzer:FMPOS?

Description: Command returns FM Peak+ Deviation measurement data.

Query Data: <statusbyte>, <failbyte>, <avgcount>, <avg>, <max>, <min>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid
8 = Squelch

failbyte (NR1): 0 = All limit checks passed
1 = Peak to peak Upper Limit failed
2 = Peak to peak Lower Limit failed
4 = Positive peak Upper Limit failed
8 = Positive peak Lower Limit failed
16 = Negative Upper Limit failed
32 = Negative peak Lower Limit failed
64 = RMS peak Upper Limit failed
128 = RMS peak Lower Limit failed

avgcount (NR1): value

avg, max, min (NR2): Hz

Query Response: :FETCh:MOD:ANALyzer:FMPOS?

0,0,1,18.02,3999.54,15.24

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid measurement data.

4.11.6 FM Peak+ Deviation - Peak Measurement Reset

:MOD:ANALyzer:FMPOS:CLEAR:PEAK

Description: Command clears and resets Peak FM Peak+ Deviation measurement.

Parameter/Query: none

4.11.7 FM Peak+ Deviation - Upper Limit Enable**:LIMits:MOD:FMPOS:UPPer:ENABle****:LIMits:MOD:FMPOS:UPPer:ENABle?**

Description: Set command Enables/Disables Upper Limit for FM Peak+ Deviation measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:FMPOS:UPPer:ENABle ON

Enables Upper Limit for FM Peak+ Deviation measurement.

Query Response: :LIMits:MOD:FMPOS:UPPer:ENABle?

1

4.11.8 FM Peak+ Deviation - Upper Limit Value**:LIMits:MOD:FMPOS:UPPer:VALue****:LIMits:MOD:FMPOS:UPPer:VALue?**

Description: Set command defines Upper Limit Value for FM Peak+ Deviation measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 150.0 kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FMPOS:UPPer:VALue 2.0Hz

Sets Upper Limit Value for FM Peak+ Deviation measurement to 2.0 Hz.

Query Response: :LIMits:MOD:FMPOS:UPPer:VALue?

1.0

4.12 FREQUENCY ERROR MEASUREMENTS

4.12.1 Frequency Error - Averages

:METERs:FCR:CHn:AVERaging

:METERs:FCR:CHn:AVERaging?

Description: Set command defines the number of readings taken to calculate Average Frequency Error measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:FCR:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Average Frequency Error measurement to 100.

Query Response: :METERs:FCR:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.2 Frequency Error - Average Measurement Reset

:METERs:FCR:CHn:CLEAR:AVG

Description: Command clears and resets Average Frequency Error measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.3 Frequency Error - Lower Limit Enable

:LIMits:FCR:CHn:LOWer:ENABLE

:LIMits:FCR:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Frequency Error measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:FCR:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Frequency Error measurement.

Query Response: :LIMits:FCR:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.4 Frequency Error - Lower Limit Value

:LIMits:FCR:CHn:LOWer:VALue

:LIMits:FCR:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Frequency Error measurement.
Query command returns parameter setting.

Range: Hz: -2000.0 to +2000.0

PPM: 0 to 1000

Units: Hz | PPM

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:FCR:CH1:LOWer:VALue 250Hz

Sets Lower Limit Value for Channel 1 Frequency Error measurements to 250.0 Hz.

Query Response: :LIMits:FCR:CH1:LOWer:VALue?

250.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.5 Frequency Error - Measurement Query

:METERs:FCR:CHn:STATus?

Description: Command returns Frequency Error measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit	0x08 = Max Lower Limit
0x40 = WC Upper Limit	0x04 = Max Upper Limit
0x20 = Avg Lower Limit	0x02 = Min Lower Limit
0x10 = Avg Upper Limit	0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:FCR:CH1:STATus?

0,0,3 100.00, 0.750, 4.273, -10.656,2

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.6 Frequency Error - Peak Measurement Reset

:METERs:FCR:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Frequency Error measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.7 Frequency Error - Units

:METERs:FCR:UNIts

:METERs:FCR:UNIts?

Description: Set command defines the unit of measurement for Frequency Error measurement.

Query command returns parameter setting.

Parameter: Hz | PPM

Default Value: Hz

Set/Query Format: CPD | CRD

Example: :METERs:FCR:UNIts PPM

Displays Frequency Error measurement in PPM.

Query Response: :METERs:FCR:UNIts?

PPM

4.12.8 Frequency Error - Upper Limit Enable

:LIMits:FCR:CHn:UPPer:ENABle

:LIMits:FCR:CHn:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Frequency Error measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:FCR:CH1:UPPer:ENABle ON

Enables Upper Limit for Channel 1 Frequency Error measurement.

Query Response: :LIMits:FCR:CH1:UPPer:ENABle?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.12.9 Frequency Error - Upper Limit Value

:LIMits:FCR:CHn:UPPer:VALue

:LIMits:FCR:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Frequency Error measurement.
Query command returns parameter setting.

Range: Hz: -2000.0 to 2000.0
PPM: 0 to 1000

Units: Hz | PPM

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:FCR:CH1:UPPer:VALue 500Hz
Sets Upper Limit Value for Channel 1 Frequency Error measurements to 500.0 Hz.

Query Response: :LIMits:FCR:CH1:UPPer:VALue?
500.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.13 HSD DEVIATION MEASUREMENTS

4.13.1 HSD Deviation - Averages

:METERs:HSDDEV:CHn:AVERaging

:METERs:HSDDEV:CHn:AVERaging?

Description: Set command defines number of readings used to calculate Average HSD Deviation measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:HSDDEV:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Average HSD Deviation measurement to 100.

Query Response: :METERs:HSDDEV:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.2 HSD Deviation - Average Measurement Reset

:METERs:HSDDev:CHn:CLEAR:AVG

Description: Command clears and resets Average HSD Deviation measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.3 HSD Deviation - Lower Limit Enable

:LIMits:HSDDEV:CHn:LOWer:ENABLE

:LIMits:HSDDEV:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for HSD Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:HSDDEV:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 HSD Deviation measurement.

Query Response: :LIMits:HSDDEV:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.4 HSD Deviation - Lower Limit Value

:LIMits:HSDDEV:CHn:LOWer:VALue
:LIMits:HSDDEV:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for HSD Deviation measurement.
 Query command returns parameter setting.

Range: 0.0 to 100.0 kHz

Units: kHz

Default Value: 0.0 kHz

Set/Query Format: NRf | NR2

Example: :LIMits:HSDDEV:CH1:LOWer:VALue 50kHz
 Sets Lower Limit Value for Channel 1 HSD Deviation measurement to 50.0 kHz.

Query Response: :LIMits:HSDDEV:CH1:LOWer:VALue?
 50.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.5 HSD Deviation - Measurement Query

:METERs:HSDDev:CHn:STATus?

Description: Command returns HSD Deviation measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
 0x0 = Valid
 0x1 = Invalid
 0x2 = Inaccurate
 0x4 = Settling
 0x8 = Squelch

failbyte (NR1): Bitmask
 0x80 = WC Lower Limit
 0x40 = WC Upper Limit
 0x20 = Avg Lower Limit
 0x10 = Avg Upper Limit
 0x08 = Max Lower Limit
 0x04 = Max Upper Limit
 0x02 = Min Lower Limit
 0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:HSDDev:CH1:STATus?
 0,0,3 100.00, 0.054, 10.00, 0.000,3

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.6 HSD Deviation - Peak Measurement Reset

:METERs:HSDDev:CHn:CLEAR:PEAK

Description: Command clears and resets Peak HSD Deviation measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.7 HSD Deviation - Upper Limit Enable

:LIMits:HSDDEV:CHn:UPPer:ENABLE

:LIMits:HSDDEV:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for HSD Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:HSDDEV:CH1:UPPer:ENABLE ON
Enables Upper Limit for Channel 1 HSD Deviation measurement.

Query Response: :LIMits:HSDDEV:CH1:UPPer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.13.8 HSD Deviation - Upper Limit Value

:LIMits:HSDDEV:CHn:UPPer:VALue

:LIMits:HSDDEV:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for HSD Deviation measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0 kHz

Units: kHz

Default Value: 0.0 kHz

Set/Query Format: NRf | NR2 (kHz)

Example: :LIMits:HSDDEV:CH1:UPPer:VALue 75kHz
Sets Upper Limit Value for Channel 1 HSD Deviation measurement to 75.0 Hz.

Query Response: :LIMits:HSDDEV:CH1:UPPer:VALue?
75.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

4.14 INBAND POWER

4.14.1 Inband Power - Averages

:METERs:POWer:CHn:INBand:AVERaging

:METERs:POWer:CHn:INBand:AVERaging?

Description: Set command defines number of readings taken to calculate Average Inband Power measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:POWer:CH1:INBand:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Inband Power measurements to 100.

Query Response: :METERs:POWer:CH1:INBand:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.14.2 Inband Power - Average Measurement Reset

:METERs:POWer:CHn:INBand:CLEAR:AVG

Description: Command clears and resets Average Inband Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.14.3 Inband Power - Lower Limit Enable

:LIMits:POWer:CHn:INBand:LOWer:ENABLE

:LIMits:POWer:CHn:INBand:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Inband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:INBand:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Inband Power measurement.

Query Response: :LIMits:POWer:CH1:INBand:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.14.4 Inband Power - Lower Limit Value

:LIMits:POWer:CHn:INBand:LOWer:VALue

:LIMits:POWer:CHn:INBand:LOWer:VALue?

Description: Set command defines Lower Limit Value for Inband Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dBμV

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2

Example: :LIMits:POWer:CH1:INBand:LOWer:VALue -45dBm
Sets Lower Limit for Channel 1 Inband measurements to -45.0 dBm.

Query Response: :LIMits:POWer:CH1:INBand:LOWer:VALue?
0.0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.14.5 Inband Power - Measurement Query

:METERs:POWer:CHn:INBand:STATus?

Description: Command returns Inband Power measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask
0x80 = WC Lower Limit
0x40 = WC Upper Limit
0x20 = Avg Lower Limit
0x10 = Avg Upper Limit
0x08 = Max Lower Limit
0x04 = Max Upper Limit
0x02 = Min Lower Limit
0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:POWer:CH1:INBand:STATus?
0,0,3 100.00, -30.183, -30.140, -30.241,6

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
Protocol must be defined as ANALOG to return valid measurement data.

4.14.6 Inband Power - Peak Measurement Reset

:METERs:POWer:CHn:INBand:CLEAR:PEAK

Description: Command clears and resets Peak Inband Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.14.7 Inband Power - Units

:METERs:POWer:INBand:UNITs

:METERs:POWer:INBand:UNITs?

Description: Set command defines the unit of measurement for Inband Power measurement.
Query command returns parameter setting.

Parameter: dBm | W | dBW | V | dBμV

Default Value: dBm

Set/Query Format: CPD | CRD

Example: :METERs:POWer:INBand:UNITs W
Displays Inband Power measurements in Watts.

Query Response: :METERs:POWer:INBand:UNITs?
W

4.14.8 Inband Power - Upper Limit Enable

:LIMits:POWer:CHn:INBand:UPPer:ENABLE

:LIMits:POWer:CHn:INBand:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Inband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:POWer:CH1:INBand:UPPer:ENABLE ON
Enables Upper Limit for Channel 1 Inband Power measurement.

Query Response: :LIMits:POWer:CH1:INBand:UPPer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.14.9 Inband Power - Upper Limit Value

:LIMits:POWer:CHn:INBand:UPPer:VALue

:LIMits:POWer:CHn:INBand:UPPer:VALue?

Description: Set command defines the Upper Limit Value for Inband Power measurement Upper.

Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dB μ V

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2

Example: :LIMits:POWer:CH1:INBand:UPPer:VALue -25dBm

Sets Upper Limit for Channel 1 Inband Power Measurement to -25.0 dBm.

Query Response: :LIMits:POWer:CH1:INBand:UPPer:VALue?

0.0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15 MODULATION FIDELITY

4.15.1 Modulation Fidelity - Averages

:METERs:MODFidelity:CHn:AVERaging

:METERs:MODFidelity:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Modulation Fidelity measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:MODFidelity:CHn:AVERaging 100

Sets the number of readings taken to calculate Modulation Fidelity measurement to 100.

Query Response: :METERs:MODFidelity:CHn:AVERaging?

100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.2 Modulation Fidelity - Average Measurement Reset

:METERs:MODFidelity:CHn:CLEAR:AVG

Description: Command clears and resets Average Modulation Fidelity measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.3 Modulation Fidelity - Lower Limit Enable

:LIMits:MODFidelity:CHn:LOWer:ENABLE

:LIMits:MODFidelity:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Modulation Fidelity measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MODFidelity:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Modulation Fidelity measurement.

Query Response: :LIMits:MODFidelity:CH1:LOWer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.4 Modulation Fidelity - Lower Limit Value

:LIMits:MODFidelity:CHn:LOWer:VALue
:LIMits:MODFidelity:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Modulation Fidelity measurement.
 Query command returns parameter setting.

Range: 0.0 to 200.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:MODFidelity:CH1:LOWer:VALue 100
 Sets Lower Limit Value for Channel 1 Modulation Fidelity measurement to 100.0%.

Query Response: :LIMits:MODFidelity:CH1:LOWer:VALue?
 100.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.5 Modulation Fidelity - Measurement Query

:METERs:MODFidelity:CHn:STATus?

Description: Command returns Modulation Fidelity measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x1 = Invalid

0x4 = Settling

0x2 = Inaccurate

0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit

0x08 = Max Lower Limit

0x40 = WC Upper Limit

0x04 = Max Upper Limit

0x20 = Avg Lower Limit

0x02 = Min Lower Limit

0x10 = Avg Upper Limit

0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1): 0 = No Units

5 = dB

10 = dBμV

15 = Vrms

1 = %

6 = dBm

11 = W

16 = dBr

2 = Hz

7 = V

12 = mW

17 = dBV

3 = kHz

8 = mV

13 = μW

18 = mHz

4 = MHz

9 = μV

14 = dBW

19 = μs

Query Response: :METERs:MODFidelity:CH2:STATus?
 0,0,3, 100.000, 0.438, 7.048, 0.366,1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.6 Modulation Fidelity - Measurement Type

:METERs:MODFidelity:CHn:MODE
:METERs:MODFidelity:CHn:MODE?

Description: Set command defines Modulation Fidelity measurement type.
Query command returns parameter setting.

Parameter: PEAK | AVERage

Default Value: PEAK

Set/Query Format: CPD | CRD

Example: :METERs:MODFidelity:CH1:MODE AVERage
Sets Modulation Fidelity measurement to Average.

Query Response: :METERs:MODFidelity:CH1:MODE?
AVER

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.7 Modulation Fidelity - Peak Measurement Reset

:METERs:MODFidelity:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Modulation Fidelity measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.8 Modulation Fidelity - Upper Limit Enable

:LIMits:MODFidelity:CHn:UPPer:ENABLE
:LIMits:MODFidelity:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Modulation Fidelity measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MODFidelity:CH1:UPPer:ENABLE ON
Enables Upper Limit for Channel 1 Modulation Fidelity measurement.

Query Response: :LIMits:MODFidelity:CH1:UPPer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.15.9 Modulation Fidelity - Upper Limit Value

:LIMits:MODFidelity:CHn:UPPer:VALue

:LIMits:MODFidelity:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Modulation Fidelity measurement.
Query command returns parameter setting.

Range: 0.0 to 200.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:MODFidelity:CH1:UPPer:VALue 100
Sets Upper Limit Value for Channel 1 Modulation Fidelity measurements to 100.0%

Query Response: :LIMits:MODFidelity:CH1:UPPer:VALue?
100.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.16 OCCUPIED BANDWIDTH

4.16.1 Occupied Bandwidth - Averages

:METERs:OCB:CHn:AVERaging

:METERs:OCB:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Occupied Bandwidth measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:OCB:CHn:AVERaging 100

Sets the number of readings taken to calculate Average Occupied Bandwidth measurement to 100.

Query Response: :METERs:OCB:CHn:AVERaging?

100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.2 Occupied Bandwidth - Average Measurement Reset

:METERs:OCB:CHn:CLEAR:AVG

Description: Command clears and resets Average Occupied Bandwidth measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.3 Occupied Bandwidth - Lower Limit Enable

:LIMits:OCB:CHn:LOWer:ENABLE

:LIMits:OCB:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Occupied Bandwidth measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:OCB:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Occupied Bandwidth measurement.

Query Response: :LIMits:OCB:CH1:LOWer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.4 Occupied Bandwidth - Lower Limit Value

:LIMits:OCB:CHn:LOWer:VALue

:LIMits:OCB:CHn:LOWer:VALue?

Description: Set command defines the Lower Limit Value for Occupied Bandwidth measurement.

Query command returns the Lower Limit Value defined for Occupied Bandwidth measurement.

Range: 0.0 to 30000.0 Hz

Units: Hz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:OCB:CH1:LOWer:VALue 1000Hz

Sets Lower Limit Value for Channel 1 Occupied Bandwidth measurements to 1000.0 Hz

Query Response: :LIMits:OCB:CH1:LOWer:VALue?
1000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.5 Occupied Bandwidth - Measurement Query

:METERs:OCB:CHn:STATus?

Description: Command returns Occupied Bandwidth measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
0x1 = Invalid
0x2 = Inaccurate

0x0 = Valid
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask
0x80 = WC Lower Limit
0x40 = WC Upper Limit
0x20 = Avg Lower Limit
0x10 = Avg Upper Limit

0x08 = Max Lower Limit
0x04 = Max Upper Limit
0x02 = Min Lower Limit
0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:OCB:CH1:STATus?
5, 0, 3, 0.000, 0.000, 0.000, 0.000, 2

NOTE

CHN = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.6 Occupied Bandwidth - Peak Measurement Reset

:METERs:OCB:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Occupied Bandwidth measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.7 Occupied Bandwidth - Percent

:METERs:OCB:CHn:PERcent

:METERs:OCB:CHn:PERcent?

Description: Set command defines Tx Occupied Bandwidth percentage value.
Query command returns parameter setting.

Range: 0.0 to 99.5%

Units: % (percent)

Default Value: 99.0%

Set/Query Format: NRf | NR2

Example: :METERs:OCB:CH1:PERcent 95%

Sets Channel 1 Occupied Bandwidth percent to 95.0%.

Query Response: :METERs:OCB:CH1:PERcent?

95.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.8 Occupied Bandwidth - Upper Limit Enable

:LIMits:OCB:CHn:UPPer:ENABLE

:LIMits:OCB:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Occupied Bandwidth measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:OCB:CH1:UPPer:ENABLE ON

Enables Upper Limit for Channel 1 Occupied Bandwidth measurement.

Query Response: :LIMits:OCB:CH1:UPPer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.16.9 Occupied Bandwidth - Upper Limit Value

:LIMits:OCB:CHn:UPPer:VALue

:LIMits:OCB:CHn:UPPer:VALue?

Description: Set command defines the Upper Limit Value for Occupied Bandwidth measurement.

Query command returns the Upper Limit Value defined for Occupied Bandwidth measurement.

Range: 0.0 to 30000.0 Hz

Units: Hz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:OCB:CH1:UPPer:VALue 1000Hz

Sets Upper Limit Value for Channel 1 Occupied Bandwidth measurements to 1000.0 Hz.

Query Response: :LIMits:OCB:CH1:UPPer:VALue?
1000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Command only valid when Occupied Bandwidth Meter Option is installed in Test Set.

4.17 SIGNAL POWER MEASUREMENTS

4.17.1 Signal Power - Averages

:METERs:POWer:CHn:AVERaging

:METERs:POWer:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Signal Power measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:POWer:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Average Signal Power measurement to 100.

Query Response: :METERs:POWer:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.2 Signal Power - Average Measurement Reset

:METERs:POWer:CHn:CLear:AVG

Description: Command clears and resets Average Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.3 Signal Power - Lower Limit Enable

:LIMits:POWer:CHn:LOWer:ENABLE

:LIMits:POWer:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Signal Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Signal Power measurement.

Query Response: :LIMits:POWer:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.4 Signal Power - Lower Limit Value

:LIMits:POWer:CHn:LOWer:VALue

:LIMits:POWer:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Signal Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dBμV

Default Units: dBm

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :LIMits:POWer:CH1:LOWer:VALue -80dBm

Sets Lower Limit Value for Channel 1 Signal Power measurement to -80.0 dBm.

Query Response: :LIMits:POWer:CH1:LOWer:VALue?

-80.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.5 Signal Power - Measurement Query

:METERs:POWer:CHn:STATus?

Description: Command returns Signal Power measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x1 = Invalid

0x4 = Settling

0x2 = Inaccurate

0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit

0x08 = Max Lower Limit

0x40 = WC Upper Limit

0x04 = Max Upper Limit

0x20 = Avg Lower Limit

0x02 = Min Lower Limit

0x10 = Avg Upper Limit

0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1): 0 = No Units

5 = dB

10 = dBμV

15 = Vrms

1 = %

6 = dBm

11 = W

16 = dBr

2 = Hz

7 = V

12 = mW

17 = dBV

3 = kHz

8 = mV

13 = μW

18 = mHz

4 = MHz

9 = μV

14 = dBW

19 = μs

Query Response: :METERs:POWer:CH1:STATus?

0,0,3 100.00, -30.183, -30.140, -30.241,6

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.6 Signal Power - Measurement Type

:METERs:POWer:TYPE

:METERs:POWer:TYPE?

Description: Set command defines Signal Power measurement type.
Query command returns parameter setting.

Parameter: AVER | MAX | MIN

Default Value: PEAK

Set/Query Format: CPD

Example: :METERs:POWer:TYPE AVER
Sets Signal Power measurement to Average.

Query Response: :METERs:POWer:TYPE?
AVER

4.17.7 Signal Power - Peak Measurement Reset

:METERs:POWer:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Signal Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.8 Signal Power - Units

:METERs:POWer:UNIts

:METERs:POWer:UNIts?

Description: Set command defines the unit of measurement for Signal Power measurement.
Query command returns parameter setting.

Parameter: dBm | W | dBW | V | dB μ V

Default Value: dBm

Set/Query Format: CPD

Example: :METERs:POWer:UNIts W
Displays Signal Power measurement in Watts.

Query Response: :METERs:POWer:UNIts?
W

4.17.9 Signal Power - Upper Limit Enable

:LIMits:POWer:CHn:UPPer:ENABle

:LIMits:POWer:CHn:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Signal Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:UPPer:ENABle ON
Enables Upper Limit for Channel 1 Signal Power measurement.

Query Response: :LIMits:POWer:CH1:UPPer:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.17.10 Signal Power - Upper Limit Value

:LIMits:POWer:CHn:UPPer:VALue

:LIMits:POWer:CHn:UPPer:VALue?

Description: Set command defines Lower Limit Value for Signal Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dBμV

Default Units: dBm

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :LIMits:POWer:CH1:UPPer:VALue -80dBm
Sets Upper Limit Value for Channel 1 Signal Power measurement to -80.0 dBm.

Query Response: :LIMits:POWer:CH1:UPPer:VALue?
-80.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.18 SLOT POWER MEASUREMENTS

4.18.1 Slot Power - Averages

:METERs:POWer:CHn:SLOTn:AVERaging

:METERs:POWer:CHn:SLOTn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Slot Power measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:POWer:CH1:SLOT1:AVERaging 100

Sets the number of readings taken to calculate Average Channel 1, Slot 1 Power measurement to 100.

Query Response: :METERs:POWer:CH1:SLOT1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.2 Slot Power - Average Measurement Reset

:METERs:POWer:CHn:SLOTn:CLear:AVG

Description: Command clears and resets Average Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.3 Slot Power - Lower Limit Enable

:LIMits:POWer:CHn:SLOTn:LOWer:ENABLE

:LIMits:POWer:CHn:SLOTn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Slot Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:SLOT1:ENABLE ON

Enables Lower Limit for Slot Power measurement.

Query Response: :LIMits:POWer:CH1:SLOT1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.4 Slot Power - Lower Limit Value

:LIMits:POWer:CHn:SLOTn:LOWer:VALue
:LIMits:POWer:CHn:SLOTn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Slot Power measurement.
 Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dBμV

Default Units: dBm

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :LIMits:POWer:CH1:SLOT1:LOWer:VALue -80dBm

Sets Lower Limit Value for Channel 1, Slot 1 Power measurements to -80.0 dBm.

Query Response: :LIMits:POWer:CH1:SLOT1:LOWer:VALue?
 -80.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.5 Slot Power - Measurement Query

:METERs:POWer:CHn:SLOTn:STATus?

Description: Command returns Slot Power measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
 0x0 = Valid
 0x1 = Invalid
 0x2 = Inaccurate
 0x4 = Settling
 0x8 = Squelch

failbyte (NR1): Bitmask
 0x80 = WC Lower Limit
 0x40 = WC Upper Limit
 0x20 = Avg Lower Limit
 0x10 = Avg Upper Limit
 0x08 = Max Lower Limit
 0x04 = Max Upper Limit
 0x02 = Min Lower Limit
 0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:POWer:CH1:SLOT1:STATus?
 0,0,3 100.00, -30.183, -30.140, -30.241,6

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.6 Slot Power - Peak Measurement Reset

:METERs:POWer:CHn:SLOTn:CLear:PEAK

Description: Command clears and resets Peak Slot Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.7 Slot Power - Upper Limit Enable

:LIMits:POWer:CHn:SLOTn:UPPer:ENABle

:LIMits:POWer:CHn:SLOTn:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Slot Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:SLOT1:ENABle ON

Enables Upper Limit for Channel 1, Slot 1 Power measurement.

Query Response: :LIMits:POWer:CH1:SLOT1:UPPer:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.18.8 Slot Power - Upper Limit Value

:LIMits:POWer:CHn:SLOTn:UPPer:VALue

:LIMits:POWer:CHn:SLOTn:UPPerVALue?

Description: Set command defines Lower Limit Value for Slot Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dBμV

Default Units: dBm

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :LIMits:POWer:CH1:SLOT1:UPPer:VALue -80dBm

Sets Upper Limit Value for Channel 1, Slot 1 Power measurements to -80.0 dBm.

Query Response: :LIMits:POWer:CH1:SLOT1:UPPer:VALue?
-80.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

4.19 SLOT POWER RATIO MEASUREMENTS

4.19.1 Slot Power Ratio - Lower Limit Enable

:LIMits:POWer:CHn:RATio:LOWer:ENABle

:LIMits:POWer:CHn:RATio:LOWer:ENABle?

Description: Set command Enables/Disables Lower Limit for Slot Power Ratio measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:RATio:LOWer:ENABle ON
Enables Lower Limit for Channel 1 Slot Power Ratio measurement.

Query Response: :LIMits:POWer:CH1:RATio:LOWer:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.19.2 Slot Power Ratio - Lower Limit Value

:LIMits:POWer:CHn:RATio:LOWer:VALue

:LIMits:POWer:CHn:RATio:LOWer:VALue?

Description: Set command defines Lower Limit Value for Slot Power Ratio measurement.
Query command returns parameter setting.

Default Value: 0.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:POWer:CH1:RATio:LOWer:VALue -90
Sets Lower Limit Value for Channel 1 Slot 1 Power measurement to -90.0.

Query Response: :LIMits:POWer:CH1:RATio:LOWer:VALue?
-90.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Units are defined using :METERs:POWer:RATio:UNIts command.

4.19.3 Slot Power Ratio - Measurement Query

:METERs:POWer:CHn:RATio:STATus?

Description: Command returns Slot Power Ratio measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
 0x0 = Valid
 0x1 = Invalid
 0x2 = Inaccurate
 0x4 = Settling
 0x8 = Squelch

failbyte (NR1): Bitmask
 0x80 = WC Lower Limit
 0x40 = WC Upper Limit
 0x20 = Avg Lower Limit
 0x10 = Avg Upper Limit
 0x08 = Max Lower Limit
 0x04 = Max Upper Limit
 0x02 = Min Lower Limit
 0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

status messages: signal not acquired\n
 (when present) timed out waiting for TraceMutex\n
 timed out waiting for data\n

Query Response: :METERs:POWer:CH1:RATio:STATus?
 0,0,3 100.00, -30.183, -30.140, -30.241,6
 CHn = 1 or 2 (Channel 1 or 2).

NOTE

4.19.4 Slot Power Ratio - Units

:METERs:POWer:RATio:UNIts

:METERs:POWer:RATio:UNIts?

Description: Set command defines the unit of measurement for Slot Power Ratio measurement.

Query command returns parameter setting.

Parameter: W | dBr

Default Value: dBr

Set/Query Format: CPD | CRD

Example: :METERs:POWer:RATio:UNIts W
 Displays Signal Power measurement in Watts.

Query Response: :METERs:POWer:RATio:UNIts?
 W

NOTE

This command defines the unit of measurement for Slot Power Ratio Meter and the Upper and Lower Limit values for Channel 1 and Channel 2 measurements.

4.19.5 Slot Power Ratio - Upper Limit Enable

:LIMits:POWer:CHn:RATio:UPPer:ENABle

:LIMits:POWer:CHn:RATio:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Slot Power Ratio measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:RATio:UPPer:ENABle ON
Enables Upper Limit for Channel 1 Slot Power Ratio measurement.

Query Response: :LIMits:POWer:CH1:RATio:UPPer:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

4.19.6 Slot Power Ratio - Upper Limit Value

:LIMits:POWer:CHn:RATio:UPPer:VALue

:LIMits:POWer:CHn:RATio:UPPer:VALue?

Description: Set command defines Upper Limit Value for Slot Power Ratio measurement.
Query command returns parameter setting.

Default Value: 0.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:POWer:CH1:RATio:UPPer:VALue -80
Sets Upper Limit Value for Channel 1 Slot Power Ratio measurements to -80.0.

Query Response: :LIMits:POWer:CH1:RATio:UPPer:VALue?
-80.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Units are defined using :METERs:POWer:RATio:UNIts command.

4.20 SYMBOL CLOCK ERROR MEASUREMENTS

4.20.1 Symbol Clock Error - Averages Value

:METERs:SCE:CHn:AVERaging

:METERs:SCE:CHn:AVERaging?

Description: Set command defines number of readings taken to calculate Average Symbol Clock Error measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:SCE:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Symbol Clock Error measurements to 100.

Query Response: :METERs:SCE:CH1:AVERaging?

100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.2 Symbol Clock Error - Average Measurement Reset

:METERs:SCE:CHn:CLEAR:AVG

Description: Command clears and resets Average Symbol Clock Error measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.3 Symbol Clock Error - Lower Limit Enable

:LIMits:SCE:CHn:LOWer:ENABLE

:LIMits:SCE:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Symbol Clock Error measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:SCE:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Symbol Clock Error measurement.

Query Response: :LIMits:SCE:CH1:LOWer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.4 Symbol Clock Error - Lower Limit Value

:LIMits:SCE:CHn:LOWer:VALue

:LIMits:SCE:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Symbol Clock Error measurement. Query command returns parameter setting.

Range: 0.0 to +1000.0 mHz

Units: mHz

Default Value: 0.0 mHz

Set/Query Format: NRf | NR2

Example: :LIMits:SCE:CH1:LOWer:VALue 50mHz

Sets Lower Limit Value for Channel 1 Symbol Clock Error measurement to 50.0 mHz.

Query Response: :LIMits:SCE:CH1:LOWer:VALue?
50.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.5 Symbol Clock Error - Measurement Query

:METERs:SCE:CHn:STATus?

Description: Command returns Symbol Clock Error measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask
0x80 = WC Lower Limit
0x40 = WC Upper Limit
0x20 = Avg Lower Limit
0x10 = Avg Upper Limit
0x08 = Max Lower Limit
0x04 = Max Upper Limit
0x02 = Min Lower Limit
0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:SCE:CH1:STATus?
0,0,3 100.00, -2.487, -0.346, -6.642,18

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.6 Symbol Clock Error - Peak Measurement Reset

:METERs:SCE:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Symbol Clock Error measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.7 Symbol Clock Error - Units

:METERs:SCE:UNITs

:METERs:SCE:UNITs?

Description: Set command defines the unit of measurement for Symbol Clock Error measurement.

Query command returns parameter setting.

Parameter: Hz | PPM

Default Value: Hz

Set/Query Format: CPD | CRD

Example: :METERs:SCE:UNITs PPM

Displays Symbol Clock Error measurement in PPM.

Query Response: :METERs:SCE:UNITs?

PPM

4.20.8 Symbol Clock Error - Upper Limit Enable

:LIMits:SCE:CHn:UPPer:ENABLE

:LIMits:SCE:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Symbol Clock Error measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:SCE:CH1:UPPer:ENABLE ON

Enables Upper Limit for Channel 1 Symbol Clock Error measurement.

Query Response: :LIMits:SCE:CH1:UPPer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.20.9 Symbol Clock Error - Upper Limit Value

:LIMits:SCE:CHn:UPPer:VALue

:LIMits:SCE:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Symbol Clock Error measurement.
Query command returns parameter setting.

Range: 0.0 to +1000.0 mHz

Units: mHz

Default Value: 0.0 mHz

Set/Query Format: NRf | NR2

Example: :LIMits:SCE:CH1:UPPer:VALue 100mHz
Sets Upper Limit Value for Channel 1 Symbol Clock Error measurement to 100.0 mHz.

Query Response: :LIMits:SCE:CH1:UPPer:VALue?
100.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21 SYMBOL DEVIATION MEASUREMENTS

4.21.1 Symbol Deviation - Averages

:METERs:SYMDev:CHn:AVERaging

:METERs:SYMDev:CHn:AVERaging?

Description: Set command defines number of readings taken for calculating Average Symbol Deviation measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:SYMDev:CH1:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Symbol Deviation measurements to 100.

Query Response: :METERs:SYMDev:CH1:AVERaging?

100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.2 Symbol Deviation - Average Measurement Reset

:METERs:SYMDev:CHn:CLEAR:AVG

Description: Command clears and resets Average Symbol Deviation measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.3 Symbol Deviation - Lower Limit Enable

:LIMits:SYMdev:CHn:LOWer:ENABLE

:LIMits:SYMdev:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Symbol Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:SYMdev:CH1:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Symbol Deviation measurement.

Query Response: :LIMits:SYMdev:CH1:LOWer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.4 Symbol Deviation - Lower Limit Value

:LIMits:SYMdev:CHn:LOWer:VALue

:LIMits:SYMdev:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Symbol Deviation measurement. Query command returns parameter setting.

Range: 0.0 to 10,000.0 Hz

Units: Hz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:SYMdev:CH1:LOWer:VALue 250Hz
Sets Lower Limit Value for Channel 1 Symbol Deviation measurements to 250.0 Hz.

Query Response: :LIMits:SYMdev:CH1:LOWer:VALue?
250.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.5 Symbol Deviation - Measurement Query

:METERs:SYMDev:CHn:STATus?

Description: Command returns Symbol Deviation measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask
0x80 = WC Lower Limit
0x40 = WC Upper Limit
0x20 = Avg Lower Limit
0x10 = Avg Upper Limit
0x08 = Max Lower Limit
0x04 = Max Upper Limit
0x02 = Min Lower Limit
0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:SYMDev:CH1:STATus?
0,0,2,100.000,1946.569,2046.316,1800.000,2

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.6 Symbol Deviation - Peak Measurement Reset

:METERs:SYMDev:CHn:CLEAR:PEAK

Description: Command clears and resets Peak Symbol Deviation measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.7 Symbol Deviation - Upper Limit Enable

:LIMits:SYMdev:CHn:UPPer:ENABLE

:LIMits:SYMdev:CHn:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Symbol Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:SYMdev:CH1:UPPer:ENABle ON

Enables Upper Limit for Channel 1 Symbol Deviation measurement.

Query Response: :LIMits:SYMdev:CH1:UPPer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

4.21.8 Symbol Deviation - Upper Limit Value

:LIMits:SYMdev:CHn:UPPer:VALue

:LIMits:SYMdev:CHn:UPPer:VALue?

Description: Set command defines Upper Limit Value for Symbol Deviation measurement.
Query command returns parameter setting.

Range: 0.0 to 10,000.0 Hz

Units: Hz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:SYMdev:CH1:UPPer:VALue 500Hz

Sets Upper Limit Value for Channel 1 Symbol Deviation measurements to 500.0 Hz.

Query Response: :LIMits:SYMdev:CH1:UPPer:VALue?

500.00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

Chapter 5 - Audio/Demod Signal Rx Meter Remote Commands

5.1 INTRODUCTION

This chapter describes the Remote Commands for configuring and obtaining Audio/Demod signal measurement data. Remote commands are listed alphabetically under meter names.

5.2 AUDIO MEASUREMENT CONFIGURATION

5.2.1 AF Measurements - Audio Source

:CONFigure:AF:ANALyzer:SOURce
:CONFigure:AF:ANALyzer:SOURce?

Description: Set command defines the Source for Audio Analyzer.
Query command returns parameter setting.

Parameter: AUD1 | AUD2 | BAL | MIC

Default Value: AUD1

Set/Query Format: CPD | CRD

Example: :CONFigure:AF:ANALyzer:SOURce MIC
Selects Microphone as the AF Analyzer Audio Source.

Query Response: :CONFigure:AF:ANALyzer:SOURce?
MIC

5.2.2 AF Measurements - Filter Type

:AF:ANALyzer:MFILter

:AF:ANALyzer:MFILter?

Description: Set command selects the Audio Analyzer Post Detection Filter.
Query command returns parameter setting.

Parameter: PSOPh | None | LP1 | LP2 | LP3 | LP4 | LP5 | LP6 | LP7 | HP1 | HP2 | HP3 | BP0 | BP1 | BP2 | BP3 | BP4 | BP5 | BP6 | BP7 | BP8 | BP9 | BP10 | BP11 | BP12 | BP13 | BP14 | BP15 | BP16

where:

NONE = No Filter	BP2 = 0.3 to 5.0 kHz BP
PSOPh = Psoph (CMESS or CCITT)	BP3 = 0.3 to 20.0 kHz BP
LP1 = 300.0 Hz LP	BP4 = 0.3 to 15.0 kHz BP
LP2 = 5.0 kHz LP	BP5 = 0.02 to 300.0 Hz BP
LP3 = 20.0 kHz LP	BP6 = 0.02 to 3.0 kHz BP
LP4 = 15.0 kHz LP	BP7 = 0.02 to 3.4 kHz BP
LP5 = 3.0 kHz LP	BP8 = 0.02 to 5.0 kHz BP
LP6 = 625.0 kHz LP*	BP9 = 0.02 to 15.0 kHz BP
LP7 = 10.0 kHz LP*	BP10 = 0.02 to 20.0 kHz BP
LP8 = 100.0 Hz LP*	BP11 = 0.05 to 300.0 Hz BP
HP1 = 300.0 Hz HP	BP12 = 0.05 to 3.0 kHz BP
HP2 = 20.0 Hz HP	BP13 = 0.05 to 3.4 kHz BP
HP3 = 50.0 Hz HP	BP14 = 0.05 to 5.0 kHz BP
BP0 = 0.3 to 3.0 kHz BP	BP15 = 0.05 to 15.0 kHz BP
BP1 = 0.3 to 3.4 kHz BP	BP16 = 0.05 to 20.0 kHz BP

Default Value: NONE (No Filter)

Set/Query Format: CPD | CRD

Example: :AF:ANALyzer:MFILter LP3
Selects 20.0 kHz Low Pass Filter for AF measurements.

Query Response: :AF:ANALyzer:MFILter?
LP3

NOTE

Filter selected should be appropriate for signal received from UUT.

When PSOPH is selected, Filter weight is defined using :CONFigure:AF:MFILter command.

Test Set does not process any commands following this one until this command is completed.

*LP6, LP7 and LP8 are used by the Audio Analyzer Tracking Generator and can not be defined by user, but may be returned as query data.

5.2.3 AF Measurements - Filter Weight

:CONFigure:AF:MFILter

:CONFigure:AF:MFILter?

Description: Set command defines the weight of psoph filter for AF Analyzer when Psoph filter is selected.
Query command returns parameter setting.

Parameter: CMESs | CCITt

Default Value: CMES

Set/Query Format: CPD | CRD

Example: :CONFigure:AF:MFILter CCITt
Selects CCITT Psoph Filter for AF measurement.

Query Response: :CONFigure:AF:MFILter?
CCIT

NOTE

AF Filter type must be defined as Psoph (:AF:ANALyzer:MFILter PSOPH) for this command to be valid.

5.2.4 AF Measurements - Impedance

:CONFigure:AF:ANALyzer:SOURce:LOAD

:CONFigure:AF:ANALyzer:SOURce:LOAD?

Description: Set command defines the Impedance of selected Audio Frequency (Receiver) source.
Query command returns parameter setting.

Parameter: UNBHI | UNB600

Default Value: Audio Source defined

Set/Query Format: CPD | CRD

Example: :CONFigure:AF:ANALyzer:SOURce:LOAD UNBHI
Sets Impedance of selected Audio Frequency (Receiver) Source to Unbalanced Hi-Z.

Query Response: :CONFigure:AF:ANALyzer:SOURce:LOAD?
UNBHI

NOTE

Command not valid when AF Analyzer Source is set to Balanced (:CONFigure:AF:ANALyzer:SOURce is set to BAL).

5.2.5 AF Measurements - Impedance External Load

:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD
:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD?

Description: Set command defines the Impedance of selected Audio Frequency Analyzer (Receiver) source.
Query command returns parameter setting.

Range: 1 to 9999 Ohms

Units: Ohms

Default Value: 8 Ohms

Set/Query Format: NRf | NR1

Example: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD 100OHMS
Sets External Load to 100 Ohms for Audio Frequency Analyzer (Receiver).

Query Response: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD?
100

NOTE

Command only valid when Impedance is set to Unbalanced Hi-Z (:CONFigure:AF:ANALyzer:SOURce:LOAD UNBHI).

5.2.6 AF Measurements - Impedance External Load Enable

:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE
:CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE?

Description: Set command enables External Load for Impedance.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE ON
Enables and applies defined External Impedance Load.

Query Response: :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD:ENABLE?
1

NOTE

Command :CONFigure:AF:ANALyzer:SOURce:VARiable:LOAD defines the external load applied when External Load is enabled.

5.2.7 Loudspeaker

:CONFigure:PORT:LOUDspeaker
:CONFigure:PORT:LOUDspeaker?

Description: Set command selects Loudspeaker port.
Query command returns selected Loudspeaker port.

Parameter: OFF | AUDio | DEMod

Default Value: OFF

Set/Query Format: CPD | CRD

Example: :CONFigure:PORT:LOUDspeaker AUDio
Selects Audio as the Loudspeaker port.

Query Response: :CONFigure:PORT:LOUDspeaker?
AUD

5.3 MODULATION MEASUREMENT CONFIGURATION

5.3.1 Modulation - Filter Type

:MOD:ANALyzer:MFILter

:MOD:ANALyzer:MFILter?

Description: Set command selects the Mod Analyzer Post Detection Filter.
Query command returns parameter setting.

Parameter: PSOPh | None | LP1 | LP2 | LP3 | LP4 | LP5 | LP6 | LP7 | HP1 | HP2 | HP3 | BP0 | BP1 | BP2 | BP3 | BP4 | BP5 | BP6 | BP7 | BP8 | BP9 | BP10 | BP11 | BP12 | BP13 | BP14 | BP15 | BP16

where:

NONE = No Filter	BP2 = 0.3 to 5.0 kHz BP
PSOPh = Psoph (CMESS or CCITT)	BP3 = 0.3 to 20.0 kHz BP
LP1 = 300.0 Hz LP	BP4 = 0.3 to 15.0 kHz BP
LP2 = 5.0 kHz LP	BP5 = 0.02 to 300.0 Hz BP
LP3 = 20.0 kHz LP	BP6 = 0.02 to 3.0 kHz BP
LP4 = 15.0 kHz LP	BP7 = 0.02 to 3.4 kHz BP
LP5 = 3.0 kHz LP	BP8 = 0.02 to 5.0 kHz BP
LP6 = 625.0 kHz LP*	BP9 = 0.02 to 15.0 kHz BP
LP7 = 10.0 kHz LP*	BP10 = 0.02 to 20.0 kHz BP
LP8 = 100.0 Hz LP*	BP11 = 0.05 to 300.0 Hz BP
HP1 = 300.0 Hz HP	BP12 = 0.05 to 3.0 kHz BP
HP2 = 20.0 Hz HP	BP13 = 0.05 to 3.4 kHz BP
HP3 = 50.0 Hz HP	BP14 = 0.05 to 5.0 kHz BP
BP0 = 0.3 to 3.0 kHz BP	BP15 = 0.05 to 15.0 kHz BP
BP1 = 0.3 to 3.4 kHz BP	BP16 = 0.05 to 20.0 kHz BP

Default Value: NONE (No Filter)

Set/Query Format: CPD | CRD

Example: :MOD:ANALyzer:MFILter BP4
Selects 0.3 to 15.0 kHz band pass filter for receiver signal path.

Query Response: :MOD:ANALyzer:MFILter?
BP4

NOTE

Filter selected should be appropriate for signal received from UUT.

When PSOPH is selected, Filter weight is defined using :CONFigure:MOD:MFILter command.

Test Set does not process any commands following this one until this command is completed.

*LP6, LP7 and LP8 are used by the Audio Analyzer Tracking Generator and can not be defined by user, but may be returned as query data.

5.3.2 Modulation Measurements - Filter Weight

:CONFigure:MOD:MFILter

:CONFigure:MOD:MFILter?

Description: Set command defines the weight of psoph filter for Modulation Analyzer when Psoph filter is selected.
Query command returns parameter setting.

Parameter: CMESs | CCITt

Default Value: CMESs

Set/Query Format: CPD | CRD

Example: :CONFigure:MOD:MFILter CCITt
Selects CCITT Psoph Filter for modulation measurement.

Query Response: :CONFigure:MOD:MFILter?
CCIT

NOTE

Filter type must be defined as Psoph (:MOD:ANALyzer:MFILter PSOPH) for this command to be valid.

5.3.3 Function Generator / Demod Out Connector

:CONFigure:PORT:FGEN

:CONFigure:PORT:FGEN?

Description: Set command selects Function Generator / Demod Out Connector.
Query command returns parameter setting.

Parameter: FGEN | AUDio | DEMod

Default Value: FGEN

Set/Query Format: CPD | CRD

Example: :CONFigure:PORT:FGEN DEMod
Selects Demod as the Function Generator / Demod Out Connector.

Query Response: :CONFigure:PORT:FGEN?
DEM

5.4 AF DISTORTION MEASUREMENTS

5.4.1 AF Distortion - Averages

:CONFigure:AF:ANALyzer:DISToRtion:AVERage
:CONFigure:AF:ANALyzer:DISToRtion:AVERage?

Description: Set command defines the number of readings taken to calculate Average AF Distortion measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:AF:ANALyzer:DISToRtion:AVERage 75
Sets number of readings taken to calculate Average AF Distortion measurements to 75.

Query Response: :CONFigure:AF:ANALyzer:DISToRtion:AVERage?
75

5.4.2 AF Distortion - Average Measurement Reset

:AF:ANALyzer:DISToRtion:CLEAR:AVG

Description: Command clears and resets Average AF Distortion measurement.

Parameter/Query: none

5.4.3 AF Distortion - Measurement Query

:FETCh:AF:ANALyzer:DISToRtion?

Description: Command returns AF Analyzer Distortion measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg%>,<wc%>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
4 = Worst case upper failed limit

avgcount (NR1): value

avg, wc (NR2): %

Query Response: :FETCh:AF:ANALyzer:DISToRtion?
0,0,1,99.97,99.99

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid AF Distortion measurement data.

5.4.4 AF Distortion - Peak Measurement Reset

:AF:ANALyzer:DISToRTion:CLEAR:PEAK

Description: Command clears and resets Peak AF Distortion measurement.

Parameter/Query: none

5.4.5 AF Distortion - Lower Limit Enable

:LIMits:AF:DISToRTion:LOWer:ENABLE

:LIMits:AF:DISToRTion:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for AF Distortion measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:DISToRTion:LOWer:ENABLE ON
Enables Lower Limit for AF Distortion measurement.

Query Response: :LIMits:AF:DISToRTion:LOWer:ENABLE?
1

5.4.6 AF Distortion - Lower Limit Value

:LIMits:AF:DISToRTion:LOWer:VALue

:LIMits:AF:DISToRTion:LOWer:VALue?

Description: Set command defines the Lower Limit Value for AF Distortion measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 5.0%

Set/Query Format: NRf | NR2

Example: :LIMits:AF:DISToRTion:LOWer:VALue 1
Sets Lower Limit Value for AF Distortion measurement to 1.0%.

Query Response: :LIMits:AF:DISToRTion:LOWer:VALue?
1.00

5.5 AF FREQUENCY MEASUREMENTS

5.5.1 AF Frequency - Averages

:CONFigure:AF:ANALyzer:FREQuency:AVERage

:CONFigure:AF:ANALyzer:FREQuency:AVERage?

Description: Set command defines the number of readings taken to calculate Average AF Frequency measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:AF:ANALyzer:FREQuency:AVERage 75

Sets number of readings taken to calculate Average AF Frequency measurement to 75.

Query Response: :CONFigure:AF:ANALyzer:FREQuency:AVERage?
75

5.5.2 AF Frequency - Average Measurement Reset

:AF:ANALyzer:FREQuency:CLEAR:AVG

Description: Command clears and resets Average AF Frequency measurement.

Parameter/Query: none

5.5.3 AF Frequency - Lower Limit Enable

:LIMits:AF:FREQuency:LOWer:ENABLE

:LIMits:AF:FREQuency:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for AF Frequency measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:AF:FREQuency:LOWer:ENABLE ON
Enables Lower Limit for AF Frequency measurement.

Query Response: :LIMits:AF:FREQuency:LOWer:ENABLE?
1

5.5.4 AF Frequency - Lower Limit Value

:LIMits:AF:FREQuency:LOWer:VALue

:LIMits:AF:FREQuency:LOWer:VALue?

Description: Set command defines the Lower Limit Value for AF Frequency measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 20.0 kHz

Units: Hz | kHz

Default Value: 0.0 kHz

Set/Query Format: NRf | NR2

Example: :LIMits:AF:FREQuency:LOWer:VALue 1Hz
Sets Lower Limit Value for AF Frequency measurement to 1.0 Hz.

Query Response: :LIMits:AF:FREQuency:LOWer:VALue?
1.0

5.5.5 AF Frequency - Measurement Query

:FETCh:AF:ANALyzer:FREQuency?

Description: Command returns AF Frequency measurement data.

Query Data: <statusbyte>, <avgcount>, <avg>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

avgcount (NR1): value

avg (NR2): Hz

Query Response: :FETCh:AF:ANALyzer:FREQuency?
0,25,1000.0

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid AF Frequency measurement data.

5.5.6 AF Frequency - Peak Measurement Reset

:AF:ANALyzer:FREQuency:CLEAR:PEAK

Description: Command clears and resets Peak AF Frequency measurement.

Parameter/Query: none

5.5.7 AF Distortion - Upper Limit Enable

:LIMits:AF:DISToTtion:UPPer:ENABle

:LIMits:AF:DISToTtion:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for AF Distortion measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:DISToTtion:UPPer:ENABle ON
Enables Upper Limit for AF Distortion measurement.

Query Response: :LIMits:AF:DISToTtion:UPPer:ENABle?
1

5.5.8 AF Distortion - Upper Limit Value

:LIMits:AF:DISToTtion:UPPer:VALue

:LIMits:AF:DISToTtion:UPPer:VALue?

Description: Set command defines the Upper Limit Value for AF Distortion measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 5.0%

Set/Query Format: NRf | NR2

Example: :LIMits:AF:DISToTtion:UPPer:VALue 1
Sets Upper Limit Value for AF Distortion measurement to 1.0%.

Query Response: :LIMits:AF:DISToTtion:UPPer:VALue?
1.00

5.6 AF HUM & NOISE MEASUREMENTS

5.6.1 AF Hum & Noise - Averages

:CONFigure:AF:ANALyzer:HN:AVERAge

:CONFigure:AF:ANALyzer:HN:AVERAge?

Description: Set command defines the number of readings taken to calculate Average AF Hum & Noise measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:AF:ANALyzer:HN:AVERAge 75

Sets number of readings being taken to calculate Average AF Hum & Noise measurement to 75.

Query Response: :CONFigure:AF:ANALyzer:HN:AVERAge?
75

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.6.2 AF Hum & Noise - Average Measurement Reset

:AF:ANALyzer:HN:CLEAR:AVG

Description: Command clears and resets Average AF Hum & Noise measurement.

Parameter/Query: none

5.6.3 AF Hum & Noise - Lower Limit Enable

:LIMits:AF:HN:LOWer:ENABLE

:LIMits:AF:HN:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for AF Hum and Noise measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:HN:LOWer:ENABLE ON

Enables Lower Limit for Hum & Noise measurement.

Query Response: :LIMits:AF:HN:LOWer:ENABLE?
1

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.6.4 AF Hum & Noise - Lower Limit Value

:LIMits:AF:HN:LOWer:VALue

:LIMits:AF:HN:LOWer:VALue?

Description: Set command defines Lower Limit Value for AF Hum and Noise measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 0.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:AF:HN:LOWer:VALue -50dBr
Sets Lower Limit Value for AF Hum & Noise measurement to -50.0 dBr.

Query Response: :LIMits:AF:HN:LOWer:VALue?
-50.00

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.6.5 AF Hum & Noise - Peak Measurement Reset

:AF:ANALyzer:HN:CLEAR:PEAK

Description: Command clears and resets Peak AF Hum & Noise measurement.

Parameter/Query: none

5.6.6 AF Hum & Noise - Measurement Query

:FETCh:AF:ANALyzer:HN?

Description: Command returns AF Hum and Noise measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>,<wc>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg, wc (NR2): dB

Query Response: :FETCh:AF:ANALyzer:HN?
0,0,10,-8.43,-8.43

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.6.7 AF Hum & Noise - Reference Lock

:CONFigure:AF:ANALyzer:HN:REFeRence

Description: Command locks AF Hum and Noise reference to current meter reading.

Parameter/Query: none

NOTE

SNR measurement must be defined as Hum & Noise to obtain valid Hum & Noise measurement (:CONFigure:AF:ANALyzer:SNR:MODE HN).

5.6.8 AF Hum & Noise - Reference Value

:CONFigure:AF:ANALyzer:HN:REFeRence:VALue

:CONFigure:AF:ANALyzer:HN:REFeRence:VALue?

Description: Set command defines the reference value for AF Hum and Noise measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dB

Units: dB

Default Value: 12.0 dB

Set/Query Format: NRf | NR2

Example: :CONFigure:AF:ANALyzer:HN:REFeRence:VALue 1dB
Sets Hum & Noise Reference value to 1.0 dB.

Query Response: :CONFigure:AF:ANALyzer:HN:REFeRence:VALue?
1.00

NOTE

Query command returns HN Reference Value using
:CONFigure:AF:ANALyzer:HN:REFeRence command.

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.6.9 AF Hum & Noise - Upper Limit Enable

:LIMits:AF:HN:UPPer:ENABle

:LIMits:AF:HN:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for AF Hum and Noise measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:HN:UPPer:ENABle ON
Enables Upper Limit for Hum & Noise measurement.

Query Response: :LIMits:AF:HN:UPPer:ENABle?.
1

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.6.10 AF Hum & Noise - Upper Limit Value

:LIMits:AF:HN:UPPer:VALue

:LIMits:AF:HN:UPPer:VALue?

Description: Set command defines the Upper Limit Value for AF Hum and Noise measurement.

Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 10.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:AF:HN:UPPer:VALue 25dBr

Sets Lower Limit Value for AF Hum & Noise measurement to 25.0 dBr.

Query Response: :LIMits:AF:HN:UPPer:VALue?

25

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:AF:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.7 AF LEVEL MEASUREMENTS

5.7.1 AF Level - Averages

:CONFigure:AF:ANALyzer:LEVel:AVERage

:CONFigure:AF:ANALyzer:LEVel:AVERage?

Description: Set command defines the number of readings taken to calculate Average AF Level measurement.

Query command returns parameter setting.

Range: 1 to 250

Set/Query Format: NR1

Default Value: 1

Example: :CONFigure:AF:ANALyzer:LEVel:AVERage 75

Sets number of readings being taken to calculate Average AF Level measurement to 75.

Query Response: :CONFigure:AF:ANALyzer:LEVel:AVERage?
75

5.7.2 AF Level - Average Measurement Reset

:AF:ANALyzer:LEVel:CLEAR:AVG

Description: Command clears and resets Average AF Level measurement.

Parameter/Query: none

5.7.3 AF Level - Lower Limit Enable

:LIMits:AF:LEVel:LOWer:ENABLE

:LIMits:AF:LEVel:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for AF Level measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:AF:LEVel:LOWer:ENABLE ON

Enables Lower Limit for AF Level measurement.

Query Response: :LIMits:AF:LEVel:LOWer:ENABLE?
1

5.7.4 AF Level - Lower Limit Value

:LIMits:AF:LEVel:LOWer:VALue

:LIMits:AF:LEVel:LOWer:VALue?

Description: Set command defines the Lower Limit Value for AF Level measurement.
Query command returns parameter setting.

Range: 1.0 mV to 30.0 V

Units: mV | V | dBV | dBr | dBm

Default Value: 1.0 mV

Set/Query Format: NRf <units>| NR1 <units>

Example: :LIMits:AF:LEVel:LOWer:VALue 2V
Sets Lower Limit Value for AF Level measurement to 2 Volts.

Query Response: :LIMits:AF:LEVel:LOWer:VALue? mV
2000.0

NOTE

If units is not defined in Set or Query command, value defaults to units specified for AF Level measurements.
dBV is not valid when Audio Balanced (BAL) is selected as the Audio Input Source.

5.7.5 AF Level - Measurement Query

:FETCh:AF:ANALyzer:LEVel?

Description: Command return the AF Level measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg (NR2): V (Unbalanced)
dBm (Balanced)

Query Response: :FETCh:AF:ANALyzer:LEVel?
0,0,1,3.11

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid measurement data.

5.7.6 AF Level - Peak Measurement Reset

:AF:ANALyzer:LEVel:CLEAR:PEAK

Description: Command clears and resets Peak AF Level measurement.

Parameter/Query: none

5.7.7 AF Level - Upper Limit Enable

:LIMits:AF:LEVel:UPPer:ENABle

:LIMits:AF:LEVel:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for AF Level measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:AF:LEVel:UPPer:ENABle ON
Enables Upper Limit for AF Level measurement.

Query Response: :LIMits:AF:LEVel:UPPer:ENABle?
1

5.7.8 AF Level - Upper Limit Value

:LIMits:AF:LEVel:UPPer:VALue

:LIMits:AF:LEVel:UPPer:VALue?

Description: Set command define the Upper Limit Value for AF Level measurement.
Query command returns parameter setting.

Range: 1.0 mV to 30.0 V

Units: mV | V | dBV | dBr | dBm

Default Value: 10.0 V

Set/Query Format: NRf <units>| NR1 <units>

Example: :LIMits:AF:LEVel:UPPer:VALue 5V
Sets Upper Limit Value for AF Level measurement to 5 Volts

Query Response: :LIMits:AF:LEVel:UPPer:VALue? mV
5000.0

NOTE

If units is not defined in Set or Query command, value defaults to units specified for AF Level measurements.

dBV is not valid when Audio Balanced (BAL) is selected as the Audio Input Source.

5.8 AF SINAD MEASUREMENTS

5.8.1 AF Sinad - Averages

:CONFigure:AF:ANALyzer:SINad:AVERage
:CONFigure:AF:ANALyzer:SINad:AVERage?

Description: Set command defines the number of readings taken to calculate Average AF Sinad measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:AF:ANALyzer:SINad:AVERage 25

Sets number of readings taken to calculate Average AF Sinad measurement to 75.

Query Response: :CONFigure:AF:ANALyzer:SINad:AVERage?
75

5.8.2 AF Sinad - Average Measurement Reset

:AF:ANALyzer:SINad:CLEAR:AVG

Description: Command clears and resets Average AF Sinad measurement.

Parameter/Query: none

5.8.3 AF Sinad - Lower Limit Enable

:LIMits:AF:SINad:LOWer:ENABLE
:LIMits:AF:SINad:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for AF Sinad measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:SINad:LOWer:ENABLE ON
Enables Lower Limit for AF Sinad measurement.

Query Response: :LIMits:AF:SINad:LOWer:ENABLE?
1

5.8.4 AF Sinad - Lower Limit Value

:LIMits:AF:SINad:LOWer:VALue

:LIMits:AF:SINad:LOWer:VALue?

Description: Set command defines the Lower Limit Value for AF Sinad measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR1

Example: :LIMits:AF:SINad:LOWer:VALue 50dB
Sets Lower Limit Value for AF Sinad measurement to 50 dB.

Query Response: :LIMits:AF:SINad:LOWer:VALue?
50

5.8.5 AF Sinad - Measurement Query

:FETCh:AF:ANALyzer:SINad?

Description: Command returns Sinad measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>,<wc>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
2 = Average lower failed limit
8 = Worst Case lower failed limit

avgcount (NR1): value

avg, wc (NR2): dB

Query Response: :FETCh:AF:ANALyzer:SINad?
0,0,25,0.01,0.03

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid AF Sinad measurement data.

5.8.6 AF Sinad - Peak Measurement Reset

:AF:ANALyzer:SINad:CLEAR:PEAK

Description: Command clears and resets Peak AF Sinad measurement.

Parameter/Query: none

5.8.7 AF Sinad - Upper Limit Enable

:LIMits:AF:SINad:UPPer:ENABle

:LIMits:AF:SINad:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for AF Sinad measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:SINad:UPPer:ENABle ON
Enables Upper Limit for AF Sinad measurement.

Query Response: :LIMits:AF:SINad:UPPer:ENABle?
1

5.8.8 AF Sinad - Upper Limit Value

:LIMits:AF:SINad:UPPer:VALue

:LIMits:AF:SINad:UPPer:VALue?

Description: Set command defines the Upper Limit Value for AF Sinad measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0 dB

Units: dB

Default Value: 0.0 dB

Set/Query Format: NRf | NR1

Example: :LIMits:AF:SINad:UPPer:VALue 50dB
Set Upper Limit Value for AF Sinad measurement to 50 dB.

Query Response: :LIMits:AF:SINad:UPPer:VALue?
50

5.9 AF SNR MEASUREMENTS

5.9.1 AF SNR - Averages

:CONFigure:AF:ANALyzer:SNR:AVERAge

:CONFigure:AF:ANALyzer:SNR:AVERAge?

Description: Set command defines the number of readings taken to calculate Average AF SNR measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:AF:ANALyzer:SNR:AVERAge 75

Sets number of readings taken to calculate Average AF SNR measurement to 75.

Query Response: :CONFigure:AF:ANALyzer:SNR:AVERAge?
75

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Normal (:CONFigure:AF:ANALyzer:SNR:MODE 1) to obtain valid SNR measurement.

5.9.2 AF SNR - Average Measurement Reset

:AF:ANALyzer:SNR:CLEAR:AVG

Description: Command clears and resets Average AF Signal to Noise Ratio measurement.

Parameter/Query: none

5.9.3 AF SNR - Lower Limit Enable

:LIMits:AF:SNR:LOWer:ENABLE

:LIMits:AF:SNR:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for AF Signal to Noise Ratio measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:SNR:LOWer:ENABLE ON

Enables Lower Limit for AF SNR measurement.

Query Response: :LIMits:AF:SNR:LOWer:ENABLE?
1

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Normal (:CONFigure:AF:ANALyzer:SNR:MODE 1) to obtain valid SNR measurement.

5.9.4 AF SNR - Lower Limit Value

:LIMits:AF:SNR:LOWer:VALue

:LIMits:AF:SNR:LOWer:VALue?

Description: Set command defines the Lower Limit Value for AF Signal to Noise Ratio measurement.

Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 0.0 dBr

Set/Query Format: NRf | NR1

Example: :LIMits:AF:SNR:LOWer:VALue 50dBr

Sets Lower Limit Value for AF SNR measurement to 50.0 dBr.

Query Response: :LIMits:AF:SNR:LOWer:VALue?

50

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Normal (:CONFigure:AF:ANALyzer:SNR:MODE 1) to obtain valid SNR measurement.

5.9.5 AF SNR - Mode

:CONFigure:AF:ANALyzer:SNR:MODE

:CONFigure:AF:ANALyzer:SNR:MODE?

Description: Set command defines the SNR Meter Mode (Normal or Hum and Noise) when performing Signal to Noise Ratio measurement.

Query command returns parameter setting.

Parameter: 0 = Hum & Noise

1 = Normal

Default Value: 0

Set/Query Format: NR1

Example: :CONFigure:AF:ANALyzer:SNR:MODE 0

Sets AF Signal to Noise measurement to Hum & Noise measurement.

Query Response: :CONFigure:AF:ANALyzer:SNR:MODE?

0

NOTE

AF Analyzers Noise measurement type must be defined as SN for command to be valid (:AF:ANALyzer:NTYPE SN).

5.9.6 AF SNR - Peak Measurement Reset

:AF:ANALyzer:SNR:CLEAR:PEAK

Description: Command clears and resets Peak AF Signal to Noise Ratio measurement.

Parameter/Query: none

5.9.7 AF SNR - Measurement Query

:FETCh:AF:ANALyzer:SNR?

Description: Command returns AF Signal to Noise Ratio measurement data.

Query Data: <statusbyte>,<failbyte>,<avg>,<wc>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg (NR2): dB

Query Response: :FETCh:AF:ANALyzer:SNR?
0,0,25,-1.99

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Normal (:CONFigure:AF:ANALyzer:SNR:MODE 1) to obtain valid SNR measurement.
(*rci meter mode compatible: see :SYSTem:RCI :METER:MODE)

5.9.8 AF SNR - Upper Limit Enable

:LIMits:AF:SNR:UPPer:ENABLE

:LIMits:AF:SNR:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for AF Signal to Noise Ratio measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:AF:SNR:UPPer:ENABLE ON
Enables Upper Limit for AF SNR measurement.

Query Response: :LIMits:AF:SNR:UPPer:ENABLE?
1

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Normal (:CONFigure:AF:ANALyzer:SNR:MODE 1) to obtain valid SNR measurement.

5.9.9 AF SNR - Upper Limit Value

:LIMits:AF:SNR:UPPer:VALue

:LIMits:AF:SNR:UPPer:VALue?

Description: Set command defines the Upper Limit Value for AF Signal to Noise Ratio measurement.

Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 10.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:AF:SNR:UPPer:VALue 50dBr

Sets Upper Limit Value for AF SNR measurement to 50.0 dBr.

Query Response: :LIMits:AF:SNR:UPPer:VALue?
50

NOTE

AF Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:AF:ANALyzer:NTYPE SN) and SNR measurement defined as Normal (:CONFigure:AF:ANALyzer:SNR:MODE 1) to obtain valid SNR measurement.

5.10 BROADBAND POWER MEASUREMENTS

5.10.1 Broadband Power - Averages

:CONFigure:RF:ANALyzer:TRBPower:AVERage

:CONFigure:RF:ANALyzer:TRBPower:AVERage?

Description: Set command defines number of readings taken to calculate Average Broadband Power measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:RF:ANALyzer:TRBPower:AVERage 25
Sets number of readings taken to calculate Average Broadband Power measurement to 25.

Query Response: :CONFigure:RF:ANALyzer:TRBPower:AVERage?
25

5.10.2 Broadband Power - Lower Limit Enable

:LIMits:RF:TRBPower:LOWer:ENABLE

:LIMits:RF:TRBPower:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Broadband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RF:TRBPower:LOWer:ENABLE ON
Enables Lower Limit for Broadband Power measurement.

Query Response: :LIMits:RF:TRBPower:LOWer:ENABLE?
1

5.10.3 Broadband Power - Lower Limit Value

:LIMits:RF:TRBPower:LOWer:VALue

:LIMits:RF:TRBPower:LOWer:VALue?

Description: Set command defines Lower Limit Value for Broadband Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: mW | W | dBW | dBm

Default Value: 100.0 μ W

Set/Query Format: NRf | NR2 (W)

Example: :LIMits:RF:TRBPower:LOWer:VALue -45dBm
Sets Lower Limit Value for Broadband measurement to -45.0 dBm.

Query Response: :LIMits:RF:TRBPower:LOWer:VALue?
0.0

5.10.4 Broadband Power - Measurement Query

:FETCh:RF:ANALyzer:TRBPower? <units>

Description: Command returns Broadband Power measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg (NR2): <units>

Units: W | dBW | dBm

Query Response: :FETCh:RF:ANALyzer:TRBPower? DBW
1,5,1,0.0013

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
RF Input must be set to TR to return valid data.

5.10.5 Broadband Power - Units

:CONFigure:RF:ANALyzer:TRBPower:UNIts

:CONFigure:RF:ANALyzer:TRBPower:UNIts?

Description: Set command defines the unit of measurement for Broadband Power measurement.

Query command returns parameter setting.

Parameter: W | dBW | dBm

Default Value: W

Set/Query Format: CPD | CRD

Example: :CONFigure:RF:ANALyzer:TRBPower:UNIts DBW
Displays Broadband Power measurement in dBW.

Query Response: :CONFigure:RF:ANALyzer:TRBPower:UNIts?
DBW

5.10.6 Broadband Power - Upper Limit Enable

:LIMits:RF:TRBPower:UPPer:ENABLe

:LIMits:RF:TRBPower:UPPer:ENABLe?

Description: Set command Enables/Disables Upper Limit for Broadband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RF:TRBPower:UPPer:ENABLe ON
Enables Upper Limit for Broadband Power measurement.

Query Response: :LIMits:RF:TRBPower:UPPer:ENABLe?
1

5.10.7 Broadband Power - Upper Limit Value

:LIMits:RF:TRBPower:UPPer:VALue

:LIMits:RF:TRBPower:UPPer:VALue?

Description: Set command defines Upper Limit Value for Broadband Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: mW | W | dBW | dBm

Default Value: 100.0 μ W

Set/Query Format: NRf | NR2 (W)

Example: :LIMits:RF:TRBPower:UPPer:VALue -25dBm
Sets Upper Limit Value for Broadband Power measurement to -25.0 dBm.

Query Response: :LIMits:RF:TRBPower:UPPer:VALue?
0.0

5.11 FM DEVIATION MEASUREMENTS

5.11.1 FM Deviation - Averages

:CONFigure:MOD:ANALyzer:FM:AVERage

:CONFigure:MOD:ANALyzer:FM:AVERage?

Description: Set command defines number of readings taken to calculate Average FM Deviation measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:FM:AVERage 75

Sets number of readings taken to calculate Average FM Deviation measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:FM:AVERage?
75

5.11.2 FM Deviation - Average Measurement Reset

:MOD:ANALyzer:FM:CLEAR:AVG

Description: Command clears and resets Average FM Deviation measurement.

Parameter/Query: none

5.11.3 FM Deviation - Lower Limit Enable

:LIMits:MOD:FM:LOWer:ENABLE

:LIMits:MOD:FM:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for FM Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:FM:LOWer:ENABLE ON
Enables Lower Limit for FM Deviation measurement.

Query Response: :LIMits:MOD:FM:LOWer:ENABLE?
1

5.11.4 FM Deviation - Lower Limit Value

:LIMits:MOD:FM:LOWer:VALue

:LIMits:MOD:FM:LOWer:VALue?

Description: Set command defines Lower Limit Value for FM Deviation measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 150.0 kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FM:LOWer:VALue 1.0Hz

Sets Lower Limit Value for FM Deviation measurement to 1.0 Hz.

Query Response: :LIMits:MOD:FM:LOWer:VALue?
1.0

NOTE

Units defined by :CONFigure:MOD:ANALyzer:FM:UNIts command.

5.11.5 FM Deviation - Measurement Query

:FETCh:MOD:ANALyzer:FM?

Description: Command returns FM Deviation measurement data.

Query Data: <statusbyte>, <failbyte>, <avgcount>, <avg>, <max>, <min>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid
8 = Squelch

failbyte (NR1): 0 = All limit checks passed
1 = Peak to peak Upper Limit failed
2 = Peak to peak Lower Limit failed
4 = Positive peak Upper Limit failed
8 = Positive peak Lower Limit failed
16 = Negative Upper Limit failed
32 = Negative peak Lower Limit failed
64 = RMS peak Upper Limit failed
128 = RMS peak Lower Limit failed

avgcount (NR1): value

avg, max, min (NR2): Hz

Query Response: :FETCh:MOD:ANALyzer:FM?
0, 0, 1, 30.12, 43.47, 30.12

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be set to Analog to return valid measurement data.

5.11.6 FM Deviation - Peak Measurement Reset

:MOD:ANALyzer:FM:CLEAR:PEAK

Description: Command clears and resets Peak FM Deviation measurement.

Parameter/Query: none

5.11.7 FM Deviation - Units

:CONFigure:MOD:ANALyzer:FM:UNIts

:CONFigure:MOD:ANALyzer:FM:UNIts?

Description: Set command defines the unit of measurement for FM Deviation measurement.
Query command returns parameter setting.

Parameter: dBr | Hz

Default Value: Hz

Set/Query Format: CPD | CRD

Example: :CONFigure:MOD:ANALyzer:FM:UNIts dBr
Displays FM Deviation measurements in dBr.

Query Response: :CONFigure:MOD:ANALyzer:FM:UNIts?
dBr

NOTE

Command defines unit of measurement for Upper and Lower Limit commands.

5.11.8 FM Deviation - Upper Limit Enable

:LIMits:MOD:FM:UPPer:ENABle

:LIMits:MOD:FM:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for FM Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:FM:UPPer:ENABle ON
Enables Upper Limit for FM Deviation measurement.

Query Response: :LIMits:MOD:FM:UPPer:ENABle?
1

5.11.9 FM Deviation - Upper Limit Value

:LIMits:MOD:FM:UPPer:VALue

:LIMits:MOD:FM:UPPer:VALue?

Description: Set command defines Upper Limit Value for FM Deviation measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 150.0 kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FM:UPPer:VALue 2.0Hz
Sets Upper Limit Value for FM Deviation measurement to 2.0 Hz.

Query Response: :LIMits:MOD:FM:UPPer:VALue?
1.0

NOTE

Units defined by :CONFigure:MOD:ANALyzer:FM:UNIts command.

5.12 INBAND POWER MEASUREMENTS

5.12.1 Inband Power - Averages

:METERs:POWer:CHn:INBand:AVERaging

:METERs:POWer:CHn:INBand:AVERaging?

Description: Set command defines number of readings taken to calculate Average Inband Power measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:POWer:CH1:INBand:AVERaging 100

Sets the number of readings taken to calculate Channel 1 Inband Power measurements to 100.

Query Response: :METERs:POWer:CH1:INBand:AVERaging?

100

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.12.2 Inband Power - Average Measurement Reset

:METERs:POWer:CHn:INBand:CLEAR:AVG

Description: Command clears and resets Average Inband Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.12.3 Inband Power - Lower Limit Enable

:LIMits:POWer:CHn:INBand:LOWer:ENABLE

:LIMits:POWer:CHn:INBand:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Inband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:POWer:CH1:INBand:LOWer:ENABLE ON

Enables Lower Limit for Channel 1 Inband Power measurement.

Query Response: :LIMits:POWer:CH1:INBand:LOWer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.12.4 Inband Power - Lower Limit Value

:LIMits:POWer:CHn:INBand:LOWer:VALue

:LIMits:POWer:CHn:INBand:LOWer:VALue?

Description: Set command defines Lower Limit Value for Inband Power measurement.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dB μ V

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2

Example: :LIMits:POWer:CH1:INBand:LOWer:VALue -45dBm
Sets Lower Limit for Channel 1 Inband measurements to -45.0 dBm.

Query Response: :LIMits:POWer:CH1:INBand:LOWer:VALue?
0.0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.12.5 Inband Power - Peak Measurement Reset

:METERs:POWer:CHn:INBand:CLEAR:PEAK

Description: Command clears and resets Peak Inband Power measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.12.6 Inband Power - Measurement Query

:METERs:POWer:CHn:INBand:STATUs?

Description: Command returns Inband Power measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask
 0x0 = Valid
 0x1 = Invalid
 0x2 = Inaccurate
 0x4 = Settling
 0x8 = Squelch

failbyte (NR1): Bitmask
 0x80 = WC Lower Limit
 0x40 = WC Upper Limit
 0x20 = Avg Lower Limit
 0x10 = Avg Upper Limit
 0x08 = Max Lower Limit
 0x04 = Max Upper Limit
 0x02 = Min Lower Limit
 0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):	0 = No Units	5 = dB	10 = dBμV	15 = Vrms
	1 = %	6 = dBm	11 = W	16 = dBr
	2 = Hz	7 = V	12 = mW	17 = dBV
	3 = kHz	8 = mV	13 = μW	18 = mHz
	4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:POWer:CH1:INBand:STATUs?
 0,0,3 100.00, -30.183, -30.140, -30.241,6

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.
 Protocol must be defined as ANALOG to return valid measurement data.

5.12.7 Inband Power - Units

:METERs:POWer:INBand:UNIts

:METERs:POWer:INBand:UNIts?

Description: Set command defines the unit of measurement for Inband Power measurement. Query command returns parameter setting.

Parameter: dBm | W | dBW | V | dBμV

Default Value: dBm

Set/Query Format: CPD | CRD

Example: :METERs:POWer:INBand:UNIts W
 Displays Inband Power measurements in Watts.

Query Response: :METERs:POWer:INBand:UNIts?
 W

5.12.8 Inband Power - Upper Limit Enable

:LIMits:POWer:CHn:INBand:UPPer:ENABle

:LIMits:POWer:CHn:INBand:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Inband Power measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:POWer:CH1:INBand:UPPer:ENABle ON
Enables Upper Limit for Channel 1 Inband Power measurement.

Query Response: :LIMits:POWer:CH1:INBand:UPPer:ENABle?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.12.9 Inband Power - Upper Limit Value

:LIMits:POWer:CHn:INBand:UPPer:VALue

:LIMits:POWer:CHn:INBand:UPPer:VALue?

Description: Set command defines the Upper Limit Value for Inband Power measurement
Upper.
Query command returns parameter setting.

Range: -140.0 to +70.0 dBm

Units: W | dBW | dBm | V | dB μ V

Default Value: 0.0 dBm

Set/Query Format: NRf | NR2

Example: :LIMits:POWer:CH1:INBand:UPPer:VALue -25dBm
Sets Upper Limit for Channel 1 Inband Power Measurement to -25.0 dBm.

Query Response: :LIMits:POWer:CH1:INBand:UPPer:VALue?
0.0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

5.13 MODULATION DISTORTION MEASUREMENTS

5.13.1 Modulation Distortion - Averages

:CONFigure:MOD:ANALyzer:DISToRtion:AVERage

:CONFigure:MOD:ANALyzer:DISToRtion:AVERage?

Description: Set command defines number of readings taken to calculate Average Modulation Distortion measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:DISToRtion:AVERage 75

Sets number of readings taken to calculate Average Modulation Distortion measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:DISToRtion:AVERage?
75

5.13.2 Modulation Distortion - Average Measurement Reset

:MOD:ANALyzer:DISToRtion:CLEAR:AVG

Description: Command clears and resets Average Modulation Distortion measurement.

Parameter/Query: none

5.13.3 Modulation Distortion - Lower Limit Enable

:LIMits:MOD:DISToRtion:LOWer:ENABLE

:LIMits:MOD:DISToRtion:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Modulation Distortion measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:DISToRtion:LOWer:ENABLE ON

Enables Lower Limit for Modulation Distortion measurement.

Query Response: :LIMits:MOD:DISToRtion:LOWer:ENABLE?
1

5.13.4 Modulation Distortion - Lower Limit Value

:LIMits:MOD:DISToRtion:LOWer:VALue

:LIMits:MOD:DISToRtion:LOWer:VALue?

Description: Set command defines Lower Limit Value for Modulation Distortion measurement.

Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:DISToRtion:LOWer:VALue 1.0

Sets Lower Limit Value for Modulation Distortion measurement to 1.0%.

Query Response: :LIMits:MOD:DISToRtion:LOWer:VALue?

1.0

5.13.5 Modulation Distortion - Measurement Query

:FETCh:MOD:ANALyzer:DISToRtion?

Description: Command returns Modulation Distortion measurement data.

Query Data: <statusbyte>,<failbyte>,<avgvount>,<avg%>,<wc%>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
4 = Worst case upper failed limit

avgcount (NR1): value

avg, wc (NR2): %

Query Response: :FETCh:MOD:ANALyzer:DISToRtion?

0,0,1,99.59,99.99

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask. Protocol must be defined as Analog to obtain valid Modulation Distortion measurements data.

5.13.6 Modulation Distortion - Peak Measurement Reset

:MOD:ANALyzer:DISToRtion:CLEAR:PEAK

Description: Command clears and resets Peak Modulation Distortion measurement.

Parameter/Query: none

5.13.7 Modulation Distortion - Upper Limit Enable

:LIMits:MOD:DIS TORTion:UPPer:ENABle

:LIMits:MOD:DIS TORTion:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Modulation Distortion measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:DIS TORTion:UPPer:ENABle ON

Enables Upper Limit for Modulation Distortion measurement.

Query Response: :LIMits:MOD:DIS TORTion:UPPer:ENABle?

1

5.13.8 Modulation Distortion - Upper Limit Value

:LIMits:MOD:DIS TORTion:UPPer:VALue

:LIMits:MOD:DIS TORTion:UPPer:VALue?

Description: Set command defines Upper Limit Value for Modulation Distortion measurement.

Query command returns parameter setting.

Range: 0.0 to 100.0%

Units: % (percent)

Default Value: 0.0%

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:DIS TORTion:UPPer:VALue 1.0

Sets Upper Limit Value for Modulation Distortion measurements to 1.0%.

Query Response: :LIMits:MOD:DIS TORTion:UPPer:VALue?

1.0

5.14 MODULATION FREQUENCY MEASUREMENTS

5.14.1 Modulation Frequency - Averages

:CONFigure:MOD:ANALyzer:FREQuency:AVERage

:CONFigure:MOD:ANALyzer:FREQuency:AVERage?

Description: Set command defines number of readings taken to calculate average Modulation Frequency measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:FREQuency:AVERage 75

Sets number of readings taken to calculate Average Modulation Frequency measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:FREQuency:AVERage?
75

5.14.2 Modulation Frequency - Average Measurement Reset

:MOD:ANALyzer:FREQuency:CLEAR:AVG

Description: Command clears and resets Average Modulation Frequency measurement.

Parameter/Query: none

5.14.3 Modulation Frequency - Lower Limit Enable

:LIMits:MOD:FREQuency:LOWer:ENABLE

:LIMits:MOD:FREQuency:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Modulation Frequency measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:MOD:FREQuency:LOWer:ENABLE ON

Enables Lower Limit for Modulation Frequency measurement.

Query Response: :LIMits:MOD:FREQuency:LOWer:ENABLE?
1

5.14.4 Modulation Frequency - Lower Limit Value

:LIMits:MOD:FREQuency:LOWer:VALue

:LIMits:MOD:FREQuency:LOWer:VALue?

Description: Set command defines the Lower Limit Value Modulation Frequency measurement.

Query command returns parameter setting.

Range: 0.0 Hz to 20.0 kHz

Units: Hz | kHz

Default Value: 0.0 kHz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FREQuency:LOWer:VALue 1.0Hz

Sets Lower Limit Value for Modulation Frequency measurement to 1.0 Hz.

Query Response: :LIMits:MOD:FREQuency:LOWer:VALue?

1.0

5.14.5 Modulation Distortion - Measurement Query

:FETCh:MOD:ANALyzer:DISToRtion?

Description: Command returns Modulation Distortion measurement data.

Query Data: <statusbyte>,<failbyte>,<avgvount>,<avg%>,<wc%>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
4 = Worst case upper failed limit

avgcount (NR1): value

avg, wc (NR2): %

Query Response: :FETCh:MOD:ANALyzer:DISToRtion?

0,0,1,99.59,99.99

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask. Protocol must be defined as Analog to obtain valid Modulation Distortion measurements data.

5.14.6 Modulation Distortion - Peak Measurement Reset

:MOD:ANALyzer:DISToRtion:CLEAR:PEAK

Description: Command clears and resets Peak Modulation Distortion measurement.

Parameter/Query: none

5.14.7 Modulation Frequency - Sub-Audible Deviation Filter

:CONFigure:MOD:ANALyzer:SAUDDEV:FILter

:CONFigure:MOD:ANALyzer:SAUDDEV:FILter?

Description: Set command selects Sub-Audible filter to include in Demod Frequency path.
Query command returns parameter setting.

Parameter: HP300HZ | LP300HZ

Default Value: 300 Hz HP

Set/Query Format: CPD | CRD

Example: :CONFigure:MOD:ANALyzer:SAUDDEV:FILter LP300HZ
Selects 300 Hz LP Sub-Audible Filter for Demod Frequency path.

Query Response: :CONFigure:MOD:ANALyzer:SAUDDEV:FILter?
LP300HZ

NOTE

This command is only valid for SmartNet™/SmartZone™ protocol when configured for Analog Modulation.

5.14.8 Modulation Frequency - Upper Limit Enable

:LIMits:MOD:FREQuency:UPPer:ENABLE

:LIMits:MOD:FREQuency:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Modulation Frequency measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:MOD:FREQuency:UPPer:ENABLE ON
Enables Upper Limit for Modulation Frequency measurement.

Query Response: :LIMits:MOD:FREQuency:UPPer:ENABLE?
1

5.14.9 Modulation Frequency - Upper Limit Value

:LIMits:MOD:FREQuency:UPPer:VALue

:LIMits:MOD:FREQuency:UPPer:VALue?

Description: Set command defines the Upper Limit Value for Modulation Frequency measurement.
Query command returns parameter setting.

Range: 0.0 Hz to 20.0 kHz

Units: Hz | kHz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:FREQuency:UPPer:VALue 2.0Hz
Sets Upper Limit Value for Modulation Frequency measurement to 2.0 Hz.

Query Response: :LIMits:MOD:FREQuency:UPPer:VALue?
1.0

5.15 MODULATION HUM & NOISE MEASUREMENTS

5.15.1 Mod Hum & Noise - Averages

:CONFigure:MOD:ANALyzer:HN:AVERage

:CONFigure:MOD:ANALyzer:HN:AVERage?

Description: Set command defines number of readings taken to calculate the Average Mod Hum & Noise measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:HN:AVERage 75

Sets number of readings taken to calculate Average Mod Distortion measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:HN:AVERage?
75

5.15.2 Mod Hum & Noise - Average Measurement Reset

:MOD:ANALyzer:HN:CLEAR:AVG

Description: Command clears and resets Average Mod Hum & Noise measurement.

Parameter/Query: none

5.15.3 Mod Hum & Noise - Lower Limit Enable

:LIMits:MOD:HN:LOWer:ENABLE

:LIMits:MOD:HN:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Mod Hum & Noise measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:HN:LOWer:ENABLE ON

Enables Lower Limit for Mod Hum & Noise measurement.

Query Response: :LIMits:MOD:HN:LOWer:ENABLE?
1

5.15.4 Mod Hum & Noise - Lower Limit Value

:LIMits:MOD:HN:LOWer:VALue

:LIMits:MOD:HN:LOWer:VALue?

Description: Set command defines Lower Limit Value for Mod Hum & Noise measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 0.0 dBr

Set/Query Format: NRf | NR1

Example: :LIMits:MOD:HN:LOWer:VALue -50dBr
Sets Lower Limit Value for Mod Hum & Noise measurement to -50.0 dBr.

Query Response: :LIMits:MOD:HN:LOWer:VALue?
-50

5.15.5 Mod Hum & Noise - Peak Measurement Reset

:MOD:ANALyzer:HN:CLEAR:PEAK

Description: Command clears and resets Peak Mod Hum & Noise measurement.

Parameter/Query: none

5.15.6 Mod Hum & Noise - Measurement Query

:FETCh:MOD:ANALyzer:HN?

Description: Command returns Mod and Noise measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>,<wc>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid
8 = Squelch

failbyte (NR1): 0 = All limit checks passed
2 = Average lower failed limit
8 = Worst case lower failed limit

avgcount (NR1): value

avg, wc (NR2): dB

Query Response: :FETCh:MOD:ANALyzer:HN?
4,4,13,62.35,75.68

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Mod Analyzer Noise measurement type must be defined as Signal to Noise Ratio (:MOD:ANALyzer:NTYPE SN) and SNR measurement defined as Hum & Noise (:CONFigure:MOD:ANALyzer:SNR:MODE 0) to obtain valid Hum & Noise measurement.

5.15.7 Mod Hum & Noise - Reference Lock

:CONFigure:MOD:ANALyzer:HN:REFeRence

Description: Command locks Mod Hum and Noise reference to current meter reading.

Parameter/Query: none

NOTE

SNR measurement must be defined as Hum & Noise to obtain valid Hum & Noise measurement (:CONFigure:MOD:ANALyzer:SNR:MODE HN).

5.15.8 Mod Hum & Noise - Reference Value

:CONFigure:MOD:ANALyzer:HN:REFeRence:VALue

:CONFigure:MOD:ANALyzer:HN:REFeRence:VALue?

Description: Set command defines the reference for Modulation Analyzer Hum and Noise measurement.

Query command returns parameter setting.

Range: -100.0 to +100.0 dB

Units: dB

Default Value: 12.0 dB

Set/Query Format: NRf | NR2

Example: :CONFigure:MOD:ANALyzer:HN:REFeRence:VALue 1dB
Sets Hum & Noise Reference value to 1.0 dB.

Query Response: :CONFigure:MOD:ANALyzer:HN:REFeRence:VALue?

1

5.15.9 Mod Hum & Noise - Upper Limit Enable

:LIMits:MOD:HN:UPPer:ENABle

:LIMits:MOD:HN:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Mod Hum & Noise measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:HN:UPPer:ENABle ON
Enables Upper Limit for Mod Hum & Noise measurement.

Query Response: :LIMits:MOD:HN:UPPer:ENABle?

1

5.15.10 Mod Hum & Noise - Upper Limit Value

:LIMits:MOD:HN:UPPer:VALue

:LIMits:MOD:HN:UPPer:VALue?

Description: Set command defines Upper Limit Value for Hum and Noise measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 10.0 dBr

Set/Query Format: NRf | NR1

Example: :LIMits:MOD:HN:UPPer:VALue 75dBr

Sets Upper Limit Value for Mod Hum & Noise measurement to 75.0 dBr.

Query Response: :LIMits:MOD:HN:UPPer:VALue?

75

5.16 MODULATION SINAD MEASUREMENTS

5.16.1 Modulation Sinad - Averages

:CONFigure:MOD:ANALyzer:SINad:AVERage

:CONFigure:MOD:ANALyzer:SINad:AVERage?

Description: Set command defines number of readings taken to calculate the Average Modulation Sinad measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:SINad:AVERage 25

Sets number of readings taken to calculate Average Modulation Sinad measurement to 75.

Query response: :CONFigure:MOD:ANALyzer:SINad:AVERage?
75

5.16.2 Modulation Sinad - Average Measurement Reset

:MOD:ANALyzer:SINad:CLEAR:AVG

Description: Command clears and resets Average Modulation Sinad measurement.

Parameter/Query: none

5.16.3 Modulation Sinad - Lower Limit Enable

:LIMits:MOD:SINad:LOWer:ENABLE

:LIMits:MOD:SINad:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Modulation Sinad measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Set/Query Format: Boolean

Default Value: OFF

Example: :LIMits:MOD:SINad:LOWer:ENABLE ON

Enables Lower Limit for Modulation Sinad measurement.

Query Response: :LIMits:MOD:SINad:LOWer:ENABLE?
1

5.16.4 Modulation Sinad - Lower Limit Value

:LIMits:MOD:SINad:LOWer:VALue

:LIMits:MOD:SINad:LOWer:VALue?

Description: Set command defines Lower Limit Value for Modulation Sinad measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0 dB

Units: dB

Default Value: 26.0 dB

Set/Query Format: NRf | NR1

Example: :LIMits:MOD:SINad:LOWer:VALue 30dB
Sets Lower Limit for Modulation Sinad measurement to 30 dB.

Query Response: :LIMits:MOD:SINad:LOWer:VALue?
30

5.16.5 Modulation Sinad - Measurement Query

:FETCh:MOD:ANALyzer:SINad?

Description: Command returns Modulation Sinad measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>,<wc>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid
8 = Squelch

failbyte (NR1): 0 = All limit checks passed
2 = Average lower failed limit
8 = Worst Case lower failed limit

avgcount (NR1): value

avg, wc (NR2): dB

Query Response: :FETCh:MOD:ANALyzer:SINad?
0,0,1,0.15,0.19

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be defined as Analog to return valid measurement data.

5.16.6 Modulation Sinad - Peak Measurement Reset

:MOD:ANALyzer:SINad:CLEAR:PEAK

Description: Command clears and resets Peak Modulation Sinad measurement.

Parameter/Query: none

5.16.7 Modulation Sinad - Upper Limit Enable

:LIMits:MOD:SINad:UPPer:ENABle

:LIMits:MOD:SINad:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Modulation Sinad measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example :LIMits:MOD:SINad:UPPer:ENABle ON
Enables Upper Limit for Modulation Sinad measurement.

Query Response: :LIMits:MOD:SINad:UPPer:ENABle?
1

5.16.8 Modulation Sinad - Upper Limit Value

:LIMits:MOD:SINad:UPPer:VALue

:LIMits:MOD:SINad:UPPer:VALue?

Description: Set command defines the Upper Limit Value for Modulation Sinad measurement.
Query command returns parameter setting.

Range: 0.0 to 100.0 dB

Units: dB

Default Value: 26.0 dB

Set/Query Format: NRf | NR1

Example: :LIMits:MOD:SINad:UPPer:VALue 30dB
Sets Upper Limit Value for Modulation Sinad measurement to 30 dB.

Query Response: :LIMits:MOD:SINad:UPPer:VALue?
30

5.17 MODULATION SNR MEASUREMENTS

5.17.1 Mod SNR - Averages

:CONFigure:MOD:ANALyzer:SNR:AVERAge

:CONFigure:MOD:ANALyzer:SNR:AVERAge?

Description: Set command defines number of readings taken to calculate Average Mod Signal to Noise Ratio measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:SNR:AVERAge 75

Sets number of readings taken to calculate Average Mod SNR measurement to 75.

Query Response: :CONFigure:MOD:ANALyzer:SNR:AVERAge?
75

5.17.2 Mod SNR - Average Measurement Reset

:MOD:ANALyzer:SNR:CLEAR:AVG

Description: Command clears and resets Average Mod SNR measurement.

Parameter/Query: none

5.17.3 Mod Hum & Noise - Lower Limit Enable

:LIMits:MOD:HN:LOWer:ENABLE

:LIMits:MOD:HN:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Mod Hum & Noise measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:HN:LOWer:ENABLE ON

Enables Lower Limit for Mod Hum & Noise measurement.

Query Response: :LIMits:MOD:HN:LOWer:ENABLE?
1

5.17.4 Mod Hum & Noise - Lower Limit Value

:LIMits:MOD:HN:LOWer:VALue

:LIMits:MOD:HN:LOWer:VALue?

Description: Set command defines Lower Limit Value for Mod Hum & Noise measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 0.0 dBr

Set/Query Format: NRf | NR1

Example: :LIMits:MOD:HN:LOWer:VALue -50dBr

Sets Lower Limit Value for Mod Hum & Noise measurement to -50.0 dBr.

Query Response: :LIMits:MOD:HN:LOWer:VALue?

-50

5.17.5 Mod SNR - Mode

:CONFigure:MOD:ANALyzer:SNR:MODE

:CONFigure:MOD:ANALyzer:SNR:MODE?

Description: Set command defines the SNR Meter Mode (Normal or Hum and Noise) when performing Signal to Noise Ratio measurement.
Query command returns parameter setting.

Parameter: 0 = Hum & Noise
1 = Normal

Default Value: 0 (Hum & Noise)

Set/Query Format: NR1

Example: :CONFigure:MOD:ANALyzer:SNR:MODE 0

Sets Mod SNR measurement to Hum & Noise.

Query Response: :CONFigure:MOD:ANALyzer:SNR:MODE?

0

5.17.6 Mod SNR - Peak Measurement Reset

:MOD:ANALyzer:SNR:CLEAR:PEAK

Description: Command clears and resets Peak Mod SNR measurement.

Parameter/Query: none

5.17.7 Mod SNR - Measurement Query

:FETCh:MOD:ANALyzer:SNR?

Description: Command returns Modulation Signal to Noise Ratio measurement data.

Query Data: <statusbyte>,<failbyte>,<avg>,<wc>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid
8 = Squelch

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg, wc (NR2): dB

Query Response: :FETCh:MOD:ANALyzer:SNR?
0,2,1,-0.00,13.02

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Mod Analyzer Noise measurement type must be defined as SNR to return valid
Mod SNR measurement data (:MOD:ANALyzer:NTYPE SN.)
(*rci meter mode compatible: see :SYSTem:RCI :METER:MODE)

5.17.8 Mod SNR - Upper Limit Enable

:LIMits:MOD:SNR:UPPer:ENABLE

:LIMits:MOD:SNR:UPPer:ENABLE?

Description: Set command Enables/Disables Upper Limit for Mod SNR measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:MOD:SNR:UPPer:ENABLE ON
Enables Upper Limit for Mod SNR measurement.

Query Response: :LIMits:MOD:SNR:UPPer:ENABLE?
1

5.17.9 Mod SNR - Upper Limit Value

:LIMits:MOD:SNR:UPPer:VALue

:LIMits:MOD:SNR:UPPer:VALue?

Description: Set command defines the Upper Limit Value for Mod SNR measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 0.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:SNR:UPPer:VALue 50dBr
Sets Upper Limit Value for Mod SNR measurement to 50.0 dBr.

Query Response: :LIMits:MOD:SNR:UPPer:VALue?
50

5.18 RF ERROR MEASUREMENTS

5.18.1 RF Error - Averages

:CONFigure:RF:ANALyzer:RFERRor:AVERage

:CONFigure:RF:ANALyzer:RFERRor:AVERage?

Description: Set command defines number of readings taken to calculate Average RF Error measurement.

Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :CONFigure:RF:ANALyzer:RFERRor:AVERage 75

Sets number of readings taken to calculate Average RF Error measurement to 75.

Query Response: :CONFigure:RF:ANALyzer:RFERRor:AVERage?
75

5.18.2 RF Error - Average Measurement Reset

:RF:ANALyzer:RFERRor:CLEAR:AVG

Description: Command clears and resets Average RF Error measurement.

Parameter/Query: none

5.18.3 RF Error - Frequency Resolution Value

:CONFigure:RF:ANALyzer:RFERRor:FRESolution

:CONFigure:RF:ANALyzer:RFERRor:FRESolution?

Description: Set command defines RF Error Frequency Resolution.

Query command returns parameter setting.

Parameter: 1 | 10

Units: Hz

Default Value: 1 Hz

Set/Query Format: NRf | NR1

Example: :CONFigure:RF:ANALyzer:RFERRor:FRESolution 10

Sets RF Error Frequency Resolution to 10 Hz.

Query Response: :CONFigure:RF:ANALyzer:RFERRor:FRESolution?
10

5.18.4 RF Error - Lower Limit Enable

:LIMits:RF:RFERRor:LOWer:ENABle

:LIMits:RF:RFERRor:LOWer:ENABle?

Description: Set command Enables/Disables Lower Limit for RF Error measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RF:RFERRor:LOWer:ENABle ON
Enables Lower Limit for RF Error measurement.

Query Response: :LIMits:RF:RFERRor:LOWer:ENABle?
1

5.18.5 RF Error - Lower Limit Value

:LIMits:RF:RFERRor:LOWer:VALue

:LIMits:RF:RFERRor:LOWer:VALue?

Description: Set command defines the Lower Limit Value for RF Error measurement.
Query command returns parameter setting.

Range: -5000000.0 to +5000000.0 Hz
PPM: 0 to 1000

Units: Hz | PPM

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2 (Hz)

Command Example: :LIMits:RF:RFERRor:LOWer:VALue 1000Hz

Sets Lower Limit Value for RF Error measurement to 1000.0 Hz.

Query Response: :LIMits:RF:RFERRor:LOWer:VALue?
1000

5.18.6 RF Error - Measurement Query

:FETCh:RF:ANALyzer:RFERRor?

Description: Command returns RF Error measurement data.

Query Data: <statusbyte>,<failbyte>,<avgcount>,<avg>,<max>

statusbyte (NR1): 0 = Valid
1 = Invalid
2 = Settling
4 = Inaccurate
6 = Settling and Inaccurate
7 = Settling, Inaccurate and Invalid

failbyte (NR1): 0 = All limit checks passed
1 = Average upper failed limit
2 = Average lower failed limit

avgcount (NR1): value

avg, wc (NR2): dB

Query Response: :FETCh:RF:ANALyzer:RFERRor?
0,0,1,874.77,2437.64

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.

5.18.7 RF Error - Peak Measurement Reset

:RF:ANALyzer:RFERRor:CLEAR:PEAK

Description: Command clears and resets Peak RF Error measurement.

Parameter/Query: none

5.18.8 RF Error - Units

:CONFigure:RF:ANALyzer:RFERRor:UNIts

:CONFigure:RF:ANALyzer:RFERRor:UNIts?

Description: Set command defines the unit of measurement for RF Error measurement.
Query command returns parameter setting.

Parameter: Hz | PPM

Default Value: Hz

Set/Query Format: CPD | CRD

Example: :CONFigure:RF:ANALyzer:RFERRor:UNIts PPM
Displays RF Error measurement in PPM.

Query Response: :CONFigure:RF:ANALyzer:RFERRor:UNIts?
PPM

5.18.9 RF Error - Upper Limit Enable

:LIMits:RF:RFERRor:UPPer:ENABle

:LIMits:RF:RFERRor:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for RF Error measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:RF:RFERRor:UPPer:ENABle ON
Enables Upper Limit for RF Error measurement.

Query Response: :LIMits:RF:RFERRor:UPPer:ENABle?
1

5.18.10 RF Error - Upper Limit Value

:LIMits:RF:RFERRor:UPPer:VALue

:LIMits:RF:RFERRor:UPPer:VALue?

Description: Set command defines the Upper Limit Value for RF Error measurement.
Query command returns the Upper Limit Value defined for RF Error measurement.

Range: Hz: -5000000.0 to +5000000.0
PPM: 0 to 1000

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:RF:RFERRor:UPPer:VALue 1000Hz
Sets Upper Limit Value for RF Error measurements to 1000.0 Hz.

Query Response: :LIMits:RF:RFERRor:UPPer:VALue?
1000

5.19 SUB-AUDIBLE DEVIATION MEASUREMENTS

5.19.1 Sub Audible Deviation - Averages

:METERs:SAUDDEV:CHn:AVERaging
:METERs:SAUDDEV:CHn:AVERaging?

Description: Set command defines number of readings used to calculate Average Sub Audible Deviation measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:SAUDDEV:CH1:AVERaging 100
Sets the number of readings taken to calculate Channel 1 Average Sub Audible Deviation measurement to 100.

Query Response: :METERs:SAUDDEV:CH1:AVERaging?
100

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.2 Sub Audible Deviation - Average Measurement Reset

:METERs:SAUDDEV:CHn:CLEAR:AVG

Description: Command clears and resets Average Sub Audible Deviation measurement.

Parameter/Query: none

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.3 Sub Audible Deviation - Lower Limit Enable

:LIMits:SAUDDev:CHn:LOWer:ENABLE
:LIMits:SAUDDev:CHn:LOWer:ENABLE?

Description: Set command Enables/Disables Lower Limit for Sub Audible Deviation measurement.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:SAUDDev:CH1:LOWer:ENABLE ON
Enables Lower Limit for Channel 1 Sub Audible Deviation measurement.

Query Response: :LIMits:SAUDDev:CH1:LOWer:ENABLE?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.4 Sub Audible Deviation - Lower Limit Value

:LIMits:SAUDDEV:CHn:LOWer:VALue

:LIMits:SAUDDEV:CHn:LOWer:VALue?

Description: Set command defines Lower Limit Value for Sub Audible Deviation measurement.

Query command returns parameter setting.

Range: 0.0 to 100.0 kHz

Units: kHz

Default Value: 0.0 kHz

Set/Query Format: NRf | NR2

Example: :LIMits:SAUDDEV:CH1:LOWer:VALue 50kHz

Sets Lower Limit Value for Channel 1 Sub Audible Deviation measurement to 50.0 kHz.

Query Response: :LIMits:SAUDDEV:CH1:LOWer:VALue?
50.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.5 Sub Audible Deviation - Measurement Query

:METERs:SAUDDEV:CHn:STATus?

Description: Command returns Sub Audible Deviation measurement data.

Query Data: <statusbyte>,<failbyte>,<precision>,<percentage>,<avg>,<max>,<min>,<units>

statusbyte (NR1): Bitmask

0x0 = Valid
0x1 = Invalid
0x2 = Inaccurate
0x4 = Settling
0x8 = Squelch

failbyte (NR1): Bitmask

0x80 = WC Lower Limit	0x08 = Max Lower Limit
0x40 = WC Upper Limit	0x04 = Max Upper Limit
0x20 = Avg Lower Limit	0x02 = Min Lower Limit
0x10 = Avg Upper Limit	0x01 = Min Upper Limit

precision (NR1): Value indicates number of numerals that follow the decimal point in returned average, maximum and minimum readings.

percentage (NR1): Percentage value indicates the percentage of averaging completed when remote command was issued.

avg,max,min (NR2): <units>

units (NR1):

0 = No Units	5 = dB	10 = dBμV	15 = Vrms
1 = %	6 = dBm	11 = W	16 = dBr
2 = Hz	7 = V	12 = mW	17 = dBV
3 = kHz	8 = mV	13 = μW	18 = mHz
4 = MHz	9 = μV	14 = dBW	19 = μs

Query Response: :METERs:SAUDDEV:CH1:STATus?
0,0,3 100.00, 0.054, 10.00, 0.000,3

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.6 Sub Audible Deviation - Peak Measurement Reset**:METERs:SAUDDEV:CHn:CLEAR:PEAK****Description:** Command clears and resets Peak Sub Audible Deviation measurement.**Parameter/Query:** none**NOTE**

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.7 Sub Audible Deviation - Upper Limit Enable**:LIMITs:SAUDDEV:CHn:UPPer:ENABLE****:LIMITs:SAUDDEV:CHn:UPPer:ENABLE?****Description:** Set command Enables/Disables Upper Limit for Sub Audible Deviation measurement.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1**Default Value:** OFF**Set/Query Format:** Boolean**Example:** :LIMITs:SAUDDEV:CH1:UPPer:ENABLE ON

Enables Upper Limit for Channel 1 Sub Audible Deviation measurement.

Query Response: :LIMITs:SAUDDEV:CH1:UPPer:ENABLE?

1

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

5.19.8 Sub Audible Deviation - Upper Limit Value**:LIMITs:SAUDDEV:CHn:UPPer:VALue****:LIMITs:SAUDDEV:CHn:UPPer:VALue?****Description:** Set command defines Upper Limit Value for Sub Audible Deviation measurement.

Query command returns parameter setting.

Range: 0.0 to 100.0 kHz**Units:** kHz**Default Value:** 0.0 kHz**Set/Query Format:** NRf | NR2 (kHz)**Example:** :LIMITs:SAUDDEV:CH1:UPPer:VALue 75kHz

Sets Upper Limit Value for Channel 1 Sub Audible Deviation measurement to 75.0 Hz.

Query Response: :LIMITs:SAUDDEV:CH1:UPPer:VALue?

75.00

NOTE

CHn = 1 or 2 (Channel 1 or 2).

Command only valid when SmartNet/SmartZone option is installed in Test Set.

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Chapter 6 - Modulation Accuracy and Power Remote Commands

6.1 INTRODUCTION

This chapter describes the Remote Commands for configuring and returning P25 Modulation Accuracy graph data. Remote commands are listed alphabetically under Tile names.

6.2 FREQUENCY CONSTELLATION GRAPH

6.2.1 Frequency Constellation - Persistence

:FREQUENCY:CONSTELLATION:PERSISTENCE

:FREQUENCY:CONSTELLATION:PERSISTENCE?

Description: Set command sets Persistence on Constellation and Frequency Constellation graph.

Query command returns parameter setting.

Range: 1 to 10

Default Value: 1

Set/Query Format: NR1

Example: :FREQUENCY:CONSTELLATION:PERSISTENCE 5
Sets Frequency Constellation graph Persistence to 5.

Query Response: :FREQUENCY:CONSTELLATION:PERSISTENCE?
5

NOTE

Frequency Constellation on valid when LSM Option is installed in Test Set.

6.2.2 Frequency Constellation - Trace Enable

:FREQUENCY:CONSTELLATION:TRACE:ENABLE

:FREQUENCY:CONSTELLATION:TRACE:ENABLE?

Description: Set command Enables/Disables Constellation and Frequency Constellation trace.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :FREQUENCY:CONSTELLATION:TRACE:ENABLE ON
Enables Constellation and Frequency Constellation trace.

Query Response: :FREQUENCY:CONSTELLATION:TRACE:ENABLE?
1

NOTE

Frequency Constellation on valid when LSM Option is installed in Test Set.

6.2.3 Frequency Constellation - Trace Query

:FREQuency:CONStellation:TRACe:LIVE?

Description: Command returns coordinate data for Constellation and Frequency Constellation graph.

Query Data: <channel>,<valid slot>,<#pairs>,<coordinate data>

channel: 1 | 2

valid slot (NR1): 0 = Slot 0

1 = Slot 1

2 = Inbound, both slots

3 = Outbound, both slots

#pairs (NR1): Number of x,y coordinate pairs to follow

Number of pairs returned is dependent on Protocol, Modulation and signal type of the received signal (see tabel below).

x, y data (NR2): coordinate value

Query Response: :FREQuency:CONStellation:TRACe:LIVE?

1,1,288,-1871.37,0.00,629.98,0.00,-1796.91,0.00,-619.88,0.00,-574.94,0.00,
-631.87,0.00,-582.26,0.00,586.35,0.00,-1805.57,0.00,-1796.19,0.00,-1803.18,
0.00,-605.25,0.00,-600.47,0.00,599.68,0.00,584.98,0.00,-1794.42,0.00,
-603.39,0.00,-610.97,0.00,-1793.05,0.00,585.14,0.00,-1790.75,0.00,612.04,
0.00,1793.31,0.00,607.42,0.00,1806.40,0.00,1788.95,0.00,-598.09,0.00,
607.93,0.00,592.68,0.00,-590.26,0.00,611.98,0.00,586.29,0.00,617.14,0.00,
593.83,0.00,-598.98,0.00,-605.47,0.00,-1783.44,0.00,585.87,0.00,-1800.64
,0.00,-594.62,0.00,-603.46,0.00,-596.39,0.00,-597.52,0.00,593.43,0.00,
-1803.41,0.00,-1798.85,0.00,-1798.32,0.00,-607.28,0.00,-593.63,0.00,601.10,
0.00,595.16,0.00,-1795.80,0.00,-601.23,.....

NOTE

Frequency Constellation data is only available when LSM Option is installed in Test Set.

Number of Pairs Returned: Protocol, Modulation, Signal

Signal	X2-TDMA Modulation Types			Phase 2 Modulation Types	
	C4FM	4FSK	CQPSK	HCPM	HDQPSK
Single Slot	132 pairs	132 pairs	288 pairs	168 pairs	360 pairs
Inbound	264 pairs	264 pairs	288 pairs	336 pairs	360 pairs
Outbound	288 pairs	288 pairs	288 pairs	360 pairs	360 pairs

6.3 IQ CONSTELLATION GRAPH

6.3.1 IQ Constellation - Persistence

:IQ:CONStellation:PERStistence

:IQ:CONStellation:PERStistence?

Description: Set command sets Persistence on IQ Constellation graph.
Query command returns parameter setting.

Range: 1 to 10

Default Value: 1

Set/Query Format: NR1

Example: :IQ:CONStellation:PERStistence 5
Sets IQ Constellation graph Persistence to 5.

Query Response: :IQ:CONStellation:PERStistence?
5

NOTE

Command only valid when LSM Option is installed in Test Set.

6.3.2 IQ Constellation - Trace Enable

:IQ:CONStellation:TRACe:ENABle

:IQ:CONStellation:TRACe:ENABle?

Description: Set command Enables/Disables IQ Constellation trace.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :IQ:CONStellation:TRACe:ENABle ON
Enables IQ Constellation trace.

Query Response: :IQ:CONStellation:TRACe:ENABle?
1

NOTE

Command only valid when LSM Option is installed in Test Set.

6.3.3 IQ Constellation - Trace Query

:IQ:CONStellation:TRACe:LIVE?

Description: Command returns graph coordinate.

Query Data: <channel>,<valid slot>,<#pairs>,<coordinate data>

channel: 1 | 2

valid slot (NR1): 0 = Slot 0

1 = Slot 1

2 = Inbound, both slots

3 = Outbound, both slots

#pairs (NR1): Number of x,y coordinate pairs to follow

Number of pairs returned is dependent on Protocol, Modulation and signal type of the received signal (see tabel below).

x, y data (NR2): coordinate value

Query Response: :IQ:CONStellation:TRACe:LIVE?

1,1,288,-1871.37,0.00,629.98,0.00,-1796.91,0.00,-619.88,0.00,-574.94,0.00,
-631.87,0.00,-582.26,0.00,586.35,0.00,-1805.57,0.00,-1796.19,0.00,-1803.18,
0.00,-605.25,0.00,-600.47,0.00,599.68,0.00,584.98,0.00,-1794.42,0.00,
-603.39,0.00,-610.97,0.00,-1793.05,0.00,585.14,0.00,-1790.75,0.00,612.04,
0.00,1793.31,0.00,607.42,0.00,1806.40,0.00,1788.95,0.00,-598.09,0.00,
607.93,0.00,592.68,0.00,-590.26,0.00,611.98,0.00,586.29,0.00,617.14,0.00,
593.83,0.00,-598.98,0.00,-605.47,0.00,-1783.44,0.00,585.87,0.00,-1800.64
,0.00,-594.62,0.00,-603.46,0.00,-596.39,0.00,-597.52,0.00,593.43,0.00,
-1803.41,0.00,-1798.85,0.00,-1798.32,0.00,-607.28,0.00,-593.63,0.00,601.10,
0.00,595.16,0.00,-1795.80,0.00,-601.23,.....

NOTE

Command only valid when LSM Option is installed in Test Set.

Number of Pairs Returned: Protocol, Modulation, Signal

Signal	X2-TDMA Modulation Types			Phase 2 Modulation Types	
	C4FM	4FSK	CQPSK	HCPM	HDQPSK
Single Slot	132 pairs	132 pairs	288 pairs	168 pairs	360 pairs
Inbound	264 pairs	264 pairs	288 pairs	336 pairs	360 pairs
Outbound	288 pairs	288 pairs	288 pairs	360 pairs	360 pairs

6.4 DISTRIBUTION GRAPH

6.4.1 Distribution - Persistence

:DISTribution:PERStistence

:DISTribution:PERStistence?

Description: Set command sets Persistence on Distribution graph.
Query command returns parameter setting.

Range: 1 to 10

Default Value: 1

Set/Query Format: NR1

Example: :DISTribution:PERStistence 5
Sets Distribution Graph Persistence to 5.

Query Response: :DISTribution:PERStistence?
5

6.4.2 Distribution - Trace Enable

:DISTribution:TRACe:ENABle

:DISTribution:TRACe:ENABle?

Description: Set command Enables/Disables Distribution trace.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :DISTribution:TRACe:ENABle ON
Enables Distribution trace.

Query Response: :DISTribution:TRACe:ENABle?
1

6.4.3 Distribution - Trace Query

:DISTribution:TRACe:LIVE?

Description: Command returns graph coordinate.

Query Data: <statusbyte>,<#pairs>,<x data>,<y data>

statusbyte (NR1): 0 = Invalid

1 = Valid

2 = Inaccurate

#pairs (NR1): Number of x,y coordinate pairs to follow

x, y data (NR2): coordinate value

Query Response: :DISTribution:TRACe:LIVE?

1,1,288,-1871.37,0.00,629.98,0.00,-1796.91,0.00,-619.88,0.00,-574.94,0.00,-631.87,0.00,-582.26,0.00,586.35,0.00,-1805.57,0.00,-1796.19,0.00,-1803.18,0.00,-605.25,0.00,-600.47,0.00,599.68,0.00,584.98,0.00,-1794.42,0.00,-603.39,0.00,-610.97,0.00,-1793.05,0.00,585.14,0.00,-1790.75,0.00,612.04,0.00,1793.31,0.00,607.42,0.00,1806.40,0.00,1788.95,0.00,-598.09,0.00,607.93,0.00,592.68,0.00,-590.26,0.00,611.98,0.00,586.29,0.00,617.14,0.00,593.83,0.00,-598.98,0.00,-605.47,0.00,-1783.44,0.00,585.87,0.00,-1800.64,0.00,-594.62,0.00,-603.46,0.00,-596.39,0.00,-597.52,0.00,593.43,0.00,-1803.41,0.00,-1798.85,0.00,-1798.32,0.00,-607.28,0.00,-593.63,0.00,601.10,0.00,595.16,0.00,-1795.80,0.00,-601.23,.....

NOTE

Returned data includes Sync, Pilot and Data values.

6.5 POWER OVER TIME GRAPH

6.5.1 Power Over Time - Marker Enable

:PTIME:TRACe:MARKn:ENABle

:PTIME:TRACe:MARKn:ENABle?

Description: Set command Enables/Disables Markers for Power Over Time graph.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :PTIME:TRACe:MARK2:ENABle ON
Enables Marker 2 for Power Over Time graph.

Query Response: :PTIME:TRACe:MARK2:ENABle?
1

NOTE

MARKn = 1 or 2 (Marker 1 or 2)

6.5.2 Power Over Time - Marker Position

:PTIME:TRACe:MARKn:XPOS

:PTIME:TRACe:MARKn:XPOS?

Description: Set command defines specified Marker position.
Query command returns parameter setting.

Range: 0 to Span

Units: ms

Default Value: 0.0 ms

Set/Query Format: NRf | NR2

Example: :PTIME:TRACe:MARK2:XPOS 100ms
Positions Marker 2 at 100 ms.

Query Response: :PTIME:TRACe:MARK2:XPOS?
100

NOTE

MARKn = 1 or 2 (Marker 1 or 2)

6.5.3 Power Over Time - Marker Query Y Value

:PTIME:TRACe:MARKn:YVALue?

Description: Query command returns Power Over Time Y value for specified Marker.

Query Data: <statusbyte>,<value>

statusbyte (NR1): 0 = Invalid
1 = Valid
2 = Inaccurate

value (NR2): dBm

Query Response: :PTIME:TRACe:MARK2:YVALue?
1,10.45

NOTE

MARKn = 1 or 2 (Marker 1 or 2)

Marker must be enabled to obtain valid data

6.5.4 Power Over Time - Span Value

:PTIME:SPAN

:PTIME:SPAN?

Description: Set command sets Span on Power Over Time graph.
Query command returns parameter setting.

Range: 300 to 240,000 ms

Units: ms

Default Value: 300 ms

Set/Query Format: NRf | NR1

Example: :PTIME:SPAN 500ms
Sets Power Over Time graph Span to 500 ms.

Query Response: :PTIME:SPAN?
500

6.5.5 Power Over Time - Trace Query

:PTIME:TRACe:LIVE?

Description: Command returns Power Over Time graph data.

Query Data: <statusbyte>,<#pairs>,<x data>,<y data>

statusbyte (NR1): 0 = Invalid
1 = Valid
2 = Inaccurate

#pairs (NR1): Number of x,y coordinate pairs to follow

x, y data (NR2): coordinate value

Query Response: :PTIME:TRACe:LIVE?
1,2,0.00,10.45,330.00,10.45

NOTE

Power Over Time trace must be enabled to obtain valid data.

6.5.6 Power Over Time - Trace Enable

:PTIME:TRACe:ENABle

:PTIME:TRACe:ENABle?

Description: Set command Enables/Disables Power Over Time trace.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :PTIME:TRACe:ENABle ON
Enables Power Over Time trace.

Query Response: :PTIME:TRACe:ENABle?
1

6.6 POWER PROFILE FULL

6.6.1 Power Profile Full - Marker Enable

:PFULL:TRACe:SLOTn:MARKn:ENABle

:PFULL:TRACe:SLOTn:MARKn:ENABle?

Description: Set command Enables/Disables Marker for specified Slot on Power Profile Full graph.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :PFULL:TRACe:SLOT1:MARK2:ENABle ON
Enables Marker 2 for Slot 1 on Power Profile Full graph.

Query Response: :PFULL:TRACe:SLOT1:MARK2:ENABle?
1

NOTE

SLOTn = 0 or 1 (Slot 0 or 1).

MARKn = 1 or 2 (Marker 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.6.2 Power Profile Full - Marker Position

:PFULL:TRACe:SLOTn:MARKn:XPOS

:PFULL:TRACe:SLOTn:MARKn:XPOS?

Description: Set command defines Marker position for specified Slot of Power Profile Full graph.

Query command returns parameter setting.

Range: 0 to 30 ms

Units: ms

Default Value: 0.0 ms

Set/Query Format: NRf | NR2

Example: :PFULL:TRACe:SLOT1:MARK2:XPOS 10ms
Positions Marker 2 for Slot 1 to 10 ms.

Query Response: :PFULL:TRACe:SLOT1:MARK2:XPOS?
10.0

NOTE

SLOTn = 0 or 1 (Slot 0 or 1).

MARKn = 1 or 2 (Marker 1 or 2).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.6.3 Power Profile Full - Marker Y Value Query

:PFULL:TRACe:SLOTn:MARKn:YVALue?

Description: Command returns Power Profile Full Y value for Marker.

Query Data: <statusbyte>,<value>

statusbyte (NR1): 0 = Invalid
1 = Valid
2 = Inaccurate

value (NR2): dBm

Query Response: :PFULL:TRACe:SLOT1:MARK2:YVALue?
1,10.44

NOTE

MARKn = 1 or 2 (Marker 1 or 2). Marker must be enabled to return valid data.
SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.6.4 Power Profile Full - Persistence

:PFULL:PERStence

:PFULL:PERStence?

Description: Set command sets Persistence on Power Profile Full graph.
Query command returns parameter setting.

Range: 1 to 10

Default Value: 1

Set/Query Format: NR1

Example: :PFULL:PERStence 5
Sets Power Profile Full Graph Persistence to 5.

Query Response: :PFULL:PERStence?
5

NOTE

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.6.5 Power Profile Full - Trace Enable

:PFULL:TRACe:ENABle

:PFULL:TRACe:ENABle?

Description: Set command Enables/Disables Power Profile Full trace.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :PFULL:TRACe:ENABle ON
Enables Power Profile Full trace.

Query Response: :PFULL:TRACe:ENABle?
1

NOTE

Trace must be enabled (ON) to return valid data.

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.6.6 Power Profile Full - Trace Query

:PFULL:TRACe:SLOTn:LIVE?

Description: Command returns Power Profile Full graph data.

Query Data: <statusbyte>,<#pairs>,<x data>,<y data>,<status message>

statusbyte (NR1): 0 = Invalid
1 = Valid
2 = Inaccurate

#pairs (NR1): Number of x,y coordinate pairs to follow

x, y data (NR2): coordinate value

statuts message (ascii): signal not acquired\n
(when present) timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :PFULL:TRACe:SLOT1:LIVE?

1,-67.26,0.83,-67.80,0.85,-68.57,0.87,-69.46,0.90,-70.29,0.92,-70.87,0.94,
-71.06,0.96,-70.82,0.98,-70.24,1.00,-69.47,1.02,-68.67,1.04,-67.97,1.06,
-67.46,1.08,-67.18,1.10,-67.18,1.12,-67.46,1.15,-68.04,1.17,-68.90,1.19,
-70.01,1.21,-71.31,1.23,-72.66,1.25,-73.89,1.27,-74.80,1.29,-75.26,1.31,
-75.22,1.33,-74.71,1.35,-73.82,1.37,-72.74,1.40,-71.66,1.42,-70.71,1.44,
-69.97,1.46,-69.47,1.48,-69.22,1.50,-69.21,1.52,-69.39,1.54,-69.74,1.56,
-70.17,1.58,-70.63,1.60,-71.01,1.62,-71.25,1.65,-71.29,1.67,-71.15,1.69,
-70.85,1.71,-70.47,1.73,-70.08,1.75,-69.72,1.77,-69.45,1.79,-69.29,1.81,
-69.26,1.83,-69.37,1.85,-69.60,1.87,-69.93,1.90,-70.30,1.92,-70.68,1.94,
-71.00,1.96,-71.21,1.98,-71.29,2.00,-71.22,2.02,.....

NOTE

SLOTn = 0 or 1 (Slot 0 or 1).

Trace must be enabled (ON) to return valid data.

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.7 POWER PROFILE RAMPS

6.7.1 Power Profile Ramps - Trace Enable

:PRAMPs:TRACe:ENABLE

:PRAMPs:TRACe:ENABLE?

Description: Set command Enables/Disables Power Profile Ramps trace.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :PRAMPs:TRACe:ENABLE ON
Enables Power Profile Ramps trace.

Query Response: :PRAMPs:TRACe:ENABLE?
1

NOTE

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.7.2 Power Profile Ramps - Marker Enable

:PRAMPs:TRACe:SLOTn:MARKn:ENABLE

:PRAMPs:TRACe:SLOTn:MARKn:ENABLE?

Description: Set command Enables/Disables Markers for Power Profile Ramps graph.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :PRAMPs:TRACe:SLOT1:MARK2:ENABLE ON
Enables Marker 2 for Power Profile Ramps graph.

Query Response: :PRAMPs:TRACe:SLOT1:MARK2:ENABLE?
1

NOTE

MARKn = 1 or 2 (Marker 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.7.3 Power Profile Ramps - Marker Position

:PRAMPs:TRACe:SLOT1:MARKn:XPOS

:PRAMPs:TRACe:SLOT1:MARKn:XPOS?

Description: Set command defines specified Marker position on Power Profile Ramps graph. Query command returns parameter setting.

Range: 0.0 to 2.0 or 28.0 to 30.0 ms

Units: ms

Default Value: 0.0 | 28.0 ms

Set/Query Format: NRf | NR2

Example: :PRAMPs:TRACe:SLOT1:MARK2:XPOS 29ms
Positions Marker 2 at 29 ms.

Query Response: :PRAMPs:TRACe:SLOT1:MARK2:XPOS?
29

NOTE

MARKn = 1 or 2 (Marker 1 or 2).

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.7.4 Power Profile Ramps - Marker Query Y Value

:PRAMPs:TRACe:SLOTn:MARKn:YVALue?

Description: Query command returns Power Over Time Y value for specified Marker and Slot.

Query Data: <statusbyte>,<value>

statusbyte (NR1): 0 = Invalid

1 = Valid

2 = Inaccurate

value (NR2): dBm

Query Response: :PRAMPs:TRACe:SLOT1:MARK2:YVALue?
1,10.45

NOTE

MARKn = 1 or 2 (Marker 1 or 2). Marker must be enabled to return valid data.

SLOTn = 0 or 1 (Slot 0 or 1).

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.7.5 Power Profile Ramps - Persistence

:PRAMPs:PERSistence

:PRAMPs:PERSistence?

Description: Set command sets Persistence on Power Profile Ramps graph.
Query command returns parameter setting.

Range: 1 to 10

Default Value: 1

Set/Query Format: NR1

Example: :PRAMPs:PERSistence 5

Sets Power Profile Ramps Graph Persistence to 5.

Query Response: :PRAMPs:PERSistence?

5

NOTE

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

6.7.6 Power Profile Ramps - Trace Query

:PRAMPs:TRACe:SLOTn:LIVE?

Description: Command returns Power Profile Ramps trace data.

Query Data: <statusbyte>,<#pairs>,<x data>,<y data>,<status message>

statusbyte (NR1): 0 = Invalid

1 = Valid

2 = Inaccurate

#pairs (NR1): Number of x,y coordinate pairs to follow

x, y data (NR2): coordinate data

statuts message (ascii): signal not acquired\n

(when present) timed out waiting for TraceMutex\n

timed out waiting for data\n

Query Response: :PRAMPs:TRACe:SLOT1:LIVE?

1,-67.26,0.83,-67.80,0.85,-68.57,0.87,-69.46,0.90,-70.29,0.92,-70.87,0.94,
-71.06,0.96,-70.82,0.98,-70.24,1.00,-69.47,1.02,-68.67,1.04,-67.97,1.06,
-67.46,1.08,-67.18,1.10,-67.18,1.12,-67.46,1.15,-68.04,1.17,-68.90,1.19,
-70.01,1.21,-71.31,1.23,-72.66,1.25,-73.89,1.27,-74.80,1.29,-75.26,1.31,
-75.22,1.33,-74.71,1.35,-73.82,1.37,-72.74,1.40,-71.66,1.42,-70.71,1.44,
-69.97,1.46,-69.47,1.48,-69.22,1.50,-69.21,1.52,-69.39,1.54,-69.74,1.56,
-70.17,1.58,-70.63,1.60,-71.01,1.62,-71.25,1.65,-71.29,1.67,-71.15,1.69,
-70.85,1.71,-70.47,1.73,-70.08,1.75,-69.72,1.77,-69.45,1.79,-69.29,1.81,
-69.26,1.83,-69.37,1.85,-69.60,1.87,-69.93,1.90,-70.30,1.92,-70.68,1.94,
-71.00,1.96,-71.21,1.98,-71.29,2.00,-71.22,2.02,....

NOTE

SLOTn = 0 or 1 (Slot 0 or 1).

Trace must be enabled (ON) to obtain valid measurement data.

Command only valid when Motorola ASTRO® 25 X2-TDMA® option is installed in Test Set.

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Chapter 7 - System and Bandplan Remote Commands

7.1 INTRODUCTION

This chapter describes the Remote Commands for configuring P25 System Plans and SmartNet™/SmartZone™ Band Plans. Remote commands are listed alphabetically under the following headings:

7.2 SYSTEM PLAN / BAND PLAN COMMANDS

7.2.1 P25 - SmartNet/SmartZone - Plan File Name

:PLAN:NAME "planname"

:PLAN:NAME?

Description: Set command loads an existing System Plan.
Query command returns selected System Plan.

Parameter: maximum 128 characters
spaces allowed in filename
name must be enclosed in quotes

Set/Query Format: ascii string

Example: :PLAN:SAVE "test_filename"
Loads configured System Plan named "test_filename".

Query Response: :PLAN:SAVE?
test_filename

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.2.2 P25 - SmartNet/SmartZone - Plan List

:PLAN:LIST?

Description: Command returns list of all predefined System Plans and stored Customized System Plans.

Query Format: ascii string

Query Response: :PLAN:LIST?
{Basic 800} {SZ 800 Domestic} {Basic UHF} {Basic VHF} {Basic 700} {test_file}
NOTE Command only valid when P25 Trunking Option is installed in Test Set.
SmartNet/SmartZone Plans only listed when SmartNet/SmartZone option is installed in Test Set.

7.2.3 P25 - SmartNet/SmartZone - Plan Save Configuration

:PLAN:SAVE "planname"

Description: Command saves current System Plan values as a new System Plan under defined plan name

Parameter: maximum 128 characters
spaces allowed in filename
name must be enclosed in quotes

Example: :PLAN:SAVE "test_filename"
Saves configured System Plan as test_filename

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.2.4 P25 / SmartNet/SmartZone - System Plan Type

:PLAN:TYPE

:PLAN:TYPE?

Description: Set command defines type of plan when configuring a new plan.
Query command returns type of plan currently loaded.

Parameter: SNSZ | P25

Default Value: P25

Set/Query Format: CPD | CRD

Example: :PLAN:TYPE SNSZ
Defines System Plan as SmartNet/SmartZone System Plan.

Query Response: :PLAN:TYPE?
SNSZ

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.
SNSZ Plan Type only valid when SmartNet/SmartZone option is installed in Test Set.

7.3 P25 SYSTEM PLAN COMMANDS

7.3.1 P25 System Plan - Base Active Net Value

:PLAN:BASE:ACTIVE

:PLAN:BASE:ACTIVE?

Description: Set command defines Base Repeater Active Net value.
Query command returns parameter setting.

Parameter: 0 or 1

Default Value: 1

Set/Query Format: NR1

Example: :PLAN:BASE:ACTIVE 0
Sets Base Repeater Active Net to 0.

Query Response: :PLAN:BASE:ACTIVE?
0

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.2 P25 System Plan - Base Announced Group Address

:PLAN:BASE:ADDR

:PLAN:BASE:ADDR?

Description: Set command defines Announced Group Address value.
Query command returns parameter setting.

Range: 0 to 65535

Default Value: 1

Set/Query Format: NR1

Example: :PLAN:BASE:ADDR 555
Sets Base Announced Group Address to 555.

Query Response: :PLAN:BASE:ADDR?
555

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.3 P25 System Plan - Base Global Affiliation Value

:PLAN:BASE:GAV

:PLAN:BASE:GAV?

Description: Set command defines Base Repeater Global Affiliation value.
Query command returns parameter setting.

Parameter: 0 = Accept
1 = Fail
2 = Deny
3 = Refused

Default Value: 0 (Accept)

Set/Query Format: NR1

Example: :PLAN:BASE:GAV 2
Sets Base Repeater Global Affiliation Value to 2 (Deny).

Query Response: :PLAN:BASE:GAV?
2

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.4 P25 System Plan - Base Local/Global Affiliation

:PLAN:BASE:LG

:PLAN:BASE:LG?

Description: Set command defines Base Repeater Local/Global Affiliation value.
Query command returns parameter setting.

Parameter: 0 = Local Affiliation
1 = Global Affiliation

Default Value: 0

Set/Query Format: NR1

Example: :PLAN:BASE:LG 1
Sets Base Repeater Local/Global Affiliation Value to 1 (Global Affiliation).

Query Response: :PLAN:BASE:LG?
1

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.5 P25 System Plan - Base Local Registration Area

:PLAN:BASE:LRA

:PLAN:BASE:LRA?

Description: Set command defines Base Repeater Local Registration Area.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 1

Set/Query Format: NR1

Example: :PLAN:BASE:LRA 100
Sets Base Local Registration Area to 100.

Query Response: :PLAN:BASE:LRA?
100

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.6 P25 System Plan - Base Protection value

:PLAN:BASE:PROTECTED

:PLAN:BASE:PROTECTED?

Description: Set command defines Base Repeater Global Affiliation value.
Query command returns parameter setting.

Parameter: 0 = Clear (Unencrypted)
1 = Encrypted

Default Value: 0 (Clear)

Set/Query Format: NR1

Example: :PLAN:BASE:PROTECTED 1
Sets Base Repeater Protection to 1 (Encrypted).

Query Response: :PLAN:BASE:PROTECTED?
1

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.7 P25 System Plan - Base Registration Value

:PLAN:BASE:RV

:PLAN:BASE:RV?

Description: Set command defines Base Repeater Registration value.
Query command returns parameter setting.

Parameter: 0 = Accept
1 = Fail
2 = Deny
3 = Refused

Default Value: 0 (Accept)

Set/Query Format: NR1

Example: :PLAN:BASE:RV 2
Sets Base Repeater Registration Value to 2 (Deny).

Query Response: :PLAN:BASE:RV?
2

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.8 P25 System Plan - Base RF Subsystem Identifier

:PLAN:BASE:RFSS

:PLAN:BASE:RFSS?

Description: Set command defines Base Repeater RFSS value.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 1

Set/Query Format: NR1

Example: :PLAN:BASE:RFSS 225
Sets Base RFSS value to 225.

Query Response: :PLAN:BASE:RFSS?
225

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.9 P25 System Plan - Base Service Class

:PLAN:BASE:SVCclass

:PLAN:BASE:SVCclass?

Description: Set command defines Base Repeater Service Class.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 60

Set/Query Format: NR1

Example: :PLAN:BASE:SVCclass 100
Sets Base Service Class to 100.

Query Response: :PLAN:BASE:SVCclass?
100

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.10 P25 System Plan - Base Site Identifier

:PLAN:BASE:SITE

:PLAN:BASE:SITE?

Description: Set command defines Base Repeater Site Identifier value.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 1

Set/Query Format: NR1

Example: :PLAN:BASE:SITE 25
Sets Base Site Identifier to 25.

Query Response: :PLAN:BASE:SITE?
25

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.11 P25 System Plan - Base System Identifier

:PLAN:BASE:SYSId

:PLAN:BASE:SYSId?

Description: Set command defines Base Repeater System Identifier.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 801

Set/Query Format: NR1

Example: :PLAN:BASE:SYSId 1001
Sets Base System Identifier to 1001.

Query Response: :PLAN:BASE:SYSId?
1001

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.12 P25 System Plan - Base Wide Area Access Network Identifier

:PLAN:BASE:WACN

:PLAN:BASE:WACN?

Description: Set command defines Base Repeater WACN value.
Query command returns parameter setting.

Range: 0 to 1,048,575

Default Value: 801

Set/Query Format: NR1

Example: :PLAN:BASE:WACN 5250
Sets Base System WACN Identifier to 5250.

Query Response: :PLAN:BASE:WACN?
5250

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.13 P25 System Plan - Base Working Group Identifier

:PLAN:BASE:WGID

:PLAN:BASE:WGID?

Description: Set command defines Base Repeater Working Group Identifier.
Query command returns parameter setting.

Parameter: 0 = Reserved for Future Development
1 = Automatically determined

Default Value: 0

Set/Query Format: NR1

Example: :PLAN:BASE:WGID 1
Sets Base Repeater Working Group Identifier to 1.

Query Response: :PLAN:BASE:WGID?
1

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.14 P25 System Plan - Base Working Unit Identifier**:PLAN:BASE:WUID****:PLAN:BASE:WUID?**

Description: Set command defines Base Repeater Working Unit Identifier.
Query command returns parameter setting.

Parameter: 0 = Reserved for Future Development
1 = Automatically determined

Default Value: 0

Set/Query Format: NR1

Example: :PLAN:BASE:WUID 1
Sets Base Repeater Working Unit Identifier to 1.

Query Response: :PLAN:BASE:WUID?
1

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

7.3.15 P25 System Plan - Channel Bandwidth**:PLAN:CHANnel:CIDn:BW****:PLAN:CHANnel:CIDn:BW?**

Description: Set command selects Bandwidth for specified Channel ID.
Query command returns parameter setting.

Parameter: 0 = 6.25 kHz
1 = 12.5 kHz

Default Value: 1 (12.5 kHz)

Set/Query Format: NR1

Example: :PLAN:CHANnel:CID5:BW 0
Sets Channel 5 Bandwidth to 0 (6.25 kHz).

Query Response: :PLAN:CHANnel:CID5:BW?
0

NOTE

CIDn = 1 to 16

7.3.16 P25 System Plan - Channel Frequency

:PLAN:CHANnel:CIDn:FREQuency

:PLAN:CHANnel:CIDn:FREQuency?

Description: Set command defines frequency of Channel base frequency.
Query command returns parameter setting in Hz.

Range: 136.0 to 870.0 MHz

Default Value: 851.006250 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :PLAN:CHANnel:CID2:FREQuency 850MHz
Sets Channel ID 2 Frequency to 850.0 MHz.

Query Response: :PLAN:CHANnel:CID2:FREQuency?
850000000.00

NOTE

CIDn = 1 to 16

7.3.17 P25 System Plan - Channel Frequency Offset

:PLAN:CHANnel:CIDn:OFFSet

:PLAN:CHANnel:CIDn:OFFSet?

Description: Set command defines Channel transmit offset.
Query command returns parameter setting in Hz.

Range: -100 to +100 MHz

Units: Hz | kHz | MHz

Default Value: -45.00 MHz

Set/Query Format: NRf | NR2 (Hz)

Example: :PLAN:CHANnel:CID4:OFFSet -50MHz
Sets Frequency Offset for Channel ID 4 to -50.00 MHz.

Query Response: :PLAN:CHANnel:CID4:OFFSet?
-50000000

NOTE

CIDn = 1 to 16

7.3.18 P25 System Plan - Channel Spacing

:PLAN:CHANnel:CIDn:SPACing

:PLAN:CHANnel:CIDn:SPACing?

Description: Set command defines Channel Spacing.
Query command returns parameter setting.

Range: 1.250 to 1280.0 kHz

Units: Hz | kHz

Default Value: 6.25 kHz

Set/Query Format: NRf | NR2 (Hz)

Example: :PLAN:CHANnel:CID1:SPACing 12.5kHz
Sets Channel 1 Channel Spacing to 12.5 kHz.

Query Response: :PLAN:CHANnel:CID1:SPACing?
12500

NOTE

CIDn = 1 to 16

7.3.19 P25 System Plan - Channel Type

:PLAN:CHANnel:CIDn:TYPE

:PLAN:CHANnel:CIDn:TYPE?:

Description: Set command selects type of Channel for specified Channel ID.
Query command returns parameter setting.

Parameter: TDMA | FDMA

Default Value: FDMA

Set/Query Format: CPD | CRD

Example: :PLAN:CHANnel:CID5:TYPE TDMA
Sets Channel 5 to TDMA Channel Type.

Query Response: :PLAN:CHANnel:CID5:TYPE?
TDMA

NOTE

CIDn = 1 to 16

Command only applies to X2TDMA Protocol.

7.4 SMARTNET™/SMARTZONE™ BAND PLAN COMMANDS

7.4.1 SmartNet/SmartZone Band Plan - Base AMSS Flag

:PLAN:BASE:AMSS

:PLAN:BASE:AMSS?

Description: Set command indicates whether or not the AMSS Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:AMSS TRUE

Includes AMSS Flag in the Band Plan.

Query Response: :PLAN:BASE:AMSS?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.2 SmartNet/SmartZone Band Plan - Base All Secure Down Flag

:PLAN:BASE:ASECDown

:PLAN:BASE:ASECDown?

Description: Set command indicates whether or not the All Secure Down Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: TRUE

Set/Query Format: Boolean

Example: :PLAN:BASE:ASECDown FALSE

Excludes All Secure Down Flag from the Band Plan.

Query Response: :PLAN:BASE:ASECDown?

0

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.3 SmartNet/SmartZone Band Plan - Base Affiliate Capability Flag

:PLAN:BASE:AFFiliate

:PLAN:BASE:AFFiliate?

Description: Set command indicates whether or not the Affiliate Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: TRUE

Set/Query Format: Boolean

Example: :PLAN:BASE:AFFiliate FALSE

Excludes Affiliate Flag from the Band Plan.

Query Response: :PLAN:BASE:AFFiliate?

0

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.4 SmartNet/SmartZone Band Plan - Base Astro Capability Flag

:PLAN:BASE:ACAPable

:PLAN:BASE:ACAPable?

Description: Set command indicates whether or not the Astro Capability Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: TRUE

Set/Query Format: Boolean

Example: :PLAN:BASE:ACAPable FALSE

Excludes Astro Capability Flag from the Band Plan.

Query Response: :PLAN:BASE:ACAPable?

0

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.5 SmartNet/SmartZone Band Plan - Base Auto Affiliate Capability Flag

:PLAN:BASE:AAFFiliate

:PLAN:BASE:AAFFiliate?

Description: Set command indicates whether or not the Auto Affiliate Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: TRUE

Set/Query Format: Boolean

Example: :PLAN:BASE:AAFFiliate FALSE

Excludes Auto Affiliate Flag from the Band Plan.

Query Response: :PLAN:BASE:AAFFiliate?

0

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.

:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.6 SmartNet/SmartZone Band Plan - Base Backup Control Channel Flag

:PLAN:BASE:BKPCC

:PLAN:BASE:BKPCC?

Description: Set command indicates whether or not the Backup Control Channel Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:BKPCC TRUE

Includes Backup Control Channel Flag in the Band Plan.

Query Response: :PLAN:BASE:BKPCC?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.

:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.7 SmartNet/SmartZone Band Plan - Base Band Plan

:PLAN:BASE:BANDPLAN

:PLAN:BASE:BANDPLAN?

Description: Set command selects the SmartNet/SmartZone Band Plan.
Query command returns the selected SmartNet/SmartZone Band Plan.

Parameter: BP_800_INTL_SPLINTER | BP_800_INTL | BP_800_DOMESTIC_SPLINTER |
BP_800_DOMESTIC | BP_900 | BP_REBAND | BP_OTHERBAND

Default Value: BP_800_DOMESTIC

Set/Query Format: data string

Example: :PLAN:BASE:BANDPLAN BP_800_INTL
Selects BP_800_INTL as the SmartNet/SmartZone Bandplan.

Query Response: :PLAN:BASE:BANDPLAN?
BP_800_INTL

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.8 SmartNet/SmartZone Band Plan - Base Call Timeout

:PLAN:BASE:CTIMEout

:PLAN:BASE:CTIMEout?

Description: Set command defines the Call Timeout value.
Query command returns parameter setting.

Range: 0 to 1920 ms

Units: ms

Default Value: 1890 ms

Set/Query Format: NRf | NR1

Example: :PLAN:BASE:CTIMEout 1500ms
Sets Call Timeout value to 1500 ms.

Query Response: :PLAN:BASE:CTIMEout?
1500

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.9 SmartNet/SmartZone Band Plan - Base Connect Tone

:PLAN:BASE:CTONe

:PLAN:BASE:CTONe?

Description: Set command defines the Connect Tone value.
Query command returns parameter setting.

Parameter: 76 Hz | 83 Hz | 90 Hz | 97 Hz | 105 Hz | 116 Hz | 128 Hz | 138 Hz

Units: Hz

Default Value: 105 Hz

Set/Query Format: NRf | NR1

Example: :PLAN:BASE:CTONe 90Hz
Sets Connect Tone value to 90 Hz.

Query Response: :PLAN:BASE:CTONe?
90

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.10 SmartNet/SmartZone Band Plan - Base Coverage Plus Flag

:PLAN:BASE:CPLUS

:PLAN:BASE:CPLUS:?

Description: Set command identifies whether or not the Coverage Plus Flag is included in the Band Plan.
Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: 0 (TRUE)

Set/Query Format: Boolean

Example: :PLAN:BASE:CPLUS 1
Excludes Coverage Plus Flag from the Band Plan.

Query Response: :PLAN:BASE:CPLUS?
1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.

7.4.11 SmartNet/SmartZone Band Plan - Base Data Network Available Flag**:PLAN:BASE:DATANW****:PLAN:BASE:DATANW?**

Description: Set command indicates whether or not the Data Network Available Flag is included in the Band Plan.
Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:DATANW TRUE
Includes Data Network Available Flag in the Band Plan.

Query Response: :PLAN:BASE:DATANW?
1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.12 SmartNet/SmartZone Band Plan - Base Dispatch Timeout**:PLAN:BASE:DTIMEout****:PLAN:BASE:DTIMEout:?**

Description: Set command defines the Dispatch Timeout value.
Query command returns parameter setting.

Range: 0 to 240 ms

Units: ms

Default Value: 210 ms

Set/Query Format: NRf | NR1

Example: :PLAN:BASE:DTIMEout 120ms
Sets Dispatch Timeout value to 120 ms.

Query Response: :PLAN:BASE:DTIMEout?
120

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.13 SmartNet/SmartZone Band Plan - Base Echo Delay

:PLAN:BASE:ECHODelay

:PLAN:BASE:ECHODelay?

Description: Set command defines the Echo Delay value.
Query command returns parameter setting.

Range: 0 to 1472 ms

Units: ms

Default Value: 0 ms

Set/Query Format: NRf | NR1

Example: :PLAN:BASE:ECHODelay 1200ms
Sets Echo Delay value to 1200 ms.

Query Response: :PLAN:BASE:ECHODelay?
1200

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.14 SmartNet/SmartZone Band Plan - Base Fail Soft Flag

:PLAN:BASE:FAILSoft

:PLAN:BASE:FAILSoft?

Description: Set command indicates whether or not the Fail Soft Flag is included in the Band Plan.
Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:FAILSoft TRUE
Includes Fail Soft Flag in the Band Plan.

Query Response: :PLAN:BASE:FAILSoft?
1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.15 SmartNet/SmartZone Band Plan - Base Interconnect Available Flag**:PLAN:BASE:ICAVAILable****:PLAN:BASE:ICAVAILable?**

Description: Set command indicates whether or not the Interconnect Available Flag is included in the Band Plan.
Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:ICAVAILable TRUE
Includes Interconnect Available Flag in the Band Plan.

Query Response: :PLAN:BASE:ICAVAILable?
1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.16 SmartNet/SmartZone Band Plan - Base Master Toggle Flag**:PLAN:BASE:MASTOGgle****:PLAN:BASE:MASTOGgle?**

Description: Set command indicates whether or not the Master Toggle Flag is included in the Band Plan.
Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:MASTOGgle TRUE
Includes Master Toggle Flag in the Band Plan.

Query Response: :PLAN:BASE:MASTOGgle?
1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.17 SmartNet/SmartZone Band Plan - Base Secure Signaling Flag**:PLAN:BASE:SECSIGnaling****:PLAN:BASE:SECSIGnaling?**

Description: Set command indicates whether or not the Secure Signaling Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:SECSIGnaling TRUE

Includes Secure Signaling Flag in the Band Plan.

Query Response: :PLAN:BASE:SECSIGnaling?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.18 SmartNet/SmartZone Band Plan - Base Site Identifier**:PLAN:BASE:SITE****:PLAN:BASE:SITE?**

Description: Set command defines the Site Identifier value.

Query command returns parameter setting.

Range: 0 to 255

Default Value: 1

Set/Query Format: NR1

Example: :PLAN:BASE:SITE 75

Sets Site Identifier value to 75.

Query Response: :PLAN:BASE:SITE?

75

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.19 SmartNet/SmartZone Band Plan - Base Site Trunking Flag

:PLAN:BASE:SITETRunking

:PLAN:BASE:SITETRunking?

Description: Set command indicates whether or not the Site Trunking Flag is included in the Band Plan.
Query command returns parameter setting.

Parameter 0 | 1 | FALSE | TRUE

Default Value: TRUE

Set/Query Format: Boolean

Example: :PLAN:BASE:SITETRunking FALSE
Excludes Site Trunking Flag from the Band Plan.

Query Response: :PLAN:BASE:SITETRunking?
0

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.20 SmartNet/SmartZone Band Plan - Base System Identifier

:PLAN:BASE:SYSId

:PLAN:BASE:SYSId?

Description: Set command defines the System Identifier value.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 734

Set/Query Format: NR1

Example: :PLAN:BASE:SYSId 125
Sets System Identifier value to 125.

Query Response: :PLAN:BASE:SYSId?
125

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.21 SmartNet/SmartZone Band Plan - Base Trespass Protect Flag**:PLAN:BASE:TPROTECT****:PLAN:BASE:TPROTECT?**

Description: Set command indicates whether or not the Trespass Protect Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:TPROTECT TRUE

Includes Trespass Protect Flag in the Band Plan.

Query Response: :PLAN:BASE:TPROTECT?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.

:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.22 SmartNet/SmartZone Band Plan - Base Tx Deviation**:PLAN:BASE:TXDEVIATION****:PLAN:BASE:TXDEVIATION?**

Description: Set command defines the Tx Deviation value.

Query command returns parameter setting.

Range: 0 to 3499 Hz

Units: Hz

Default Value: 3125 Hz

Set/Query Format: NRf | NR1

Example: :PLAN:BASE:TXDEVIATION 125Hz

Sets Tx Deviation value to 125.0 Hz.

Query Response: :PLAN:BASE:TXDEVIATION?

125

NOTE

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

7.4.23 SmartNet/SmartZone Band Plan - Base Upgrade Allowed Flag**:PLAN:BASE:UPGDallowed****:PLAN:BASE:UPGDallowed?**

Description: Set command indicates whether or not the Upgrade Allowed Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:UPGDallowed TRUE

Includes Upgrade Allowed Flag in the Band Plan.

Query Response: :PLAN:BASE:UPGDallowed?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.24 SmartNet/SmartZone Band Plan - Base Voice on Control Channel Flag**:PLAN:BASE:VONCC****:PLAN:BASE:VONCC?**

Description: Set command indicates whether or not the Voice on Control Channel Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:VONCC TRUE

Includes Voice on Control Channel Flag in the Band Plan.

Query Response: :PLAN:BASE:VONCC?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.25 SmartNet/SmartZone Band Plan - Base Wide Area Flag

:PLAN:BASE:WAREA

:PLAN:BASE:WAREA?

Description: Set command indicates whether or not the Wide Area Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:WAREA TRUE

Includes Wide Area Flag from the Band Plan.

Query Response: :PLAN:BASE:WAREA?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.26 SmartNet/SmartZone Band Plan - Base Wide Pulse Flag

:PLAN:BASE:WPULSE

:PLAN:BASE:WPULSE?

Description: Set command indicates whether or not the Wide Pulse Flag is included in the Band Plan.

Query command returns parameter setting.

Parameter: 0 | 1 | FALSE | TRUE

Default Value: FALSE

Set/Query Format: Boolean

Example: :PLAN:BASE:WPULSE TRUE

Includes Wide Pulse Flag from the Band Plan.

Query Response: :PLAN:BASE:WPULSE?

1

NOTE

Command only valid when SmartNet/SmartZone option is installed in Test Set.
:PLAN:TYPE must be defined as SNSZ for command to be valid.

7.4.27 SmartNet/SmartZone Band Plan - Rx Channel Block Count

:PLAN:CHANnel:BLOCKn:RX:COUNT?

Description: Query command returns the system defined number of channels. The number of channels is determined by the selected Channel Spacing, Start Frequency, Stop Frequency and the total number of channels available (380).

Range: 0 to 380

Query Format: NR1

Query Response: :PLAN:CHANnel:BLOCK2:RX:COUNT?

125

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

Returns "0" when associated Tx/Rx Block is disabled (OFF).

7.4.28 SmartNet/SmartZone Band Plan - Rx Channel Block State**:PLAN:CHANnel:BLOCKn:RX:STATE****:PLAN:CHANnel:BLOCKn:RX:STATE?**

Description: Set command Enables/Disables Rx Channel Block.
Query command returns Channel Block state.

Parameter: OFF | ON | 0 | 1

Default Value: OFF (0)

Set/Query Format: Boolean

Example: :PLAN:CHANnel:BLOCK2:RX:STATE ON

Enables Channel Block 2 Rx Channel.

Query Response: :PLAN:CHANnel:BLOCK2:RX:STATE?
1

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.
Command only valid with BP_OTHERBAND Band plan.

7.4.29 SmartNet/SmartZone Band Plan - Rx Channel Block Spacing**:PLAN:CHANnel:BLOCKn:RX:CHSPacing****:PLAN:CHANnel:BLOCKn:RX:CHSPacing?**

Description: Set command defines Channel Spacing for specified Rx Channel Block.
Query command returns parameter setting.

Parameter: 5 kHz | 6.25 kHz | 10 kHz | 12.5 kHz | 15 kHz | 18.75 kHz | 20 kHz | 25 kHz |
30 kHz | 31.25 kHz | 35 kHz | 37.50 kHz | 40 kHz | 43.75 kHz | 50 kHz

Default Value: 5 kHz

Set/Query Format: NRf | NR1 (Hz)

Example: :PLAN:CHANnel:BLOCK2:RX:CHSPacing 12.5kHz

Sets Rx Channel Spacing for Channel Block 2 to 12.5 kHz.

Query Response: :PLAN:CHANnel:BLOCK2:RX:CHSPacing?
12500

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.
Command only valid with BP_OTHERBAND Band plan.

7.4.30 SmartNet/SmartZone Band Plan - Rx Channel Start Frequency

:PLAN:CHANnel:BLOCKn:RX:STARTFreq

:PLAN:CHANnel:BLOCKn:RX:STARTFreq?

Description: Set command defines the Start Frequency of the specified Rx Channel Block.
Query command returns parameter setting.

Range: 100.0 kHz to 2710.0 MHz

Units: Hz | kHz | MHz

Default Value: 146.00 MHz

Set/Query Format: NRf | NR1 (Hz)

Example: :PLAN:CHANnel:BLOCK2:RX:STARTFreq 825MHz
Sets Start Frequency on Rx Channel Block 2 to 825.0 MHz.

Query Response: :PLAN:CHANnel:BLOCK2:RX:STARTFreq?
825000000

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

7.4.31 SmartNet/SmartZone Band Plan - Rx Channel Stop Frequency

:PLAN:CHANnel:BLOCKn:RX:STOPFreq

:PLAN:CHANnel:BLOCKn:RX:STOPFreq?

Description: Set command defines the Stop Frequency of the specified Rx Channel Block.
Query command returns parameter setting.

Range: 100.0 kHz to 2710.0 MHz

Units: Hz | kHz | MHz

Default Value: 146.00 MHz

Set/Query Format: NRf | NR1 (Hz)

Example: :PLAN:CHANnel:BLOCK2:RX:STOPFreq 825MHz
Sets Stop Frequency on Rx Channel Block 2 to 825.0 MHz.

Query Response: :PLAN:CHANnel:BLOCK2:RX:STOPFreq?
825000000

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

7.4.32 SmartNet/SmartZone Band Plan - Tx Channel Block Count

:PLAN:CHANnel:BLOCKn:TX:COUNT?

Description: Query command returns the system defined number of channels. The number of channels is determined by the selected Channel Spacing, Start Frequency, Stop Frequency and the total number of channels available (380).

Range: 0 to 380

Query Format: NR1

Query Response: :PLAN:CHANnel:BLOCK2:TX:COUNT?
125

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

Returns "0" when associated Tx/Rx Block is disabled (OFF).

7.4.33 SmartNet/SmartZone Band Plan - Tx Channel Block State

:PLAN:CHANnel:BLOCKn:TX:STATE

:PLAN:CHANnel:BLOCKn:TX:STATE?

Description: Set command Enables/Disables Tx Channel Block.
Query command returns Channel Block state.

Parameter: OFF | ON | 0 | 1

Default Value: OFF (0)

Set/Query Format: Boolean

Example: :PLAN:CHANnel:BLOCK2:TX:STATE ON
Enables Channel Block 2 Tx Channel.

Query Response: :PLAN:CHANnel:BLOCK2:TX:STATE?
1

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

7.4.34 SmartNet/SmartZone Band Plan - Tx Channel Block Spacing

:PLAN:CHANnel:BLOCKn:TX:CHSPacing

:PLAN:CHANnel:BLOCKn:TX:CHSPacing?

Description: Set command defines Channel Spacing for specified Tx Channel Block.
Query command returns parameter setting.

Parameter: 5 kHz | 6.25 kHz | 10 kHz | 12.5 kHz | 15 kHz | 18.75 kHz | 20 kHz | 25 kHz |
30 kHz | 31.25 kHz | 35 kHz | 37.50 kHz | 40 kHz | 43.75 kHz | 50 kHz

Default Value: 5 kHz

Set/Query Format: NRf | NR1 (Hz)

Example: :PLAN:CHANnel:BLOCK2:TX:CHSPacing 12.5kHz
Sets Tx Channel Spacing for Channel Block 2 to 12.5 kHz.

Query Response: :PLAN:CHANnel:BLOCK2:TX:CHSPacing?
12500

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

7.4.35 SmartNet/SmartZone Band Plan - Tx Channel Start Frequency

:PLAN:CHANnel:BLOCKn:TX:STARTFreq

:PLAN:CHANnel:BLOCKn:TX:STARTFreq?

Description: Set command defines the Start Frequency of the specified Tx Channel Block.
Query command returns parameter setting.

Range: 100.0 kHz to 2710.0 MHz

Units: Hz | kHz | MHz

Default Value: 136.00 MHz

Set/Query Format: NRf | NR1 (Hz)

Example: :PLAN:CHANnel:BLOCK2:TX:STARTFreq 825MHz
Sets Start Frequency on Tx Channel Block 2 to 825.0 MHz.

Query Response: :PLAN:CHANnel:BLOCK2:TX:STARTFreq?
825000000

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

7.4.36 SmartNet/SmartZone Band Plan - Tx Channel Stop Frequency

:PLAN:CHANnel:BLOCKn:TX:STOPFreq

:PLAN:CHANnel:BLOCKn:TX:STOPFreq?

Description: Set command defines the Stop Frequency of the specified Tx Channel Block.
Query command returns parameter setting.

Range: 100.0 kHz to 2710.0 MHz

Units: Hz | kHz | MHz

Default Value: 136.00 MHz

Set/Query Format: NRf | NR1 (Hz)

Example: :PLAN:CHANnel:BLOCK2:TX:STOPFreq 825MHz
Sets Stop Frequency on Tx Channel Block 2 to 825.0 MHz.

Query Response: :PLAN:CHANnel:BLOCK2:TX:STOPFreq?
825000000

NOTE

BLOCKn = 1, 2 or 3 (Block 1, 2 or 3)

Command only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid with BP_OTHERBAND Band plan.

Chapter 8 - Protocol Remote Commands

8.1 INTRODUCTION

This chapter describes the Remote Commands for configuring and obtaining P25 Protocol data. Some of the commands described in this chapter are option dependent as noted. Remote commands are listed alphabetically under the following headings:

8.2 DATA LINK PROTOCOL - HEADER / VOICE FRAME DATA

8.2.1 Data Link - Algorithmic Identifier (Header)

:DATAlink:CHn:ALG?

Description: Command returns Algorithmic Identifier in Header data received from UUT Channel.

Query Data: 128 = Clear
129 = DES
132 = AES
All other numbers indicate UNKNOWN

Query Format: NR1

Query Response: :DATAlink:CH2:ALG?
129

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.2 Data Link - Clear Header Data

:DATAlink:CLEAr:HEADers

Description: Command clears Header data.

Set/Query Format: none

8.2.3 Data Link - Key ID (Header)

:DATAlink:CHn:KEY?

Description: Command returns Key ID in Header data received from UUT Channel.

Query Format: hex string

Query Response: :DATAlink:CH2:KEY?
00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.4 Data Link - Manufacturer ID (Header)

:DATAlink:CHn:MFID?

Description: Command returns Manufacturer ID in Header Data received from UUT Channel.

Query Format: hex string

Query Response: :DATAlink:CH2:MFID?

00

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.5 Data Link - Message Identifier (Header)

:DATAlink:CHn:MI?

Description: Command returns Message Identifier in Header Data received from UUT Channel.

Query Format: hex string, 18 characters

Query Response: :DATAlink:CH2:MI?

012345678901234567

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.6 Data Link - Talk Group Identifier (Header)

:DATAlink:CHn:TGID?

Description: Command returns Talk Group Identifier in Header data received from UUT Channel.

Query Format: hex string

Query Response: :DATAlink:CH2:TGID?

0001

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.7 Data Link - Voice Algorithmic Identifier

:DATAlink:CHn:VOICE:ALG?

Description: Command returns Algorithmic Identifier in Voiceframe received from UUT.

Query Data: 128 = Clear

129 = DES

132 = AES

All other numbers indicate UNKNOWN

Query Format: NR1

Query Response: :DATAlink:CH2:VOICE:ALG?

129

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.8 Data Link - Voice Data Unit Identifier

:DATAlink:CHn:VOICE:DUID?

Description: Command returns Data Unit Identifier in Voiceframe received from UUT.

Query Format: ascii string

Query Response: :DATAlink:CH2:VOICE:DUID?
10 - LDU2

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.9 Data Link - Voice Frame Number

:DATAlink:CHn:VOICE:FRAME?

Description: Command returns Frame number assigned by Test Set.

Query Format: NR1

Query Response: :DATAlink:CH2:VOICE:FRAME?
3473

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.10 Data Link - Voice Key Identifier

:DATAlink:CHn:VOICE:KEY?

Description: Command returns Key Identifier in Voiceframe received from UUT.

Query Format: hex string

Query Response: :DATAlink:CH2:VOICE:KEY?
0

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.11 Data Link - Voice Low Speed Data

:DATAlink:CHn:VOICE:LSD?

Description: Command returns Low Speed Data in Voiceframe received from UUT.

Query Format: hex string, 8 characters

Query Response: :DATAlink:CH2:VOICE:LSD?
00000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.12 Data Link - Voice Manufacturer Identifier**:DATAlink:CHn:VOICE:MI?**

Description: Command returns Message Identifier in Voiceframe received from UUT.

Query Format: hex string, 18 characters

Query Response: :DATAlink:CH2:VOICE:MI?
000000000000000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.13 Data Link - Voice Network Access Code**:DATAlink:CHn:VOICE:NAC?**

Description: Command returns the Network Access Code in Voiceframe received from UUT.

Query Format: hex string, 3 character

Query Response: :DATAlink:CH2:VOICE:MI?
293

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.2.14 Data Link - Voice Status Bit for LDU1 or LDU2**:DATAlink:CHn:VOICE:STS1?****:DATAlink:CHn:VOICE:STS2?**

Description: Command returns Status Bit for LDU1 or LDU2 in Voice Data received from UUT.

Query Format: hex string, 23 characters

Query Response: :DATAlink:CH2:VOICE:STS1?
0000000000000000000000

NOTE

CHn = 1 or 2 (Channel 1 or 2). Channel 2 is option enabled.

8.3 DATA LINK PROTOCOL - LAST LINK CONTROL MESSAGE

8.3.1 Data Link Last Link Control - Address Group “X”

:DATAlink:LC:CHn:LLC:GROUP:ADDRESSx?

Description: Query command returns Last Link Control Address Group.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:GROUP:ADDRESSA?
43981

NOTE

CHn = 1 or 2 (Channel 1 or 2)
ADDRESSx = A or B

8.3.2 Data Link Last Link Control - Address Source

:DATAlink:LC:CHn:LLC:ADDResS:SRC?

Description: Query command returns Last Link Control Address Source.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:ADDResS:SRC?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.3 Data Link Last Link Control - Bandwidth

:DATAlink:LC:CHn:LLC:BANDWidth?

Description: Query command returns the Last Link Control Bandwidth.

Query Format: NR2 (kHz)

Query Response: :DATAlink:LC:CHn:LLC:FREQuency?
12.50

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.4 Data Link Last Link Control - CFVA

:DATAlink:LC:CHn:LLC:CFVA?

Description: Query command returns the Last Link Control CFVA flag values.

Query Data: C: Indicates if broadcast is for a Conventional Channel.

F: Indicates broadcast Failure Mode

V: Indicates if content is valid.

A: Indicates if there is an active network connection with the RFSS controller.

C: 0 = Non-Conventional

1 = Conventional

F: 0 = Normal Condition

1 = Site in Failure Condition

V: 0 = Unknown or last reported as Valid (site not responding)

1 = Valid Content

A: 0 = Inactive

1 = Active

Default Value: 0

Query Format: binary: query command ends with b

octal: query command ends with q

decimal: default format

hex: query command ends with h

Query Response: :DATAlink:LC:CHn:LLC:CFVA?

0110

NOTE

CHn = 1 or 2 (Channel 1 or 2)

Returned binary values drop leading "0". (i.e., 0010 is returned as 10 in binary format.)

8.3.5 Data Link Last Link Control - Channel Identifier

:DATAlink:LC:CHn:LLC:CHANnel:ID?

Description: Query command returns the Last Link Control Channel Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:CHANnel:ID?

5

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.6 Data Link Last Link Control - Channel "X" Identifier

:DATAlink:LC:CHn:LLC:CHANnel:IDx?

Description: Query command returns the Last Link Control Channel Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:CHANnel:IDA?

5

NOTE

CHn = 1 or 2 (Channel 1 or 2)

IDx = A, B, R or T

8.3.7 Data Link Last Link Control - Channel Number

:DATAlink:LC:CHn:LLC:CHANnel:NUM?

Description: Query command returns the Last Link Control Channel Number.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:CHANnel:NUM?
420

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.8 Data Link Last Link Control - Channel “X” Number

:DATAlink:LC:CHn:LLC:CHANnel:NUMx?

Description: Query command returns the Last Link Control Channel Number.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:CHANnel:NUMA?
420

NOTE

CHn = 1 or 2 (Channel 1 or 2)
NUMx = A, B, R or T

8.3.9 Data Link Last Link Control - Emergency Status

:DATAlink:LC:CHn:LLC:EMG

:DATAlink:LC:CHn:LLC:EMG?

Description: Set command defines the Last Link Control Emergency Status.
Query command returns parameter setting.

Parameter: 0 = Normal / non-emergency status
1 = Emergency Status

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:LLC:EMG
Sets Last Link Control Emergency Status to 1.

Query Response: :DATAlink:LC:CHn:LLC:EMG?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.10 Data Link Last Link Control - Frequency

:DATAlink:LC:CHn:LLC:FREQuency?

Description: Query command returns the Last Link Control Frequency.

Query Format: NR2 (mHz)

Query Response: :DATAlink:LC:CHn:LLC:FREQuency?
1275.006250

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.11 Data Link Last Link Control - Function**:DATAlink:LC:CHn:LLC:FUNcTion?**

Description: Query command returns the Last Link Control Function.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:FUNcTion?
1234567890

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.12 Data Link Last Link Control - Local Registration Area**:DATAlink:LC:CHn:LLC:LRA?**

Description: Query command returns the Last Link Control Local Registration Area.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:LRA?
98

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.13 Data Link Last Link Control - Logic Control Opcode**:DATAlink:LC:CHn:LLC:LCO****:DATAlink:LC:CHn:LLC:LCO?**

Description: Set command defines the Last Link Control Logic Control Opcode.
Query command returns parameter setting.

Range: 0 to 63

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:CHn:LLC:LCO 25
Sets Last Link Control Logic Control Opcode to 25.

Query Response: :DATAlink:LC:CHn:LLC:LCO?
25

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.14 Data Link Last Link Control - Logic Control Opcode Description

:DATAlink:LC:CHn:LLC:LCODESC
:DATAlink:LC:CHn:LLC:LCODESC?

Description: Set command defines the Last Link Control Logic Control Opcode Description.
Query command returns parameter setting.

Parameter: Refer to TIA-102.AABF Specification for abbreviations

Default Value: 0

Set/Query Format: decimal - TIA Abbreviation in ascii-string format

Example: :DATAlink:LC:CHn:LLC:LCODESC 5 - LC_UU_ANS_REQ
Sets Last Link ControlLogic Control Opcode Description to
5 - LC_UU_ANS_REQ.

Query Response: :DATAlink:LC:CHn:LLC:LCODESC?
5 - LC_UU_ANS_REQ

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.15 Data Link Last Link Control - Logic Control Opcode Raw Data

:DATAlink:LC:CHn:LLC:RAWLCO
:DATAlink:LC:CHn:LLC:RAWLCO?

Description: Set command defines the Last Link Control Raw LCO.
Query command returns parameter setting.

Parameter: 9 Decimal bytes

Default Value: 00 05 AB CD EF 99 88 77 66

Set/Query Format: 9 Decimal pairs

Example: :DATAlink:LC:CHn:LLC:RAWLCO 00 05 AB CD EF 99 88 77 66
Sets Last Link ControlRaw LCO to 00 05 AB CD EF 99 88 77 66.

Query Response: :DATAlink:LC:CHn:LLC:RAWLCO?
00 05 AB CD EF 99 88 77 66

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.16 Data Link Last Link Control - Manufacturer Identifier

:DATAlink:LC:CHn:LLC:MFID?

Description: Query command returns the Last Link Control Manufacturer Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:MFID?
45

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.17 Data Link Last Link Control - Message**:DATAlink:LC:CHn:LLC:MESSage?**

Description: Query command returns the Last Link Control Message.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:MESSage?
42750

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.18 Data Link Last Link Control - MFID Format (Implicit/Explicit)**:DATAlink:LC:CHn:LLC:SF****:DATAlink:LC:CHn:LLC:SF?**

Description: Set command defines the Last Link Control MFID Format.
Query command returns parameter setting.

Parameter: 0 = Explicit
1 = Implicit

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:LLC:SF
Sets Last Trunking CommandMFID Format to 1 (Implicit).

Query Response: :DATAlink:LC:CHn:LLC:SF?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.19 Data Link Last Link Control - Network Identifier**:DATAlink:LC:CHn:LLC:NETID?**

Description: Query command returns the Last Link Control Network Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:NETID?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.20 Data Link Last Link Control - Offset**:DATAlink:LC:CHn:LLC:OFFSet?**

Description: Query command returns the Last Link Control Offset.

Query Format: NR2 (MHz)

Query Response: :DATAlink:LC:CHn:LLC:OFFSet?
-45.00

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.21 Data Link Last Link Control - Priority**:DATAlink:LC:CHn:LLC:PRIORity?**

Description: Query command returns the Last Link Control Priority.

Query Format: 4 bit data, hex format
As defined in TIA-102.AABF-F Specification

Query Response: :DATAlink:LC:CHn:LLC:PRIORity?
F

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.22 Data Link Last Link Control - Protection Bit Value**:DATAlink:LC:CHn:LLC:P****:DATAlink:LC:CHn:LLC:P?**

Description: Set command defines the Last Link Control Protection Bit Value.
Query command returns parameter setting.

Parameter: 0 = Clear
1 = Encrypted

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:LLC:P
Sets Last Link Control Protection Bit Value to 1.

Query Response: :DATAlink:LC:CHn:LLC:P?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.23 Data Link Last Link Control - PSTN**:DATAlink:LC:CHn:LLC:PSTN?**

Description: Query command returns the Last Link Control PSTN.

Query Data: 10 characters (0-9, A-D, #*HP)

Query Format: phone number string

Query Response: :DATAlink:LC:CHn:LLC:PSTN?
1234987650

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.24 Data Link Last Link Control - RF Subsystem Identifier**:DATAlink:LC:CHn:LLC:RFID?**

Description: Query command returns the Last Link Control RF Subsystem Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:RFID?
98

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.25 Data Link Last Link Control - S Bit**:DATAlink:LC:CHn:LLC:S****:DATAlink:LC:CHn:LLC:S?**

Description: Set command defines the Last Link Control S Bit.
Query command returns parameter setting.

Parameter: always 0

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:CHn:LLC:S 0
Sets Last Link Controls Bit to 0.

Query Response: :DATAlink:LC:CHn:LLC:S?
0

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.26 Data Link Last Link Control - Service Class**:DATAlink:LC:CHn:LLC:SSERVICE:CLASS?**

Description: Query command returns the Last Link Control Service Class.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SSERVICE:CLASS?
98

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.27 Data Link Last Link Control - Service Class “X”**:DATAlink:LC::DATAlink:LC:CHn:LLC:SSERVICE:CLASSx?**

Description: Query command returns the Last Link Control Service Class.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SSERVICE:CLASSA?
98

NOTE

CHn = 1 or 2 (Channel 1 or 2)

CLASSx = A or B

8.3.28 Data Link Last Link Control - Service Options**:DATAlink:LC:CHn:LLC:SOPTIONS?**

Description: Query command returns Last Link Control Service Options.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SOPTIONS?
1A

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.29 Data Link Last Link Control - Services Authorized**:DATAlink:LC:CHn:LLC:SERVices:AUTHorized?**

Description: Query command returns the Last Link Control Services Authorized.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SERVices:AUTHorized?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.30 Data Link Last Link Control - Services Supported**:DATAlink:LC:CHn:LLC:SERVices:SUPPorted?**

Description: Query command returns the Last Link Control Services Supported.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SERVices:SUPPorted?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.31 Data Link Last Link Control - Site Identifier**:DATAlink:LC:CHn:LLC:SITEID?**

Description: Query command returns the Last Link Control Site Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SITEID?
98

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.32 Data Link Last Link Control - Source Identifier**:DATAlink:LC:CHn:LLC:SRCID?**

Description: Query command returns the Last Link Control Source Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SRCID?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.33 Data Link Last Link Control - Spacing**:DATAlink:LC:CHn:LLC:SPACing?**

Description: Query command returns the Last Link Control Spacing.

Query Format: NR2 (kHz)

Query Response: :DATAlink:LC:CHn:LLC:SPACing?
6.25

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.34 Data Link Last Link Control - Status**:DATAlink:LC:CHn:LLC:STATUS?**

Description: Query command returns the Last Link Control Status.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:STATUS?
42750

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.35 Data Link Last Link Control - System Identifier**:DATAlink:LC:CHn:LLC:SYSID?**

Description: Query command returns the Last Link Control System Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:SYSID?
2525

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.3.36 Data Link Last Link Control - Target Identifier**:DATAlink:LC:CHn:LLC:TGTID?**

Description: Query command returns the Last Link Control Target Identifier.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:LLC:TGTID?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4 DATALINK PROTOCOL - USER VOICE CALL

8.4.1 Data Link User Voice Call - Address Source

:DATALink:LC:CHn:UVC:ADDResS:SRC?

Description: Query command returns User Voice Call Address Source.

Query Format: Decimal

Query Response: :DATALink:LC:CHn:UVC:ADDResS:SRC?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.2 Data Link User Voice Call - Address Source Target

:DATALink:LC:CHn:UVC:ADDResS:SRCTGT?

Description: Query command returns User Voice Call Address Source Target.

Query Format: Decimal

Query Response: :DATALink:LC:CHn:UVC:ADDResS:SRCTGT?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.3 Data Link User Voice Call - Address Target

:DATALink:LC:CHn:UVC:ADDResS:TGT?

Description: Query command returns User Voice Call Address Target.

Query Format: Decimal

Query Response: :DATALink:LC:CHn:UVC:ADDResS:TGT?
5175

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.4 Data Link User Voice Call - Address Timer

:DATALink:LC:CHn:UVC:TIMER?

Description: Query command returns User Voice Call Address Timer.

Query Format: Decimal

Query Response: :DATALink:LC:CHn:UVC:TIMER?
1234

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.5 Data Link User Voice Call - Emergency Status

:DATAlink:LC:CHn:UVC:EMG

:DATAlink:LC:CHn:UVC:EMG?

Description: Set command defines the User Voice Call Emergency Status.
Query command returns parameter setting.

Parameter: 0 = Normal / non-emergency status
1 = Emergency Status

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:UVC:EMG
Sets User Voice Call Emergency Status to 1.

Query Response: :DATAlink:LC:CHn:UVC:EMG?
1

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.6 Data Link User Voice Call - Logic Control Opcode

:DATAlink:LC:CHn:UVC:LCO

:DATAlink:LC:CHn:UVC:LCO?

Description: Set command defines the User Voice Call Logic Control Opcode.
Query command returns parameter setting.

Range: 0 to 63

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:CHn:UVC:LCO 25
Sets User Voice Call Logic Control Opcode to 25.

Query Response: :DATAlink:LC:CHn:UVC:LCO?
25

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.7 Data Link User Voice Call - Logic Control Opcode Description

:DATAlink:LC:CHn:UVC:LCODESC

:DATAlink:LC:CHn:UVC:LCODESC?

Description: Set command defines the User Voice Call Logic Control Opcode Description.
Query command returns parameter setting.

Parameter: Refer to TIA-102.AABF Specification for abbreviations

Default Value: 0 - LC_GRP_V_CH_USR

Set/Query Format: decimal - TIA Abbreviation in ascii-string format

Example: :DATAlink:LC:CHn:UVC:LCODESC 0 - LC_GRP_V_CH_USR
Sets User Voice Call Logic Control Opcode Description to
0 - LC_GRP_V_CH_USR.

Query Response: :DATAlink:LC:CHn:UVC:LCODESC?
0 - LC_GRP_V_CH_USR

NOTE

CHn = 1 or 2 (Channel 1 or 2)

8.4.8 Data Link User Voice Call - Logic Control Opcode Raw Data

:DATAlink:LC:CHn:UVC:RAWLCO

:DATAlink:LC:CHn:UVC:RAWLCO?

Description: Set command defines the User Voice Call Raw LCO.
Query command returns parameter setting.

Parameter: 9 Decimal bytes

Default Value: 00 05 AB CD EF 99 88 77 66

Set/Query Format: 9 Decimal pairs

Example: :DATAlink:LC:CHn:UVC:RAWLCO 00 05 AB CD EF 99 88 77 66
Sets User Voice Call Raw LCO to 00 05 AB CD EF 99 88 77 66.

Query Response: :DATAlink:LC:CHn:UVC:RAWLCO?
00 05 AB CD EF 99 88 77 66

CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.4.9 Data Link User Voice Call - Manufacturer Identifier

:DATAlink:LC:CHn:UVC:MFID

:DATAlink:LC:CHn:UVC:MFID?

Description: Set command defines the User Voice Call Manufacturer Identifier.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:CHn:UVC:MFID 45
Sets User Voice Call Manufacturer Identifier to 45.

Query Response: :DATAlink:LC:CHn:UVC:MFID?
45

CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.4.10 Data Link User Voice Call - MFID Format (Implicit/Explicit)

:DATAlink:LC:CHn:UVC:SF

:DATAlink:LC:CHn:UVC:SF?

Description: Set command defines the User Voice Call MFID Format.
Query command returns parameter setting.

Parameter: 0 = Explicit
1 = Implicit

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:UVC:SF
Sets User Voice Call MFID Format to 1 (Implicit).

Query Response: :DATAlink:LC:CHn:UVC:SF?
1

CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.4.11 Data Link User Voice Call - Protection Bit Value

:DATAlink:LC:CHn:UVC:P

:DATAlink:LC:CHn:UVC:P?

Description: Set command defines the User Voice Call Protection Bit Value.
Query command returns parameter setting.

Parameter: 0 = Clear
1 = Encrypted

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:UVC:P
Sets User Voice Call Protection Bit Value to 1.

Query Response: :DATAlink:LC:CHn:UVC:P?
1
CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.4.12 Data Link User Voice Call - S Bit

:DATAlink:LC:CHn:UVC:S

:DATAlink:LC:CHn:UVC:S?

Description: Set command defines the User Voice Call S Bit.
Query command returns parameter setting.

Parameter: Always 0

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:CHn:UVC:S 0
Sets User Voice Call S Bit to 0.

Query Response: :DATAlink:LC:CHn:UVC:S?
0
CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.4.13 Data Link User Voice Call - Service Options

:DATAlink:LC:CHn:UVC:SOPTIONS?

Description: Query command returns User Voice Call Service Options.

Query Format: Decimal

Query Response: :DATAlink:LC:CHn:UVC:SOPTIONS?
75

CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.5 ENCRYPTION PROTOCOL

8.5.1 Encryption - ALG ID

:ENCryption:ALGId

:ENCryption:ALGId?

Description: Set command defines encryption key algorithm.
Query command returns parameter setting.

Parameter: AES | CLEAR | DES

Default Value: CLEAR

Set/Query Format: CPD | CRD

Example: :ENCryption:ALGId AES
Sets Encryption to AES.

Query Response: :ENCryption:ALGId?
AES

NOTE

AES is only valid when AES Option is installed in Test Set.

8.5.2 Encryption - Apply Key ID

:ENCryption:APPLY

:ENCryption:APPLY?

Description: Set command saves Key ID data for specified slot.
Query command indicates if Key ID was successfully saved

Range: 1 to 16

Set/Query Format: NR1

Query Data: 0 = Successful (Saved)
1 = Failed (Not saved)

Example: :ENCryption:KEYID 8
Saves Key ID to slot 8.

NOTE

n = 1 to 16

8.5.3 Encryption - File Name

:ENCryption:NAME

:ENCryption:NAME?

Description: Set command defines the name for the selected encryption key slot.
Query command returns name of selected encryption slot.

Parameter: 32 character maximum

Set/Query Format: ascii string

Example: :ENCryption:NAME "test_file"
Names encryption key slot to test_file.

Query Response: :ENCryption:NAME
test_file

8.5.4 Encryption - Key

:ENCryption:KEY

Description: Command defines KEY ID. Parameter can not be queried.

Parameter: DES = 16 character maximum
AES = 64 character maximum

Default Value: 7070707070707070

Set Format: Number String

Example: :ENCryption:KEY 0123456789012345
Sets Encryption key to 0123456789012345.

8.5.5 Encryption - Key ID

:ENCryption:KEYId

:ENCryption:KEYId?

Description: Set command defines the key id for the selected encryption key slot.
Query command returns parameter setting.

Range: 0 to 0xFFFF (0 to 65535)

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q17777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :ENCryption:KEYId 1234
Sets Encryption Key ID to 1234 (4D2 Hex).

Query Response: :ENCryption:KEYId?
1234

8.5.6 Encryption - Slot Number

:ENCryption:SLOTn

:ENCryption:SLOT?

Description: Set command defines Encryption Slot number.
Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :ENCryption:SLOT4
Saves Key ID to Slot 4.

Query Response: :ENCryption:SLOT?
4

NOTE

SLOTn = 1 to 16

8.5.7 Encryption - Validate Key

:ENCryption:KEYVALID?

Description: Command verifies length of key for select encryption type.

Query Data: VALID | INVALID

Query Response: :ENCryption:KEYVALID?
VALID

8.5.8 Encryption - Validate Pair

:ENCryption:PAIRVALID?

Description: Command checks validity of the current Key ID and Algid pair found.

Query Data: VALID = no duplicate Key ID and Algid pair found

DUPLICATE = duplicate Key ID and Algid found

INVALIDALGID = Algid value not defined

INVALIDKEYID = Keyid value not defined

Query Response: :ENCryption:PAIRVALID?
1

8.6 MESSAGE ENCODE

8.6.1 Encode Message - Address Group

:DATAlink:LC:ENC:GROUP:ADDRESS

:DATAlink:LC:ENC:GROUP:ADDRESS?

Description: Set command defines Encode Message Address Group.
Query command returns Encode Message Address Group.

Range: 0 to 65535 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q177777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:GROUP:ADDRESS #q11064
Sets Encode Message Address Group to 4660 in octal format.

Query Response: :DATAlink:LC:ENC:GROUP:ADDRESS?
4660

8.6.2 Encode Message - Address Group "X"

:DATAlink:LC:ENC:GROUP:ADDRESSx

:DATAlink:LC:ENC:GROUP:ADDRESSx?

Description: Set command defines Encode Message Address Group.
Query command returns Encode Message Address Group.

Range: 0 to 65535 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q177777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:GROUP:ADDRESSA #q11064
Sets Encode Message Address Group A to 4660 in octal format.

Query Response: :DATAlink:LC:ENC:GROUP:ADDRESSA?
4660

NOTE

where ADDRESSx x = A or B

Query Response: :DATAlink:LC:ENC:ADDRes:SRC?
75275

Query Response: :DATAlink:LC:ENC:ADDRes:TGt?
75275

8.6.7 Encode Message - Bandwidth

:DATAlink:LC:ENC:BANDWidth

:DATAlink:LC:ENC:BANDWidth?

Description: Set command defines the Encode Message Bandwidth value.
Query command returns the Encode Message Bandwidth.

Range: 0.0 to 63.875 kHz

Units: kHz

Default Value: 12.5 kHz

Set/Query Format: NRf | NR2 (kHz)

Example: :DATAlink:LC:ENC:BANDWidth 7.5
Sets Encode Message Bandwidth to 7.5 kHz.

Query Response: :DATAlink:LC:ENC:BANDWidth?
7.50

8.6.8 Encode Message - Bandwidth VU

:DATAlink:LC:ENC:VUBANDWidth

:DATAlink:LC:ENC:VUBANDWidth?

Description: Set command defines the Encode Message Bandwidth VU value.
Query command returns current setting.

Range: 0.0 to 63.875 kHz

Units: kHz

Default Value: 12.5 kHz

Set/Query Format: NRf | NR2 (kHz)

Example: :DATAlink:LC:ENC:VUBANDWidth 7.5
Sets Encode Message Bandwidth VU to 7.5 kHz.

Query Response: :DATAlink:LC:ENC:VUBANDWidth?
7.50

NOTE

This field applies to LCO 25 only.

8.6.9 Encode Message - CFVA

:DATAlink:LC:ENC:CFVA?

:DATAlink:LC:ENC:CFVA?

Description: Set command defines Encode Message CFVA flags.
Query command returns the Encode Message PSTN.

Query Data:

- C:** 0 = Broadcast is in Non-Conventional Mode
1 = Broadcast is in Conventional Mode
- F:** 0 = Normal Broadcast Condition
1 = Site in Broadcast Failure Condition
- V:** 0 = Unknown or last reported as Valid (site not responding)
1 = Valid Content
- A:** 0 = Inactive network connection with the RFSS controller
1 = Active network connection with the RFSS controller

Default Value: 0

Set Format: binary: value begins with #b (#b0)
octal: value begins with #q (#q0)
decimal: value is entered as a decimal value (0)
hex: value begins with #h (#h0)

Query Format: binary: query command ends with b (returned data drops leading 0's)
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:CFVA #b0110
Sets C: Non-Conventional | F: Failure Condition | V: Valid | A: Inactive.

Query Response: :DATAlink:LC:ENC:CFVA?b
110

8.6.10 Encode Message - Channel Identifier

:DATAlink:LC:ENC:CHANnel:ID

:DATAlink:LC:ENC:CHANnel:ID?

Description: Set command defines Encode Message Channel Identifier.
Query command returns the Encode Message Channel Identifier.

Range: 0 to 15

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:ENC:CHANnel:ID 10
Sets Encode Message Channel Identifier to 10.

Query Response: :DATAlink:LC:ENC:CHANnel:ID?
10

8.6.11 Encode Message - Channel “X” Identifier**:DATAlink:LC:ENC:CHANnel:IDx****:DATAlink:LC:ENC:CHANnel:IDx?**

Description: Set command defines Encode Message Channel Identifier.
Query command returns the Encode Message Channel Identifier.

Range: 0 to 15

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:ENC:CHANnel:IDA 10
Sets Encode Message Channel A Identifier to 10.

Query Response: :DATAlink:LC:ENC:CHANnel:IDA?
10

NOTE

IDx = A, B, R or T

8.6.12 Encode Message - Channel Number**:DATAlink:LC:ENC:CHANnel:NUM****:DATAlink:LC:ENC:CHANnel:NUM?**

Description: Set command defines Encode Message Channel Number.
Query command returns the Encode Message Channel Number.

Range: 0 to 4095 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b111111111111)
octal: value begins with #q (#q7777)
decimal: value is entered as a decimal value (4095)
hex: value begins with #h (#hFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:CHANnel:NUM #q7215
Sets Encode Message Channel Number to 3725 in octal format.

Query Response: :DATAlink:LC:ENC:CHANnel:NUM?h
E8D

8.6.13 Encode Message - Channel “X” Number

:DATAlink:LC:ENC:CHANnel:NUMx

:DATAlink:LC:ENC:CHANnel:NUMx?

Description: Set command defines Encode Message Channel Number.
Query command returns the Encode Message Channel Number.

Range: 0 to 4095 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b111111111111)
octal: value begins with #q (#q7777)
decimal: value is entered as a decimal value (4095)
hex: value begins with #h (#hFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:CHANnel:NUMA #q7215
Sets Encode Message Channel A Number to 3725 in octal format.

Query Response: :DATAlink:LC:ENC:CHANnel:NUMA?h
E8D

NOTE

NUMx = A, B, R or T.

8.6.14 Encode Message - Emergency Status

:DATAlink:LC:ENC:EMG

:DATAlink:LC:ENC:EMG?

Description: Set command defines the Encode Message Emergency Status.
Query command returns parameter setting.

Parameter: 0 = Normal / non-emergency status
1 = Emergency Status

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:ENC:EMG
Sets Encode Message Emergency Status to 1.

Query Response: :DATAlink:LC:ENC:EMG?
1

8.6.17 Encode Message - Local Registration Area

:DATAlink:LC:ENC:LRA

:DATAlink:LC:ENC:LRA?

Description: Set command defines Encode Message Local Registration Area.
Query command returns the Encode Message Local Registration Area.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example :DATAlink:LC:ENC:LRA 98
Sets Encode Message Local Registration Area to 98.

Query Response: :DATAlink:LC:ENC:LRA?h
62

8.6.18 Encode Message - Logic Control Opcode

:DATAlink:LC:ENC:LCO

:DATAlink:LC:ENC:LCO?

Description: Set command defines the Encode Message Logic Control Opcode.
Query command returns parameter setting.

Range: 0 to 63

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:ENC:LCO 25
Sets Encode Message Logic Control Opcode to 25.

Query Response: :DATAlink:LC:ENC:LCO?
25

8.6.19 Encode Message - Logic Control Opcode Description

:DATAlink:LC:ENC:LCODESC

:DATAlink:LC:ENC:LCODESC?

Description: Set command defines the Encode Message Logic Control Opcode Description.
Query command returns parameter setting.

Parameter: Refer to TIA-102.AABF Specification for abbreviations

Default Value: 0 - LC_GRP_V_CH_USR

Set/Query Format: decimal - TIA Abbreviation in ascii-string format

Example: :DATAlink:LC:ENC:LCODESC 0 - LC_GRP_V_CH_USR
Sets Encode Message Logic Control Opcode Description to
0 - LC_GRP_V_CH_USR.

Query Response: :DATAlink:LC:ENC:LCODESC?
0 - LC_GRP_V_CH_USR

8.6.20 Encode Message - Logic Control Opcode Raw Data**:DATAlink:LC:ENC:RAWLCO****:DATAlink:LC:ENC:RAWLCO?**

Description: Set command defines the Encode Message Raw LCO.
Query command returns parameter setting.

Parameter: 9 Decimal bytes

Default Value: 05 05 AB CD EF 99 88 77 66

Set/Query Format: 9 Decimal pairs

Example: :DATAlink:LC:ENC:RAWLCO 00 05 AB CD EF 99 88 77 66
Sets Encode Message Raw LCO to 00 05 AB CD EF 99 88 77 66.

Query Response: :DATAlink:LC:ENC:RAWLCO?
00 05 AB CD EF 99 88 77 66

CHn = 1 or 2 (Channel 1 or 2)

NOTE

8.6.21 Encode Message - Manufacturer Identifier**:DATAlink:LC:ENC:MFID****:DATAlink:LC:ENC:MFID?**

Description: Set command defines Encode Message Manufacturer Identifier.
Query command returns the Encode Message Manufacturer Identifier.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:MFID 45
Sets Encode Message Manufacturer Identifier to 45.

Query Response: :DATAlink:LC:ENC:MFID?h
2D

8.6.22 Encode Message - MFID Format (Implicit/Explicit)**:DATAlink:LC:ENC:SF?**

Description: Query command returns MFID format setting received from UUT.

Query Data: 0 or 1 as defined in TIA-102-AABF-B Specification

Query Format: Decimal

Query Response: :DATAlink:LC:ENC:SF?
1

8.6.23 Encode Message - Message

:DATAlink:LC:ENC:MESSage

:DATAlink:LC:ENC:MESSage?

Description: Set command defines the Encoded Message.
Query command returns the Encoded Message.

Range: 0 to 65535 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b111111111111111111)
octal: value begins with #q (#q177777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:MESSage 4660
Sets Encode Message to 4660.

Query Response: :DATAlink:LC:ENC:MESSage?
4660

8.6.24 Encode Message - Network Identifier

:DATAlink:LC:ENC:NETID

:DATAlink:LC:ENC:NETID?

Description: Set command defines the Encode Message Network Identifier flag.
Query command returns the Encode Message Network Identifier.

Range: 0 to 1048575 (0FFFFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111111111111111111111111111)
octal: value begins with #q (#q37777777)
decimal: value is entered as a decimal value (1048575)
hex: value begins with #h (#hFFFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:NETID #q177455
Sets Encode Message Network Identifier to 65325 in octal format.

Query Response: :DATAlink:LC:ENC:NETID?
65325

8.6.25 Encode Message - Offset**:DATAlink:LC:ENC:OFFSet****:DATAlink:LC:ENC:OFFSet?**

Description: Set command defines the Encode Message Offset value.
Query command returns the Encode Message Offset.

Range: -63.875 to +63.875 MHz

Default Value: -45.00 MHz

Set/Query Format: NRf | NR2 (MHz)

Example: :DATAlink:LC:ENC:OFFSet 10.00MHz
Sets Encode Message Offset value to +10.00 MHz.

Query Response: :DATAlink:LC:ENC:OFFSet?
10.00

8.6.26 Encode Message - Offset VU**:DATAlink:LC:ENC:VUOFFSet****:DATAlink:LC:ENC:VUOFFSet?**

Description: Set command defines the Encode Message Offset VU value.
Query command returns current setting.

Range: -63.875 to +63.875 MHz

Default Value: -45.00 MHz

Set/Query Format: NRf | NR2 (MHz)

Example: :DATAlink:LC:ENC:VUOFFSet 10.00MHz
Sets Encode Message Offset value to +10.00 MHz.

Query Response: :DATAlink:LC:ENC:VUOFFSet?
10.00

NOTE

This field applies to LCO 25 only.

8.6.27 Encode Message - Priority

:DATAlink:LC:ENC:PRIORITY
:DATAlink:LC:ENC:PRIORITY?

Description: Set command defines the Encode Message Priority flag.
Query command returns the Encode Message Priority flag.

Range: 0 to 15
As defined in TIA-102.AABF-F Specification

Default Value: 0

Set Format: binary: value begins with #b (#b1111)
octal: value begins with #q (#q17)
decimal: value is entered as a decimal value (15)
hex: value begins with #h (#hF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:PRIORITY #hB
Sets Encode Message Priority flag to 11 in hexadecimal format.

Query Response: :DATAlink:LC:ENC:PRIORITY? q
17

8.6.28 Encode Message - Protection Bit Value

:DATAlink:LC:ENC:P
:DATAlink:LC:ENC:P?

Description: Set command defines the Encode Message Protection Bit Value.
Query command returns parameter setting.

Parameter: 0 = Clear
1 = Encrypted

Default Value: 0

Set/Query Format: NR1

Example: :DATAlink:LC:ENC:P
Sets Encode Message Protection Bit Value to 1.

Query Response: :DATAlink:LC:ENC:P?
1

8.6.29 Encode Message - PSTN

:DATAlink:LC:ENC:PSTN?

Description: Set command defines the Encode Message PSTN.
Query command returns the Encode Message PSTN.

Parameter: 10 characters (0-9, A-D, #*HP)

Default Value: 0

Set/Query Format: phone number string

Example: :DATAlink:LC:ENC:PSTN 1234987650
Sets the Encode Message PSTN to 124987650.

Query Response: :DATAlink:LC:ENC:PSTN?
1234987650

8.6.30 Encode Message - RF Subsystem Identifier**:DATAlink:LC:ENC:RFID****:DATAlink:LC:ENC:RFID?**

Description: Set command defines the Encode Message RF Subsystem Identifier.
Query command returns the Encode Message RF Subsystem Identifier.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:RFID 98
Sets Encode Message RFID value to 98.

Query Response: :DATAlink:LC:ENC:RFID?h
62

8.6.31 Encode Message - S Bit**:DATAlink:LC:ENC:S****:DATAlink:LC:ENC:S?**

Description: Set command defines the Encode Message S Bit.
Query command returns parameter setting.

Parameter: always 0

Default Value: 0

Set/Query Format: Decimal

Example: :DATAlink:LC:ENC:S 0
Sets Encode Message S Bit to 0.

Query Response: :DATAlink:LC:ENC:S?
0

8.6.32 Encode Message - Service Options

:DATAlink:LC:ENC:SOPTIONS

:DATAlink:LC:ENC:SOPTIONS?

Description: Set command defines Encode Message Service Options.
Query command returns Encode Message Service Options.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SOPTIONS #h4B
Sets Encode Message Service Option to 75 in hexadecimal format.

Query Response: :DATAlink:LC:ENC:SOPTIONS?
75

8.6.33 Encode Message - Services Authorized

:DATAlink:LC:ENC:SERVices:AUTHorized

:DATAlink:LC:ENC:SERVices:AUTHorized?

Description: Set command defines the Encode Message Services Authorized.
Query command returns the Encode Message Services Authorized.

Range: 0 to 1048575 (0FFFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111111111111111)
octal: value begins with #q (#q3777777)
decimal: value is entered as a decimal value (1048575)
hex: value begins with #h (#hFFFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SERVices:AUTHorized #q177455
Sets Encode Message Services Authorized to 65325 in octal format.

Query Response: :DATAlink:LC:ENC:SERVices:AUTHorized?
65325

8.6.34 Encode Message - Services Supported

:DATAlink:LC:ENC:SERVices:SUPPorted

:DATAlink:LC:ENC:SERVices:SUPPorted?

Description: Set command defines the Encode Message Services Supported.
Query command returns the Encode Message Services Supported.

Range: 0 to 1048575 (0FFFFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111111111111111)
octal: value begins with #q (#q3777777)
decimal: value is entered as a decimal value (1048575)
hex: value begins with #h (#hFFFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SERVices:SUPPorted 65325
Sets Encode Message Services Supported to 65325.

Query Response: :DATAlink:LC:ENC:SERVices:SUPPorted?q
177455

8.6.35 Encode Message - Site Identifier

:DATAlink:LC:ENC:SITEID

:DATAlink:LC:ENC:SITEID?

Description: Set command defines the Encode Message Site Identifier.
Query command returns the Encode Message Site Identifier.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SITEID 75
Sets Encode Message Site Identifier to 75.

Query Response: :DATAlink:LC:ENC:SITEID?h
4B

8.6.38 Encode Message - Status**:DATAlink:LC:ENC:STATUS****:DATAlink:LC:ENC:STATUS?**

Description: Set command defines Encode Message Status.
Query command returns Encode Message Status.

Range: 0 to 65535 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q177777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:STATUS #b1011010101
Sets Encode Message Status to 4660 in binary format.

Query Response: :DATAlink:LC:ENC:STATUS?
4660

8.6.39 Encode Message - System Identifier**:DATAlink:LC:ENC:SYSID****:DATAlink:LC:ENC:SYSID?**

Description: Set command defined the Encode Message System Identifier.
Query command returns the Encode Message System Identifier.

Range: 0 to 4095 (0xFFFF)

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q77777)
decimal: value is entered as a decimal value (4095)
hex: value begins with #h (#hFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SYSID #h23F
Sets Encode Message System Identifier to 575 in hexadecimal format.

Query Response: :DATAlink:LC:ENC:SYSID?
575

8.6.40 Encode Message - System Service Class**:DATAlink:LC:ENC:SSERVICE:CLASS****:DATAlink:LC:ENC:SSERVICE:CLASS?**

Description: Set command defines the Encode Message System Service Class.
Query command returns the Encode Message System Service Class.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SSERVICE:CLASS 98
Sets Encode Message System Service Class to 98.

Query Response: :DATAlink:LC:ENC:SSERVICE:CLASS?h
62

8.6.41 Encode Message - System Service Class "X"**:DATAlink:LC:ENC:SSERVICE:CLASSx****:DATAlink:LC:ENC:SSERVICE:CLASSx?**

Description: Set command defines the Encode Message System Service Class.
Query command returns the Encode Message System Service Class.

Range: 0 to 255 (0xFF)

Default Value: 0

Set Format: binary: value begins with #b (#b11111111)
octal: value begins with #q (#q377)
decimal: value is entered as a decimal value (255)
hex: value begins with #h (#hFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :DATAlink:LC:ENC:SSERVICE:CLASSA #h62
Sets Encode Message System Service Class A to 98 in hexadecimal format.

Query Response: :DATAlink:LC:ENC:SSERVICE:CLASSA?
98

NOTE

CLASSx where x = A or B

8.7 SIMULATOR PROTOCOL

8.7.1 External Mobile - Call Status

:SIMulator:EMn:STATus?

Description: Command returns Call status for External Mobile.

Query Format: NR1

Query Data: 0 = Mobile is unregistered
1 = External Mobile is registered
2 = External Mobile is affiliated

Query Response: :SIMulator:EM2:STATus?

2

EMn = 1 to 4 (EM1 to EM4).

NOTE

8.7.2 External Mobile - Talk Group Identifier

:SIMulator:EMn:TGID?

Description: Query command returns Talk Group Identifier for External Mobile.

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Query Response: :SIMulator:EMn:TGID? q

10341

EMn = 1 to 4 (EM1 to EM4).

NOTE

8.7.3 External Mobile - User Identifier

:SIMulator:EMn:UID

:SIMulator:EMn:UID?

Description: Set command defines User Identifier for External Mobile.
Query command returns parameter setting.

Range: 1 to 16777214

Default Value: 1

Set Format: binary: value begins with #b (#b1111111111111111111110)
octal: value begins with #q (#q77777776)
decimal: value is entered as a decimal value (16777214)
hex: value begins with #h (#hFFFFFFE)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :SIMulator:EMn:UID #h1E240
Sets External Mobile User Identifier to hex value 1E240.

Query Response: :SIMulator:EMn:UID? q
361100

NOTE

EMn = 1 to 4 (EM1 to EM4).

8.7.4 Simulator - Network Access Code

:SIMulator:NAC

:SIMulator:NAC?

Description: Set command defines Simulator Network Access Code.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 273 (hex)

Set Format: binary: value begins with #b (#b111110100)
octal: value begins with #q (#q764)
decimal: value is entered as a decimal value (500)
hex: value begins with #h (#h1F4)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :SIMulator:NAC 275
Sets Simulator Network Access Code to 275.

Query Response: :SIMulator:NAC? q
423

8.7.5 Virtual Mobile - Algorithmic Identifier

:SIMulator:VM1:ALG

:SIMulator:VM1:ALG?

Description: Set command defines type of Algorithmic Identifier for Virtual Mobile.
Query command returns parameter setting.

Parameter: 128 = Clear
129 = DES
132 = AES
All other numbers indicate UNKNOWN

Set/Query Format: NR1

Example: :SIMulator:VM1:ALG 129
Sets Virtual Mobile Algorithmic Identifier to DES.

Query Response: :SIMulator:VM1:ALG?
129

8.7.6 Virtual Mobile - Call Flags

:SIMulator:VM1:CFLAGS

:SIMulator:VM1:CFLAGS?

Description: Set command defines Capability Flag for Flags 1 to 8 when X2-TDMA radio type is selected.
Query command returns parameter settings.

Parameter: 0 = OFF
1 = ON

Default Value: 0 (OFF)

Set Format: Boolean in binary, decimal, octal or hex format
binary: flag status begins with #b (#b1010)
octal: flag status begins with #q (#q12)
decimal: flag status is entered as a decimal value (10)
hex: flag status begins with #h (#hA)
(i.e., 1010, where Flag 1 would be (1) ON, Flag 2 would be (0) OFF, Flag 3 would be (1) ON, etc...)

Query Format: binary: command string ends with b
octal: command string ends with q
decimal: default format
hex: command string ends with h

Example: :SIMulator:VM1:CFLAGS #h89
Sets Capability Flags status as follows:
Flag 1 ON | Flag 2 OFF | Flag 3 OFF | Flag 4 OFF | Flag 5 ON | Flag 6 OFF |
Flag 7 OFF | Flag 8 ON

Query Response: :SIMulator:VM1:CFLAGS?
10001001

NOTE

Commands only valid when X2-TDMA radio type is selected
(:SIMulator:VM1:RADIOtype X2TDMA).
Capability Flags are defined per APCO TIA-102.AABC messages U_REG_REQ
and LOC_REQ_REQ.

8.7.7 Virtual Mobile - Call Status

:SIMulator:VM1:STATus?

Description: Command returns Call Status of Virtual Mobile.

Query Data: 0 = OFF
1 = Registered
2 = Affiliated
3 = Blank Field
4 = Call

Query Format: NR1

Query Response: :SIMulator:VM1:STATus?
4

8.7.8 Virtual Mobile - Call Type

:SIMulator:VM1:TYPE

:SIMulator:VM1:TYPE?

Description: Set command defines Call Type for Virtual Mobile.
Query command returns parameter setting.

Parameter: GROUP | UNIT

Default Value: GROUP

Set/Query Format: CPD | CRD

Example: :SIMulator:VM1:TYPE UNIT
Sets Virtual Mobile to participate in a Unit to Unit call.

Query Response: :SIMulator:VM1:TYPE?
GROUP

NOTE

UNIT is only valid when P25 Unit to Unit Option (390XOPT213) is installed in Test Set.

8.7.9 Virtual Mobile - Destination Identifier

:SIMulator:VM1:DESTid

:SIMulator:VM1:DESTid?

Description: Set command defines Destination Identifier for Virtual Mobile during Unit to Unit call.
Query command returns parameter setting.

Range: 0 to 65535

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q177777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :SIMulator:VM1:DESid 595
Sets Virtual Mobile Destination Identifier to binary value 1001010011.

Query Response: :SIMulator:VM1:DESTid? q
1123

NOTE

Command is only valid when :SIMulator:VM1:TYPE is set to UNIT.
Command is only valid when P25 Unit to Unit Option (390XOPT213) is installed in Test Set.

8.7.10 Virtual Mobile - Enable

:SIMulator:VM1:ENABLE

:SIMulator:VM1:ENABLE?

Description: Set command simulates powering a radio on to initiate registration and affiliation.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :SIMulator:VM1:ENABLE ON
Enables Virtual Mobile radio power.

Query Response: :SIMulator:VM1:ENABLE?
1

NOTE

Trunking Simulator must be enabled for command to be valid.

8.7.11 Virtual Mobile - Encryption Key

:SIMulator:VM1:KEY

:SIMulator:VM1:KEY?

Description: Set command defines the encryption key id for Virtual Mobile.
Query command returns parameter setting.

Range: 0 to 65535

Default Value: 0

Set Format: binary: value begins with #b (#b1111111111111111)
octal: value begins with #q (#q177777)
decimal: value is entered as a decimal value (65535)
hex: value begins with #h (#hFFFF)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :SIMulator:VM1:KEY #FF
Sets Virtual Mobile Encryption Key to hex value FF.

Query Response: :SIMulator:VM1:KEY?
265

8.7.12 Virtual Mobile - Pattern

:SIMulator:VM1:PATtern

:SIMulator:VM1:PATtern?

Description: Set command selects Pattern type for Virtual Mobile.
Query command returns parameter setting.

Parameter: STOREDSPEECH | VOICE

Default Value: STOREDSPEECH

Set/Query Format: CPD | CRD

Example: :SIMulator:VM1:PATtern VOICE
Sets Virtual Mobile to transmit VOICE Pattern.

Query Response: :SIMulator:VM1:PATtern?
VOICE

8.7.13 Virtual Mobile - Push to Talk (PTT) Enable

:SIMulator:VM1:PTT

:SIMulator:VM1:PTT?

Description: Set command Enables/Disables Push to Talk for Virtual Mobile.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :SIMulator:VM1:PTT ON
Enables Virtual Mobile Push to Talk functionality.

Query Response: :SIMulator:VM1:PTT?
1

8.7.14 Virtual Mobile - Radio Flags (SmartNet™/SmartZone™)

:SIMulator:VM1:RFLAGS

:SIMulator:VM1:RFLAGS?

Description: Set command defines Radio Flag for Flags 1 to 4 when SNSZ radio type is selected.
Query command returns parameter setting.

Parameter: 0 = OFF
1 = ON

Default Value: 0 (OFF)

Flags: Flag 1 = PCC | Flag 2 = SCC | Flag 3 = DTC | Flag 4 query only returns ATC

Set Format: Boolean in binary, decimal, octal or hex format
binary: flag status begins with #b (#b1010)
octal: flag status begins with #q (#q12)
decimal: flag status is entered as a decimal value (10)
hex: flag status begins with #h (#hA)
(i.e., 1010, where Flag 1 would be (1) ON, Flag 2 would be (0) OFF, Flag 3 would be (1) ON)

Query Format: binary: command string ends with b
octal: command string ends with q
decimal: default format
hex: command string ends with h

Example: :SIMulator:VM1:RFLAGS #hE
Sets Radio Flags status as follows:
Flag 1 ON | Flag 2 ON | Flag 3 ON | Flag 4 OFF

Query Response: :SIMulator:VM1:RFLAGS?
1110

NOTE

Commands only valid when SNSZ radio type is selected
(:SIMulator:VM1:RADIOtype SNSZ)

8.7.15 Virtual Mobile - Radio Type

:SIMulator:VM1:RADIOtype

:SIMulator:VM1:RADIOtype?

Description: Set command selects type of radio participating in call with Virtual Mobile.
Query command returns parameter setting.

Parameter: PHASE1 | SNSZ

Default Value: PHASE1

Set/Query Format: CPD | CRD

Example: :SIMulator:VM1:RADIOtype SNSZ
Sets Virtual Mobile to participate in call with a SmartNet/SmartZone radio.

Query Response: :SIMulator:VM1:RADIOtype?
SNSZ

NOTE

SNSZ Radio type only valid when SmartNet/SmartZone option is installed in Test Set.

8.7.16 Virtual Mobile - Talk Group Identifier

:SIMulator:VM1:TGID

:SIMulator:VM1:TGID?

Description: Set command defines Talk Group Identifier for Virtual Mobile.
Query command returns parameter setting.

Range: 1 to 4094

Default Value: 1

Set Format: binary: value begins with #b (#b111110100000)
octal: value begins with #q (#q7640)
decimal: value is entered as a decimal value (4000)
hex: value begins with #h (#hFA0)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :SIMulator:VM1:TGID 595
Sets Virtual Mobile Talk Group Identifier to binary value 1001010011.

Query Response: :SIMulator:VM1:TGID? q
1123

8.7.17 Virtual Mobile - User Identifier

:SIMulator:VM1:UID

:SIMulator:VM1:UID?

Description: Set command defines User Identifier for Virtual Mobile.
Query command returns parameter setting.

Range: 1 to 65534

Default Value: 1

Set Format: binary: value begins with #b (#b1100101100100)
octal: value begins with #q (#q14544)
decimal: value is entered as a decimal value (4000)
hex: value begins with #h (#h1964)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :SIMulator:VM1:UID #hE03
Sets Virtual Mobile User Identifier to hex value E03.

Query Response: :SIMulator:VM1:UID?
3587

8.7.18 Virtual Mobile - Validate Pair

:SIMulator:VM1:PAIRVALID?

Description: Command checks the validity of the current Key ID and Algid pair found.

Query Data: VALID | INVALID

Query Response: :ENCryption:PAIRVALID?
1

8.8 TRUNKING PROTOCOL - SIMULATOR

8.8.1 Trunking Simulator - Enable

:TRUNking:ENABle

:TRUNking:ENABle?

Description: Set command Enables/Disables Trunking Simulation type.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :TRUNking:ENABle ON
Enables Trunking simulation.

Query Response: :TRUNking:ENABle?
1

NOTE

:TRUNking:TYPE command must be defined prior to enabling trunking simulation.

Command only valid when P25 Trunking Option is installed in Test Set.

8.8.2 Trunking Simulator - Base Station 1/2 Level

:TRUNking:BSn:LEVel

:TRUNking:BSn:LEVel?

Description: Set command defines Base Station Power Level.
Query command returns parameter setting.

Units: dBm | μ V | mV | V | dB μ V

Range: **TR:** -138.0 to -30.0 dBm
GEN -130.0 to +10.0 dBm
:

Default Value: -80.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :TRUNking:BS1:LEVel -75dBm
Set Base Station 1 Power Level to -75.0 dBm.

Query Response: :TRUNking:BS1:LEVel?
-75.0

NOTE

BSn = 1 or 2 (Base Station 1 or 2).

Command only valid when Trunking Mode is set to Base (:TRUNking:MODE BASE).

8.8.3 Trunking Simulator - Base Station 1 Modulation

:TRUNking:BS1:MODulation

:TRUNking:BS1:MODulation?

Description: Set command selects Modulation type for Base Station 1.
Query command returns parameter setting.

Parameter:

Phase 1 Protocol: C4FM | CQPSK | LSM

SNSZ Protocol: FMFSK

Default Value:

Phase 1 Protocol: C4FM

SNSZ Protocol: FMFSK

Set/Query Format: CPD | CRD

Example: :TRUNking:BS1:MODulation CQPSK
Sets Base Station 1 Modulation to CQPSK.

Query Response: :TRUNking:BS1:MODulation?
CQPSK

NOTE

BS1 = Control Channel (CC).
CQPSK and LSM are option enabled parameters.
SNSZ Protocol parameters are only valid when SmartNet/SmartZone Option is installed in Test Set.

8.8.4 Trunking Simulator - Base Station 2 Modulation

:TRUNking:BS2:MODulation

:TRUNking:BS2:MODulation?

Description: Set command selects Modulation type for Base Station 2.
Query command returns parameter setting.

Parameter:

Phase 1 Protocol: C4FM | CQPSK | LSM

X2TDMA Protocol: C4FM | LSM

Default Value:

Phase 1 Protocol: C4FM

X2TDMA Protocol: C4FM

Set/Query Format: CPD | CRD

Example: :TRUNking:BS2:MODulation CQPSK
Sets Base Station 2 Modulation to CQPSK.

Query Response: :TRUNking:BS2:MODulation?
CQPSK

NOTE

BS2 = Voice Channel (VC).
CQPSK and LSM are option enabled parameters.

8.8.5 Trunking Simulator - Base Station 1 Protocol

:TRUNking:BS1:PROTOcol

:TRUNking:BS1:PROTOcol?

Description: Set command selects Transmit Protocol for Base Station 1.
Query command returns parameter setting.

Parameter: PHASE1 | SNSZ

Default Value: PHASE1

Set/Query Format: CPD | CRD

Example: :TRUNking:BS1:PROTOcol PHASE1
Sets Protocol for Base Station 1 to Phase 1.

Query Response: :TRUNking:BS1:PROTOcol?
PHASE1

NOTE

BS1 = Control Channel (CC).
SNSZ only valid when SmartNet/SmartZone Bandplan is selected as Plan Type.
SNSZ Protocol is only valid when SmartNet/SmartZone option is installed in Test Set.

8.8.6 Trunking Simulator - Base Station 2 Protocol

:TRUNking:BS2:PROTOcol

:TRUNking:BS2:PROTOcol?

Description: Set command selects Transmit Protocol for Base Station 2.
Query command returns parameter setting.

Parameter: PHASE1 | X2TDMA

Default Value: PHASE1

Set/Query Format: CPD | CRD

Example: :TRUNking:BS2:PROTOcol PHASE1
Sets Protocol for Base Station 2 to Phase 1.

Query Response: :TRUNking:BS2:PROTOcol?
PHASE1

NOTE

BS2 = Voice Channel (VC).
X2TDMA only valid when P25 System Plan is selected as Plan Type.
X2TDMA Protocol is only valid when X2-TDMA™ option is installed in Test Set.

8.8.7 Trunking Simulator - Base Station 1/2 Receiver Frequency**:TRUNking:BSn:RX:FREQuency****:TRUNking:BSn:RX:FREQuency?**

Description: Set command defines Receive frequency of Base Station.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units: kHz | MHz

Default Value: 806.006250 MHz (Basic 800)
806.012500 MHz (SZ 800 Domestic)
464.000000 MHz (Basic UHF)
154.000000 MHz (Basic VHF)
759.000000 MHz (Basic 700)

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:BS2:RX:FREQuency 850MHz
Sets Base Station 2 Receive frequency to 850.0 MHz.

Query Response: :TRUNking:BS2:RX:FREQuency?
850000000

NOTE

BSn = 1 or 2 (Base Station 1 (CC) or 2 (VC)).
Command only valid when P25 Trunking Option is installed in Test Set.

8.8.8 Trunking Simulator - Base Station 1/2 Receiver ID Number**:TRUNking:BSn:RX:IDn****:TRUNking:BSn:RX:IDn?**

Description: Set command defines Receive ID number of Base Station.
Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:BS1:RX:ID11
Selects 11 as Receive Base Station 1 ID Number

Query Response: :TRUNking:BS1:RX:ID?
11

NOTE

BSn = 1 or 2 (Base Station 1 (CC) or 2 (VC)).
Command only valid when P25 Trunking Option is installed in Test Set.
Valid Channel Plan must be configured on the System Plan Configuration Tile for the specified Channel ID.
Does not apply to SmartNet/SmartZone Bandplans.

8.8.9 Trunking Simulator - Base Station 1/2 Receiver Number

:TRUNking:BSn:RX:NUMber

:TRUNking:BSn:RX:NUMber?

Description: Set command defines Receive Number of Base Station.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: Base 1 (CC) = 0
Base 2 (VC) = 20

Set/Query Format: NR1

Example: :TRUNking:BS2:RX:NUMber 2500
Selects 2500 as current Base Station 2 Number.

Query Response: :TRUNking:BS2:RX:NUMber?
2500

NOTE

BSn = 1 or 2 (Base Station 1 (CC) or 2 (VC)).
Command only valid when P25 Trunking Option is installed in Test Set.

8.8.10 Trunking Simulator - Base Station 1/2 Transmit Frequency

:TRUNking:BSn:TX:FREQuency

:TRUNking:BSn:TX:FREQuency?

Description: Set command defines Transmit frequency of Base Station.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units: kHz | MHz | GHz

Default Value: 851.006250 MHz (Basic 800)
851.012500 MHz (SZ 800 Domestic)
462.000000 MHz (Basic UHF)
152.000000 MHz (Basic VHF)
794.000000 MHz (Basic 700)

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:BS2:TX:FREQuency 850MHz
Sets Base Station 2 RF Generator Frequency to 850.0 MHz.

Query Response: :TRUNking:BS2:TX:FREQuency?
850000000

NOTE

BSn = 1 or 2 (Base Station 1 (CC) or 2 (VC)).
Command only valid when P25 Trunking Option is installed in Test Set.

8.8.11 Trunking Simulator - Base Station 1/2 Transmit ID Number**:TRUNking:BSn:TX:IDn****:TRUNking:BSn:TX:IDn?**

Description: Set command defines Transmit ID number of Base Station.
Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:BS1:TX:ID11

Selects 11 as current Base Station 1 ID Number.

Query Response: :TRUNking:BS1:TX:ID?
11

NOTE

BSn = 1 or 2 (Base Station 1 (CC) or 2 (VC)).

Command only valid when P25 Trunking Option is installed in Test Set.

Valid Channel Plan must be configured on the System Plan Configuration Tile for the specified Channel ID.

Does not apply to SmartNet/SmartZone Bandplans.

8.8.12 Trunking Simulator - Base Station 1/2 Transmit Number**:TRUNking:BSn:TX:NUMBER****:TRUNking:BSn:TX:NUMBER?**

Description: Set command defines Transmit Number of Base Station.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 0

Set/Query Format: NR1

Example: :TRUNking:BS2:TX:NUMBER 2500

Selects 2500 as current Base Station 2 Number.

Query Response: :TRUNking:BS2:TX:NUMBER?
2500

NOTE

BSn = 1 or 2 (Base Station 1 (CC) or 2 (VC)).

Command only valid when P25 Trunking Option is installed in Test Set.

8.8.13 Trunking Simulator - Message Format

:TRUNking:IMPLicit

:TRUNking:IMPLicit?

Description: Set command selects Trunking message format.
Query command returns parameter setting.

Parameter: 0 = Explicit (*option enabled)
1 = Implicit

Default Value: IMPLICIT

Set/Query Format: NR1

Example: :TRUNking:IMPLicit 1
Selects Implicit Message format.

Query Response: :TRUNking:IMPLicit?
1

NOTE

Explicit Message format is only valid when Explicit Mode Option is installed in Test Set.

8.8.14 Trunking Simulator - Mobile Frequency

:TRUNking:MS:RX:FREQuency

:TRUNking:MS:RX:FREQuency?

Description: Set command defines frequency of Mobile.
Query command returns parameter setting.

Range: 100.0 kHz to 2.71 GHz

Units: kHz | MHz | GHz

Default Value: 851.006250 MHz (Basic 800)
806.012500 MHz (SZ 800 Domestic)
462.000000 MHz (Basic UHF)
152.000000 MHz (Basic VHF)
794.000000 MHz (Basic 700)

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:MS:RX:FREQuency 850MHz
Sets Mobile Frequency to 850.0 MHz.

Query Response: :TRUNking:MS:RX:FREQuency?
850000000

NOTE

Command only valid when Trunking Mode is set to Mobile (:TRUNking:MODE MOBILE).

Command only valid when Mobile Simulator Option is installed in Test Set.

8.8.15 Trunking Simulator - Mobile ID

:TRUNking:MS:RX:IDn

:TRUNking:MS:RX:IDn?

Description: Set command defines Transmit ID number of Mobile.
Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:MS:RX:ID11
Selects 11 as current Mobile ID Number.

Query Response: :TRUNking:MS:RX:ID?
11

NOTE

Command only valid when Trunking Mode is set to Mobile (:TRUNking:MODE MOBILE).

Command only valid when Mobile Simulator Option is installed in Test Set.

Valid Channel Plan must be configured on the System Plan Configuration Tile for the specified Channel ID.

8.8.16 Trunking Simulator - Mobile Level

:TRUNking:MS1:LEVel

:TRUNking:MS1:LEVel?

Description: Set command defines Mobile Power Level.
Query command returns parameter setting.

Units: dBm | μ V | mV | V | dB μ V

Range: **TR:** -138.0 to -30.0 dBm
GEN -130.0 to +10.0 dBm
:

Default Value: -80.0 dBm

Set/Query Format: NRf | NR2 (dBm)

Example: :TRUNking:MS1:LEVel -75dBm
Set Mobile Power Level to -75.0 dBm.

Query Response: :TRUNking:MS1:LEVel?
-75.0

NOTE

Command only valid when Trunking Mode is set to Mobile (:TRUNking:MODE MOBILE).

Command only valid when Mobile Simulator Option is installed in Test Set.

8.8.17 Trunking Simulator - Mobile Modulation

:TRUNking:MS:MODulation

:TRUNking:MS:MODulation?

Description: Set command selects Modulation type for Mobile.
Query command returns parameter setting.

Parameter:

Phase 1 Protocol: C4FM

SNSZ Protocol: FMFSK

Default Value:

Phase 1 Protocol: C4FM

SNSZ Protocol: FMFSK

Set/Query Format: CPD | CRD

Example: :TRUNking:MS:MODulation C4FM

Sets Mobile Modulation to C4FM.

Query Response: :TRUNking:MS:MODulation?

C4FM

NOTE

Command only valid when Trunking Mode is set to Mobile (:TRUNking:MODE MOBILE).

CQPSK and LSM are option enabled parameters.

SNSZ Protocol parameters are only valid when SmartNet/SmartZone Option is installed in Test Set.

Command only valid when Mobile Simulator Option is installed in Test Set.

8.8.18 Trunking Simulator - Mobile Number

:TRUNking:MS:RX:NUMber

:TRUNking:MS:RX:NUMber?

Description: Set command defines Receive Number of Mobile.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 0

Set/Query Format: NR1

Example: :TRUNking:MS:RX:NUMber 2500

Selects 2500 as current Mobile Number.

Query Response: :TRUNking:MS:RX:NUMber?

2500

NOTE

Command only valid when Trunking Mode is set to Mobile (:TRUNking:MODE MOBILE).

Command only valid when Mobile Simulator Option is installed in Test Set.

8.8.19 Trunking Simulator - Mobile Protocol

:TRUNking:MS:PROToCol

:TRUNking:MS:PROToCol?

Description: Set command selects Transmit Protocol for Mobile.
Query command returns parameter setting.

Parameter: PHASE1 (:PLAN:TYPE P25)
SNSZ (:PLAN:TYPE SNSZ)

Default Value: PHASE1

Set/Query Format: CPD | CRD

Example: :TRUNking:MS:PROToCol PHASE1
Sets Protocol for Mobile to Phase 1.

Query Response: :TRUNking:MS:PROToCol?
PHASE1

NOTE

Command only valid when Mobile Simulator Option is installed in Test Set.
SNSZ only valid when SmartNet/SmartZone Option is installed in Test Set.

8.8.20 Trunking Simulator - Simulation Type

:TRUNking:TYPE

:TRUNking:TYPE?

Description: Set command selects type of Trunking Simulation.
Query command returns parameter setting.

Parameter: 0 = Mobile
1 = Base

Default Value: 1 (Base)

Set/Query Format: NR1

Example: :TRUNking:TYPE BASE
Selects Base Mode Trunking Simulation.

Query Response: :TRUNking:TYPE?
1

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.

8.9 TRUNKING MESSAGES - ADJACENT STATUS BROADCAST

8.9.1 Trunking Simulator - Adjacent Status Broadcast Connection Status

:TRUNKing:ASB:A
:TRUNKing:ASB:A?

Description: Set command indicates if Adjacent Status Broadcast has an active network connection with the RFSS controller.
Query command returns parameter setting.

Parameter: 0 = Inactive
1 = Active

Default Value: 0

Set Format: NR1

Query Format: NR1

Example: :TRUNKing:ASB:A 1
Indicates Site has an active network connection with the RFSS controller.

Query Response: :TRUNKing:ASB:A?
1

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNKing:MESSAgEs:ASB:ENABLE OFF) for set command to be valid.

8.9.2 Trunking Simulator - Adjacent Channel Type

:TRUNKing:ASB:C
:TRUNKing:ASB:C?

Description: Set command indicates if Adjacent Status Broadcast is for a Conventional Channel.
Query command returns parameter setting.

Parameter: 0 = Non-Conventional
1 = Conventional

Default Value: 0

Set Format: NR1

Query Format: NR1

Example: :TRUNKing:ASB:C 1
Indicates Adjacent Status Broadcast is for a Conventional Channel.

Query Response: :TRUNKing:ASB:C?
1

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNKing:MESSAgEs:ASB:ENABLE OFF) for set command to be valid.

8.9.3 Trunking Simulator - Adjacent Status Broadcast Content Status

:TRUNking:ASB:V

:TRUNking:ASB:V?

Description: Set command indicates if Adjacent Channel Content is valid.
Query command returns parameter setting.

Parameter: 0 = Unknown or last reported as Valid (site not responding)
1 = Valid

Default Value: 0

Set Format: NR1

Query Format: NR1

Example: :TRUNking:ASB:V 1
Indicates that Adjacent Status Broadcast content is known to be valid.

Query Response: :TRUNking:ASB:V?
1

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

8.9.4 Trunking Simulator - Adjacent Status Broadcast Enable

:TRUNking:MESSages:ASB:ENABLE

:TRUNking:MESSages:ASB:ENABLE?

Description: Set command Enables/Disables Adjacent Status Broadcast messaging.
Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :TRUNking:MESSages:ASB:ENABLE ON
Enables Adjacent Status Broadcast messaging.

Query Response: :TRUNking:MESSages:ASB:ENABLE?
1

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) to define ASB Message parameters.

8.9.5 Trunking Simulator - Adjacent Status Broadcast Failure Mode

:TRUNking:ASB:F
:TRUNking:ASB:F?

Description: Set command defines Adjacent Status Broadcast Failure mode.
Query command returns parameter setting.

Parameter: 0 = Normal Condition
1 = Site in Failure Condition

Default Value: 0

Set Format: NR1

Query Format: NR1

Example: :TRUNking:ASB:F 1
Sets Adjacent Status Broadcast Channel to Site in Failure Condition.

Query Response: :TRUNking:ASB:F?
1

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

8.9.6 Trunking Simulator - Adjacent Status Broadcast Local Registration Area

:TRUNking:ASB:LRA
:TRUNking:ASB:LRA?

Description: Set command defines Adjacent Status Broadcast Local Registration Area.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 0

Set Format: binary: value begins with #b (#b11111010)
octal: value begins with #q (#q372)
decimal: value is entered as a decimal value (250)
hex: value begins with #h (#hFA)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :TRUNking:ASB:LRA #h64
Sets Adjacent Status Broadcast Local Registration Area to hex value 64.

Query Response: :TRUNking:ASB:LRA? b
1100100

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

8.9.7 Trunking Simulator - Adjacent Status Broadcast RF Subsystem Identifier

:TRUNking:ASB:RFSS

:TRUNking:ASB:RFSS?

Description: Set command defines Adjacent Status Broadcast RF Subsystem Identifier.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 0

Set Format: binary: value begins with #b (#b11111010)
octal: value begins with #q (#q372)
decimal: value is entered as a decimal value (250)
hex: value begins with #h (#hFA)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :TRUNking:ASB:RFSS #h64
Sets Adjacent Status Broadcast RF Subsystem Identifier to hex value 64.

Query Response: :TRUNking:ASB:RFSS? b
1100100

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

8.9.8 Trunking Simulator - Adjacent Status Broadcast Receive Frequency

:TRUNking:ASB:RX:FREQuency

:TRUNking:ASB:RX:FREQuency?

Description: Set command defines Receive frequency of Adjacent Status Broadcast.
Query command returns parameter setting.

Range: 100 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: Defined by select System or Bandplan

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:ASB:RX:FREQuency 850MHz
Sets Adjacent Status Broadcast RF Receiver Frequency to 850.0 MHz.

Query Response: :TRUNking:ASB:RX:FREQuency?
850000000

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.
Set command only valid when Explicit Message Format is selected (:TRUNking:IMPLicit 0).

8.9.9 Trunking Simulator - Adjacent Status Broadcast Receiver ID Number**:TRUNking:ASB:RX:ID****:TRUNking:ASB:RX:ID?**

Description: Set command defines Receive ID number of Adjacent Status Broadcast.
Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:ASB:RX:ID11

Selects 11 as Receive Adjacent Status Broadcast ID Number

Query Response: :TRUNking:ASB:RX:ID?
11

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

Set command only valid when Explicit Message Format is selected
(:TRUNking:IMPLicit 0).

Valid Channel Plan must be configured on the System Plan Configuration Tile
for the specified Channel ID.

8.9.10 Trunking Simulator - Adjacent Status Broadcast Receive Number**:TRUNking:ASB:RX:NUMBER****:TRUNking:ASB:RX:NUMBER?**

Description: Set command defines Receive Number of Adjacent Status Broadcast.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 0

Set/Query Format: NR1

Example: :TRUNking:ASB:RX:NUMBER 2500

Selects 2500 as current Adjacent Status Broadcast Number.

Query Response: :TRUNking:ASB:RX:NUMBER?
2500

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

Set command only valid when Explicit Message Format is selected
(:TRUNking:IMPLicit 0).

8.9.11 Trunking Simulator - Adjacent Status Broadcast Service Class

:TRUNKing:ASB:SVCclass

:TRUNKing:ASB:SVCclass?

Description: Set command defines Adjacent Status Broadcast Service Class.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 0

Set Format: binary: value begins with #b (#b11111010)
octal: value begins with #q (#q372)
decimal: value is entered as a decimal value (250)
hex: value begins with #h (#hFA)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :TRUNKing:ASB:SVCclass #h64
Sets Adjacent Status Broadcast Service Class to hex value 64.

Query Response: :TRUNKing:ASB:SVCclass? b
1100100

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNKing:MESSAgEs:ASB:ENABLE OFF) for set command to be valid.

8.9.12 Trunking Simulator - Adjacent Status Broadcast Site Identifier

:TRUNKing:ASB:SITE

:TRUNKing:ASB:SITE?

Description: Set command defines Adjacent Status Broadcast Site Identifier.
Query command returns parameter setting.

Range: 0 to 63

Default Value: 0

Set Format: binary: value begins with #b (#b1111111)
octal: value begins with #q (#q77)
decimal: value is entered as a decimal value (63)
hex: value begins with #h (#h3F)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :TRUNKing:ASB:SITE #h32
Sets Adjacent Status Broadcast Site Identifier to hex value 32.

Query Response: :TRUNKing:ASB:SITE? b
110010

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNKing:MESSAgEs:ASB:ENABLE OFF) for set command to be valid.

8.9.13 Trunking Simulator - Adjacent Status Broadcast System Identifier**:PLAN:BASE:SYSId?**

Description: Query command returns parameter setting.

Query Format: NR1

Query Response: :PLAN:BASE:SYSId?
1001

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.
Parameter defined by selected System Plan.

8.9.14 Trunking Simulator - Adjacent Status Broadcast Transmit Frequency**:TRUNking:ASB:TX:FREQuency****:TRUNking:ASB:TX:FREQuency?**

Description: Set command defines Transmit frequency of Adjacent Status Broadcast.
Query command returns parameter setting.

Range: 100 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: Defined by selected System or Band Plan.

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:ASB:TX:FREQuency 850MHz
Sets Adjacent Status Broadcast RF Generator Frequency to 850.0 MHz.

Query Response: :TRUNking:ASB:TX:FREQuency?
850000000

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLe OFF) for set command to be valid.

8.9.15 Trunking Simulator - Adjacent Status Broadcast Transmit ID Number**:TRUNking:ASB:TX:ID****:TRUNking:ASB:TX:ID?**

Description: Set command defines Transmit ID number of Adjacent Status Broadcast.
Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:ASB:TX:ID11
Selects 11 as current Adjacent Status Broadcast ID Number.

Query Response: :TRUNking:ASB:TX:ID?
11

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLe OFF) for set command to be valid.
Valid Channel Plan must be configured on the System Plan Configuration Tile for the specified Channel ID.

8.9.16 Trunking Simulator - Adjacent Status Broadcast Transmit Number**:TRUNking:ASB:TX:NUMber****:TRUNking:ASB:TX:NUMber?**

Description: Set command defines Transmit Number of Adjacent Status Broadcast.
Query command returns parameter setting.

Range: 0 to 4095

Default Value: 0

Set/Query Format: NR1

Example: :TRUNking:ASB:TX:NUMber 2500
Selects 2500 as current Adjacent Status Broadcast Number.

Query Response: :TRUNking:ASB:TX:NUMber?
2500

NOTE

Command only valid when ASB Message Option is installed in Test Set.
ASB Messaging must be OFF (:TRUNking:MESSages:ASB:ENABLE OFF) for set command to be valid.

8.10 TRUNKING MESSAGES - SECONDARY CONTROL CHANNEL BROADCAST

8.10.1 Trunking Simulator - Secondary Control Channel Broadcast Enable

:TRUNking:MESSages:SCCB:ENABle

:TRUNking:MESSages:SCCB:ENABle?

Description: Set command Enables/Disables Secondary Control Channel Broadcast messaging.

Query command returns parameter setting.

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :TRUNking:MESSages:SCCB:ENABle ON

Enables Secondary Control Channel Broadcast messaging.

Query Response: :TRUNking:MESSages:SCCB:ENABle?
1

NOTE

Command only valid when SCCB Message Option is installed in Test Set.
SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABle OFF) to define SCCB Message parameters.

8.10.2 Trunking Simulator - Secondary Control Channel Broadcast Receive Frequency

:TRUNking:SCCBn:RX:FREQuency

:TRUNking:SCCBn:RX:FREQuency?

Description: Set command defines Receive frequency of Secondary Control Channel Broadcast.

Query command returns parameter setting.

Range: 100 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: Defined by selected Channel or System Plan

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:SCCB2:RX:FREQuency 850MHz

Sets Secondary Control Channel Broadcast 2 RF Receive Frequency to 850.0 MHz.

Query Response: :TRUNking:SCCB2:RX:FREQuency?
850000000

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).
SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABle OFF) for set command to be valid.
Set command only valid when Explicit Message Format is selected (:TRUNking:IMPLicit 0).
Command only valid when SCCB Message Option is installed in Test Set.

8.10.3 Trunking Simulator - Secondary Control Channel Broadcast Receiver ID Number

:TRUNking:SCCBn:RX:ID

:TRUNking:SCCBn:RX:ID?

Description: Set command defines Receive ID number of Secondary Control Channel Broadcast.

Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:SCCB1:RX:ID11

Selects 11 as Receive Secondary Control Channel Broadcast 1 ID Number

Query Response: :TRUNking:SCCB1:RX:ID?

11

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).

SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABLE OFF) for set command to be valid.

Set command only valid when Explicit Message Format is selected (:TRUNking:IMPLicit 0).

Command only valid when SCCB Message Option is installed in Test Set.

Valid Channel Plan must be configured on the System Plan Configuration Tile for the specified Channel ID.

8.10.4 Trunking Simulator - Secondary Control Channel Broadcast Receive Number

:TRUNking:SCCBn:RX:NUMber

:TRUNking:SCCBn:RX:NUMber?

Description: Set command defines Receive Number of Secondary Control Channel Broadcast.

Query command returns parameter setting.

Range: 0 to 4095

Default Value: 0

Set/Query Format: NR1

Example: :TRUNking:SCCB2:RX:NUMber 2500

Selects 2500 as current Secondary Control Channel Broadcast 2 Number.

Query Response: :TRUNking:SCCB2:RX:NUMber?

2500

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).

SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABLE OFF) for set command to be valid.

Set command only valid when Explicit Message Format is selected (:TRUNking:IMPLicit 0).

Command only valid when SCCB Message Option is installed in Test Set.

8.10.5 Trunking Simulator - Secondary Control Channel Broadcast RF Subsystem Identifier

:PLAN:BASE:RFSS?

Description: Query command returns parameter setting.

Query Format: NR1

Query Response: :PLAN:BASE:RFSS?
225

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.
Parameter defined by selected System Plan.

8.10.6 Trunking Simulator - Secondary Control Channel Broadcast Service Class

:TRUNking:SCCBn:SVCClass

:TRUNking:SCCBn:SVCClass?

Description: Set command defines Secondary Control Channel Broadcast Service Class.
Query command returns parameter setting.

Range: 0 to 255

Default Value: 0

Set Format: binary: value begins with #b (#b11111010)
octal: value begins with #q (#q372)
decimal: value is entered as a decimal value (250)
hex: value begins with #h (#hFA)

Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h

Example: :TRUNking:SCCBn:SVCClass #h64
Sets Secondary Control Channel Broadcast Service Class to hex value 64.

Query Response: :TRUNking:SCCBn:SVCClass? b
1100100

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).
SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABLE OFF) for set command to be valid.
Command only valid when SCCB Message Option is installed in Test Set.

8.10.7 Trunking Simulator - Secondary Control Channel Broadcast Base Site Identifier

:PLAN:BASE:SITE?

Description: Query command returns parameter setting.

Query Format: NR1

Query Response: :PLAN:BASE:SITE?
25

NOTE

Command only valid when P25 Trunking Option is installed in Test Set.
Parameter defined by selected System Plan.

8.10.8 Trunking Simulator - Secondary Control Channel Broadcast Transmit Frequency

:TRUNking:SCCBn:TX:FREQuency

:TRUNking:SCCBn:TX:FREQuency?

Description: Set command defines Transmit frequency of Secondary Control Channel Broadcast.

Query command returns parameter setting.

Range: 100 kHz to 2.71 GHz

Units: Hz | kHz | MHz | GHz

Default Value: Defined by selected Channel or System Plan

Set/Query Format: NRf | NR1 (Hz)

Example: :TRUNking:SCCB2:TX:FREQuency 850MHz
Sets Secondary Control Channel Broadcast 2 RF Generator Frequency to 850.0 MHz.

Query Response: :TRUNking:SCCB2:TX:FREQuency?
850000000

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).

SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABle OFF) for set command to be valid.

Command only valid when SCCB Message Option is installed in Test Set.

8.10.9 Trunking Simulator - Secondary Control Channel Broadcast Transmit ID Number

:TRUNking:SCCBn:TX:ID

:TRUNking:SCCBn:TX:ID?

Description: Set command defines Transmit ID number of Secondary Control Channel Broadcast.

Query command returns parameter setting.

Range: 1 to 16

Default Value: 1

Set/Query Format: NR1

Example: :TRUNking:SCCB1:TX:ID11
Selects 11 as current Secondary Control Channel Broadcast 1 ID Number.

Query Response: :TRUNking:SCCB1:TX:ID?
11

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).

SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABle OFF) for set command to be valid.

Command only valid when SCCB Message Option is installed in Test Set.

Valid Channel Plan must be configured on the System Plan Configuration Tile for the specified Channel ID.

8.10.10 Trunking Simulator - Secondary Control Channel Broadcast Transmit Number

:TRUNking:SCCBn:TX:NUMber

:TRUNking:SCCBn:TX:NUMber?

Description: Set command defines Transmit Number of Secondary Control Channel Broadcast.

Query command returns parameter setting.

Range: 0 to 4095

Default Value: 0

Set/Query Format: NR1

Example: :TRUNking:SCCB2:TX:NUMber 2500

Selects 2500 as current Secondary Control Channel Broadcast 2 Number.

Query Response: :TRUNking:SCCB2:TX:NUMber?
2500

NOTE

SCCBn = 1 or 2 (Secondary Control Channel Broadcast 1 or 2).

SCCB Messaging must be OFF (:TRUNking:MESSages:SCCB:ENABLE OFF) for set command to be valid.

Command only valid when SCCB Message Option is installed in Test Set.

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Appendix A - Remote Command Changes

A.1 COMMAND CHANGES

The following commands have been revised in P25 Software Version 1.3.5.

Parameters included in the returned data stream have changed. Refer to Chapter 1, UUT Measurement Meter Data, for list of returned data string.

:FETCh:MOD:ANALyzer:FM?
:FETCh:RF:ANALyzer:RFERRor?
:METERs:BER:STATUs?
:METERs:EVM:STATUs?
:METERs:FCR:STATUs?
:METERs:HSDDev:STATUs?
:METERs:MODFidelity:STATUs?
:METERs:POWEr:STATUs?
:METERs:POWEr:INBand:STATUs?
:METERs:SCE:STATUs?
:METERs:SYMdev:STATUs?

Commands now require CH1 | CH2 specification in the command string. Update commands to avoid script failures.

:METERs:BER:STATUs? changed to :METERs:BER:CHn:STATUs?
:METERs:EVM:STATUs? changed to :METERs:EVM:CHn:STATUs?
:METERs:FCR:STATUs? changed to :METERs:FCR:CHn:STATUs?
:METERs:HSDDev:STATUs? changed to :METERs:HSDDev:CHn:STATUs?
:METERs:MODFidelity:STATUs? changed to :METERs:MODFidelity:CHn:STATUs?
:METERs:POWEr:STATUs? changed to :METERs:POWEr:CHn:STATUs?
:METERs:POWEr:INBand:STATUs? changed to
:METERs:POWEr:CHn:INBand:STATUs?
:METERs:SCE:STATUs? has been changed to :METERs:SCE:CHn:STATUs?
:METERs:SYMdev:STATUs? has been changed to
:METERs:SYMdev:CHn:STATUs?

Range and Unit of measurement for :PTIME:SPAN command have changed to the following:

Unit of Measure:seconds
Range: 10 to 1800

A.2 DEPRECATED COMMANDS

The following is a list of deprecated P25 Remote Commands.

:CIVFM replaced with :MODFidelity

:CIVFM command will be supported in P25 Software Version 1.3.3.

:CIVFM command will not be supported in later software releases.

All :CIVFM commands should be replaced with :MODFidelity.

:LLIMit was replaced with :LOWer.

:LLIMit command will be supported in P25 Software Version 1.3.3.

:LLIMit command will not be supported in later software releases.

All :LLIMit commands should be replaced with :LOWer.

:ULIMit was replaced with :UPPer.

:HLLIMit command will be supported in P25 Software Version 1.3.3.

:HLIMit command will not be supported in later software releases.

All :HLIMit commands should be replaced with :UPPer.

:VOICeframe was replaced with :VOICe.

:VOICeframe command will be supported in P25 Software Version 1.3.3.

:VOICeframe command will not be supported in later software releases.

All :VOICeframe commands should be replaced with :VOICe.

:RECeive:CHn:PATtern replaced with :METERs:BER:CHn:PATtern

:RECeive:CHn:PATtern command will be supported in P25 Software Version 1.3.3.

:RECeive:CHn:PATtern command will not be supported in later software releases.

:RECeive:CHn:PATtern command should be replaced with :METERs:BER:CHn:PATtern.

:TRUNKing:SIMulation commands replaced with :TRUNKing commands

These commands will be supported in P25 Software Version 1.3.3.

These commands will not be supported in later software releases.

Update the following commands to avoid script failures.

:TRUNKing:SIMulation:BSn:LEVel replaced with :TRUNKing:BSn:LEVel

:TRUNKing:SIMulation:BSn:PROToCol replaced with :TRUNKing:BSn:PROToCol

:TRUNKing:SIMulation:BSn:RX:FREQuency replaced with

:TRUNKing:BSn:RX:FREQuency

:TRUNKing:SIMulation:BSn:RX:ID replaced with :TRUNKing:BSn:RX:ID

:TRUNKing:SIMulation:BSn:RX:NUMber replaced with :TRUNKing:RX:NUMber

:TRUNKing:SIMulation:BSn:TX:FREQuency replaced with

:TRUNKing:BSn:TX:FREQuency

:TRUNKing:SIMulation:BSn:TX:ID replaced with :TRUNKing:BSn:TX:ID

:TRUNKing:SIMulation:BSn:TX:NUMber replaced with

:TRUNKing:BSn:TX:NUMber

:TRUNKing:SIMulation:BSn:ENABLE replaced with :TRUNKing:ENABLE

:TRUNKing:SIMulation:BSn:TYPE replaced with :TRUNKing:TYPE

:TRUNKing commands replaced with :DATAlink commands

These commands will be supported in P25 Software Version 1.3.3.

These commands will not be supported in later software releases.

Update the following commands to avoid script failures.

:TRUNKing:CHn:ALG? replaced with :DATAlink:CHn:ALG?
:TRUNKing:CHn:DIRrection? replaced with :DATAlink:CHn:DIRrection?
:TRUNKing:CHn:KEY? replaced with :DATAlink:CHn:KEY?
:TRUNKing:CHn:MFID? replaced with :DATAlink:CHn:MFID?
:TRUNKing:CHn:MI? replaced with :DATAlink:CHn:MI?
:TRUNKing:CHn:TGID? replaced with :DATAlink:CHn:TGID?
:TRUNKing:CHn:VOICE:ALG? replaced with :DATAlink:CHn:VOICE:ALG?
:TRUNKing:CHn:VOICE:DUID? replaced with :DATAlink:CHn:VOICE:DUID?
:TRUNKing:CHn:VOICE:EMG? replaced with :DATAlink:CHn:VOICE:EMG?
:TRUNKing:CHn:VOICE:FRAME? replaced with :DATAlink:CHn:VOICE:FRAME?
:TRUNKing:CHn:VOICE:KEY? replaced with :DATAlink:CHn:VOICE:KEY?
:TRUNKing:CHn:VOICE:LCO? replaced with :DATAlink:CHn:VOICE:LCO?
:TRUNKing:CHn:VOICE:LSD? replaced with :DATAlink:CHn:VOICE:LSD?
:TRUNKing:CHn:VOICE:MI? replaced with :DATAlink:CHn:VOICE:MI?
:TRUNKing:CHn:VOICE:NAC? replaced with :DATAlink:CHn:VOICE:NAC?
:TRUNKing:CHn:VOICE:P? replaced with :DATAlink:CHn:VOICE:P?
:TRUNKing:CHn:VOICE:RAW? replaced with :DATAlink:CHn:VOICE:RAW?
:TRUNKing:CHn:VOICE:SF? replaced with :DATAlink:CHn:VOICE:SF?
:TRUNKing:CHn:VOICE:STS1? replaced with :DATAlink:CHn:VOICE:STS1?
:TRUNKing:CHn:VOICE:STS2? replaced with :DATAlink:CHn:VOICE:STS2?
:TRUNKing:CLEAR:HEADers replaced with :DATAlink:CLEAR:HEADers

:PLAN:CHANnel:BLOCKn:TX:CHSPacing

:PLAN:CHANnel:BLOCKn:TX:STARTFreq

:PLAN:CHANnel:BLOCKn:TX:STOPFreq?

Refer to Obsolete Commands for additional changes to these commands.

These commands will be supported in P25 Software Version 1.3.5.

These commands will not be supported in later software releases.

Update the following commands to avoid script failures.

:PLAN:CHANnel:BLOCKn:TX:CHSPacing update to
:PLAN:CHANnel:BLOCKn:CHSPacing.
:PLAN:CHANnel:BLOCKn:TX:STARTFreq update to
:PLAN:CHANnel:BLOCKn:STARTFreq.
:PLAN:CHANnel:BLOCKn:TX:STOPFreq? update to
:PLAN:CHANnel:BLOCKn:STOPFreq.

A.3 OBSOLETE COMMANDS

The following commands are no longer supported in P25:

Obsolete Patterns

LDU1TRG, LDU2TRG and NOTRG are currently not supported in P25. These pattern types should be removed from any remote command scripts.

:PTF:RECeive:CHn:IFBW

Functionality associated with commands is no longer available.

:PTF:RF:GENErator:CHn:MODUlatorn:ENABle

Functionality associated with command is no longer available as of P25 Software Version 1.3.3. Replace these commands with :PTF:RF:MODUlatorn:ENABle.

:PTF:RF:GENErator:CHn:EXtErnal:ENABle

Functionality associated with command is no longer available as of P25 Software Version 1.3.3. Replace these commands with :PTF:RF:GENErator:EXtErnal:ENABle.

:PTF:RESEt:ACQuisition

Functionality associated with command is no longer available as of P25 Software Version 1.3.3.

:CONStellation:PERsistence

Functionality associated with command is no longer available as of P25 Software Version 1.3.4. Replace this command with :IQ:CONStellation:PERsistence or :FREQuency:CONStellation:PERsistence.

:CONStellation:PERsistence:TRACe:ENABle

Functionality associated with command is no longer available as of P25 Software Version 1.3.4. Replace this command with :IQ:CONStellation:TRACe:ENABle or :FREQuency:CONStellation:TRACe:ENABle.

:CONStellation:PERsistence:TRACe:FETCh?

Functionality associated with command is no longer available as of P25 Software Version 1.3.4. Replace this command with :IQ:CONStellation:TRACe:FETCh? and :FREQuency:CONStellation:TRACe:FETCh?.

Data Link Protocol Remote Commands

The functionality associated with the following commands was modified in version 1.3.5. Refer to revised remote commands documented in Chapter 7, [Protocol Remote Commands](#).

- :DATAlink:CHn:DIRection?
- :DATAlink:CHn:VOICe:DEStId?
- :DATAlink:CHn:VOICe:EMG?
- :DATAlink:CHn:VOICe:P?
- :DATAlink:CHn:VOICe:RAW?
- :DATAlink:CHn:VOICe:SF?
- :DATAlink:CHn:VOICe:SID?
- :DATAlink:CHn:VOICe:LCO?
- :DATAlink:CHn:VOICe:TGID?

:ENCryption:SLOTn:ALGid

This command has been reformatted. Replace command with :ENCryption:ALGID

:ENCryption:SLOTn:IDPAIRValidate

This command has been reformatted. Replace command with :ENCryption:PAIRVALID?

:ENCryption:SLOTn:KEYValidate

This command has been reformatted. Replace command with :ENCryption:KEYVALID?

:ENCryption:SLOTn:KEYVALUE

This command has been reformatted. Replace command with :ENCryption:KEY

:ENCryption:SLOTn:REFname

This command has been reformatted. Replace command with :ENCryption:NAME

:PLAN:CHANnel:BLOCKn:CHSPacing

:PLAN:CHANnel:BLOCKn:STARTFreq

:PLAN:CHANnel:BLOCKn:STOPFreq?

Functionality associated with these commands is no longer available as of P25 Software Version 1.7.7.

Update the following commands to avoid script failures.

:PLAN:CHANnel:BLOCKn:CHSPacing update to

:PLAN:CHANnel:BLOCKn:TX:CHSPacing.

:PLAN:CHANnel:BLOCKn:STARTFreq update to

:PLAN:CHANnel:BLOCKn:TX:STARTFreq.

:PLAN:CHANnel:BLOCKn:STOPFreq? update to

:PLAN:CHANnel:BLOCKn:TX:STOPFreq.

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