AEROFLEX

3900 Series Digital Radio Test Set

NXDN Remote Programming Manual

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3900 Series

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Preface

ABOUT THIS MANUAL

This manual identifies Remote Commands for the 3900 Series NXDN Option (390XOPT440). Refer to the 3900 Series Remote Programming Manual for additional information about 3900 Remote Commands and for remote commands for 3900 Test Instruments. The remote commands identified in this manual are only valid when the NXDN Option is installed in the Test Set. 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 1 - UUT Measurement Return Data

1.1 INTRODUCTION

This chapter contains general information about NXDN UUT Measurement return data. 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 METER STATUS RETURN VALUE

NXDN Rx Meters return data is reported in the form of a data string. The data string includes the following data:

<statusbyte>,<failbyte>,<precision>,<%>,<avg>,<max>,<min>,<units>,<message response>

1.2.1 Statusbyte (Bitmask)

Statusbyte returns measurement reading status where:

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

1.2.2 Failbyte (Bitmask)

Failbyte 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

1.2.3 Precision (Numeric)

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

1.2.4 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 STATus command is issued, the returned Percentage value is 50.

1.2.5 Average (Numeric)

Value indicates average measurement reading.

1.2.6 Maximum (Numeric)

Value indicates maximum measurement reading.

1.2.7 Minimum (Numeric)

Value indicates minimum measurement reading.

1.2.8 Unit of Measurement (Numeric)

Returned value indicates the readings unit of measurement.

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

1.2.9 Message Responses

A message response is not always included at the end of the data string. The following are valid Message Responses which may be received when a remote command is sent.

"signal not acquired\n"

"timed out waiting for TraceMutex\n"

"timed out waiting for data\n"

Chapter 2 - Generator/Transmit Channel Remote Commands

2.1 INTRODUCTION

This chapter describes the Remote Commands for configuring NXDN Transmit and Receive System Parameters. Commands are listed alphabetically under Transmit and Receiver 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 Waveform for the specified AF Generator.
Query command returns parameter setting.

Parameter: SINE | SQUare | TRIangle | RAMP | DCS | DCSINV | DTMF

Query Data: SNR | SINE | SQUare | TRIangle | RAMP | DCS | DCSINV | DTMF | TONESEQ | TONEREM

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)
DTMF waveform is only valid on AF Generator 1. AF Generator 2 is unavailable when DTMF is selected on AF Generator 1.
DCS and DCSINV are not supported on AF Generator 3.
AF Generator 1 is unavailable as a modulation source when Normal MOD SNR Noise Measurements are defined (:CONFigure:MOD:ANALyzer:SNR:MODE 1) and AF:GENerator:SOURce1:SHAPe? returns SNR.

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:FUNCtion:FREQuency
:AF: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: :AF:GEN:TONE:REMote:FUNCtion:FREQuency 15Hz
Sets Tone Frequency to 15.0 Hz.
Query Response: :AF:GEN:TONE:REMote:FUNCtion:FREQuency?
15.0

2.3.5 AF Generators - Tone Remote Function Level

:AF:GEN:TONE:REMote:FUNCtion:LEVel
:AF:GEN:TONE:REMote:FUNCtion: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:FUNCtion:LEVel 5dB
Sets the Tone Audio Level to 5.0 dB.
Query Response: :AF:GEN:TONE:REMote:FUNCtion: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 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

2.3.10 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

2.3.11 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

2.3.12 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

2.3.13 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)

2.3.14 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)

2.3.15 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 EXTERNAL MODULATION GENERATOR

2.4.1 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.

2.4.2 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.

2.4.3 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 Moduation Generator to 100.0 kHz

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

2.4.4 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 Moduation Generator to 25.0%.

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

2.4.5 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.

2.5 MOD GENERATOR CONFIGURATION

2.5.1 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)

2.5.2 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)

2.5.3 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)

2.5.4 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)

2.5.5 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. DMTF may be returned as query data for Modulator 2.

2.6 MODULATION GENERATOR - TONE ENCODING

2.6.1 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)

2.6.2 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

2.6.3 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.

2.6.4 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.

2.6.5 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.
DMTF waveform is only supported on Mod Generator 1.

2.6.6 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.

2.6.7 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

2.6.8 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

2.6.9 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

2.6.10 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

2.6.11 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

2.6.12 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

2.6.13 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

2.6.14 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

2.6.15 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

2.6.16 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

2.6.17 Modulation Generators - Tone Remote Reference Deviation

:MOD:GEN:TONE:REMote:REFerence:DEViation
:MOD:GEN:TONE:REMote:REFerence:DEViation?

Description: Set command defines the Tone Reference Deviation.
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:REMote:REFerence:DEViation 1.75kHz
Sets the Tone Reference Deviation to 1.75 kHz.
Query Response: :MOD:GEN:TONE:REMote:REFerence:DEViation?
1750.0

2.6.18 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

2.6.19 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

2.6.20 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

2.6.21 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

2.6.22 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

2.6.23 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)

2.6.24 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)

2.7 RF GENERATOR CONFIGURATION

2.7.1 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

2.7.2 RF Generator - Frequency

:RF:GENerator:CH1:FREQuency
:RF:GENerator:CH1:FREQuency?

Description: Set command defines RF Generator Frequency.
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:GENerator:CH1:FREQuency 850MHz
Sets RF Generator Frequency to 850.0 MHz.
Query Response: :RF:GENerator:CH1:FREQuency?
850000000

2.7.3 RF Generator - Level

:RF:GENerator:CH1:LEVel
:RF:GENerator:CH1: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
Default Value: -30.0 dBm
Set/Query Format: NRf | NR2 (dBm)
Example: :RF:GENerator:CH1:LEVel -75dBm
Set RF Generator Level to -75.0 dBm.
Query Response: :RF:GENerator:CH1:LEVel?
-75.0

2.7.4 RF Generator - Level Mode

:RF:GENerator:CH1:LMODe
:RF:GENerator:CH1: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

2.7.5 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

2.7.6 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

2.7.7 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 CONFIGURATION

2.8.1 Transmit Channel - Pattern

:TRANsmit:CH1:PATTern
:TRANsmit:CH1:PATTern?

Description: Set command defines Pattern for NXDN Transmit Channel.
Query command returns parameter setting.

Parameter: STD1031 | STD511 | FSWPN9

Default Value: STD1031

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH1:PATTern STD511
Sets NXDN Channel to transmit STD 511 Pattern.

Query Response: :TRANsmit:CH1:PATTern?
STD511

2.8.2 Transmit Channel - Protocol

:TRANsmit:CH1:PROTocol
:TRANsmit:CH1:PROTocol?

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

Parameter: ANALOG | NXDN

Default Value: NXDN

Set/Query Format: CPD | CRD

Example: :TRANsmit:CH1:PROTocol ANALOG
Sets Tx Channel Protocol to Analog.

Query Response: :TRANsmit:CH1:PROTocol?
ANALOG

2.8.3 Transmit Channel - Radio Access Number

:TRANsmit:CH1:RAN
:TRANsmit:CH1:RAN?

Description: Set command defines Transmit Channel Radio Access Number.
Query command returns the Transmit Channel Radio Access Number.
Range: 0 to 63
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: :TRANsmit:CH1:RAN 10
Sets Transmit Channel 1 Radio Access Number to 10.
Query Response: :TRANsmit:CH1:RAN?b
1010

2.8.4 Transmit Channel - Rate

:TRANsmit:CH1:RATE
:TRANsmit:CH1:RATE?

Description: Set command defines Rate for NXDN Transmit Channel.
Query command returns parameter setting.
Parameter: BPS4800 | BPS9600
Default Value: 4800
Set/Query Format: CPD | CRD
Example: :TRANsmit:CH1:RATE BPS4800
Sets NXDN Channel to transmit at rate of 4800 BPS.
Query Response: :TRANsmit:CH1:RATE?
BPS4800

Chapter 3 - Analyzer/Receive Channel Remote Commands

3.1 INTRODUCTION

This chapter describes the Remote Commands for configuring NXDN Analyzer/Receive System Parameters. Commands are listed alphabetically under Transmit and Receiver 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 = 20.0 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 AF ANALYZER - TONE DECODE

3.3.1 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

3.3.2 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

3.3.3 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

3.3.4 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

3.3.5 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

3.3.6 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

3.3.7 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

3.3.8 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.

3.4 MODULATION ANALYZER - TONE DECODE

3.4.1 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

3.4.2 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

3.4.3 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

3.4.4 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.

3.4.5 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

3.4.6 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

3.4.7 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

3.4.8 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

3.5 RF ANALYZER REMOTE COMMANDS

3.5.1 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

3.5.2 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

3.5.3 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.

3.5.4

3.5.5 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.

3.5.6 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.

3.5.7 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.

3.5.8 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.

3.5.9 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.

3.5.10 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.

3.5.11 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.

3.5.12

3.5.13 RF Analyzer - Frequency

:RF:ANALyzer:CH1:FREQuency
:RF:ANALyzer:CH1:FREQuency?

Description: Set command defines the RF Analyzer Frequency for signal.
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 Frequency to 650.0 MHz.
Query Response: :RF:ANALyzer:CH1:FREQuency?
650000000

3.5.14 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.

3.5.15 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

3.5.16 RF Analyzer - Offset Mode of Operation

:RECeive:CH1:LOCK
:RECeive:CH1:LOCK?

Description: Set command defines the RF Analyzer 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
Locks Frequency Offset to RF Analyzer Frequency.
Query Response: :RECeive:CH1:LOCK?
1

NOTE Offset value defaults to 0.0 unless defined by user.

3.5.17 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

3.5.18 Receiver - 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:RrECeiver:AMP ON
Enables Receiver Pre-Amplifier.
Query Response: :RF:ANALyzer:RECeiver:AMP?
1

3.5.19 RF Analyzer - Receive Offset

:RF:ANALyzer:CH1:OFFSet
:RF:ANALyzer:CH1:OFFSet?

Description: Set command defines the Receive 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 -100kHz
Sets Receive Offset to -100.0 kHz.
Query Response: :RF:ANALyzer:CH1:OFFSet?
-100000.00

3.5.20

3.6 RECEIVE CHANNEL CONFIGURATION

3.6.1 Receive Channel - Protocol

:RECeive:CH1:PROTocol
:RECeive:CH1:PROTocol?

Description: Set command selects Receive Channel Protocol.
Query command returns parameter setting.
Parameter: ANALOG | NXDN
Default Value: NXDN
Set/Query Format: CPD | CRD
Example: :RECeive:CH1:PROTocol ANALOG
Sets Rx Channel Protocol to Analog.
Query Response: :RECeive:CH1:PROTocol?
ANALOG

3.6.2 Receive Channel - Radio Access Number

:RECeive:CH1:RAN?

Description: Query command returns the Receive Channel Radio Access Number.
Query Format: binary: query command ends with b
octal: query command ends with q
decimal: default format
hex: query command ends with h
Example: :RECeive:CH1:RAN 10
Sets Receive Channel1 Radio Access Number to 10.
Query Response: :RECeive:CH1:RAN?
10

3.6.3 Receive Channel - Rate

:RECeive:CH1:RATE
:RECeive:CH1:RATE?

Description: Set command defines Rate for NXDN Receive Channel.
Query command returns parameter setting.
Parameter: BPS4800 | BPS9600
Default Value: 4800
Set/Query Format: CPD | CRD
Example: :RECeive:CH1:RATE BPS4800
Sets NXDN Channel to receive at rate of 4800 BPS.
Query Response: :RECeive:CH1:RATE?
BPS4800

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Chapter 4 - NXDN Signal Meter Remote Commands

4.1 INTRODUCTION

This chapter describes the Remote Commands used for configuring and obtaining NXDN signal measurement data. Remote Commands are listed alphabetically by meter name.

4.2 RESET MEASUREMENT DATA

4.2.1 Reset Signal Acquisition

:RECeive:RESET:ACQuisition

Description: Command resets signal acquisition

Parameter/Query: none

4.3 BIT ERROR RATE (BER)

4.3.1 Bit Error Rate - Averages

:METERs:BER:CH1:AVERaging
:METERs:BER:CH1:AVERaging?

Description: Set command defines number of readings taken to calculate Average Bit Error Rate measurement.
Query command returns parameter setting.

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:BER:CH1:AVERaging 100
Sets the number of readings taken to calculate Average Bit Error Rate measurement to 100.

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

4.3.2 Bit Error Rate - Average Measurement Reset

:METERs:BER:CH1:CLEAR:AVG

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

Parameter/Query: none

4.3.3 Bit Error Rate - Lower Limit Enable

:LIMits:BER:CH1:LOWer:ENABle
:LIMits:BER:CH1:LOWer:ENABle?

Description: Set command Enables/Disables Lower Limit for 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 Bit Error Rate measurement.

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

4.3.4 Bit Error Rate - Lower Limit Value

:LIMits:BER:CH1:LOWer:VALue
:LIMits:BER:CH1:LOWer:VALue?

Description: Set command defines Lower Limit Value for 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 Bit Error Rate Measurement to 1.0%.

Query Response: :LIMits:BER:CH1:LOWer:VALue?
1.0000000000

4.3.5 Bit Error Rate - Measurement Query

:METERs:BER:CH1:STATus?

Description: Command returns 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

status messages (when present):
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

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

4.3.6 Bit Error Rate - Peak Measurement Reset

:METERs:BER:CH1:CLEAR:PEAK

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

Parameter/Query: none

4.3.7 Bit Error Rate - Receive Pattern

:METERs:BER:PATTern
:METERs:BER:PATTern?

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

Parameter: STD1031 | STD511 | STDPN15 | FSWPN9

Default Value: STD1031

Set/Query Format: CPD | CRD

Example: :METERs:BER:PATTern STDCAL
Sets Receive Pattern for Bit Error Rate measurement to STD CAL Pattern.

Query Response: :METERs:BER:PATTern?
STDCAL

4.3.8 Bit Error Rate - Upper Limit Enable

:LIMits:BER:CH1:UPPer:ENABle
:LIMits:BER:CH1:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for 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 Bit Error Rate measurement.

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

4.3.9 Bit Error Rate - Upper Limit Value

:LIMits:BER:CH1:UPPer:VALue
:LIMits:BER:CH1:UPPer:VALue?

Description: Set command defines Upper Limit Value for 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 Bit Error Rate measurements to 5%.

Query Response: :LIMits:BER:CH1:UPPer:VALue?
5.0000000000

4.4 BROADBAND POWER

4.4.1 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

4.4.2 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

4.4.3 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 µW

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

4.4.4 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.

4.4.5 Broadband Power - Peak Measurement Query

:FETCh:RF:ANALyzer:TRBPower:HOLD?

Description: Command returns Peak Broadband Power measurement data.

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

statusbyte (NR1):
0 = Valid
1 = 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:HOLD?
1,5,0.0091

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

4.4.6 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

4.4.7 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

4.4.8 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 µW
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

4.5 FREQUENCY CORRECTION

4.5.1 Frequency Error - Average

:METERs:FCR:CH1:AVERaging
:METERs:FCR:CH1: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 Average Frequency Error measurement to 100.
Query Response: :METERs:FCR:CH1:AVERaging?
100

4.5.2 Frequency Error - Average Measurement Reset

:METERs:FCR:CH1:CLEAR:AVG

Description: Command clears and resets Average Frequency Correction measurement.
Parameter/Query: none

4.5.3 Frequency Error - Lower Limit Enable

:LIMits:FCR:CH1:LOWer:ENABle
:LIMits:FCR:CH1:LOWer:ENABle?

Description: Set command Enables/Disables Lower Limit for Frequency Correction 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 Frequency Correction measurement.
Query Response: :LIMits:FCR:CH1:LOWer:ENABle?
1

4.5.4 Frequency Error - Lower Limit Value

:LIMits:FCR:CH1:LOWer:VALue
:LIMits:FCR:CH1:LOWer:VALue?

Description: Set command defines Lower Limit Value for Frequency Correction measurement.
Query command returns parameter setting.

Range: -2000.0 to +2000.0 Hz

Units: Hz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:FCR:CH1:LOWer:VALue 250Hz
Sets Lower Limit Value for Frequency Correction measurement to 250.0 Hz.

Query Response: :LIMits:FCR:CH1:LOWer:VALue?
250.00

4.5.5 Frequency Error - Measurement Query

:METERs:FCR:CH1: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

status messages (when present):
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :METERs:FCR:CH1:STATus?
0,0,3 100.00, -0.044, 0.204, -16.907,2

4.5.6 Frequency Error - Peak Measurement Reset

:METERs:FCR:CH1:CLEAR:PEAK

Description: Command clears and resets Peak Frequency Correction measurement.

Parameter/Query: none

4.5.7 Frequency Error - Upper Limit Enable

:LIMits:FCR:CH1:UPPer:ENABle
:LIMits:FCR:CH1:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for Frequency Correction 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 Frequency Correction measurement.

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

4.5.8 Frequency Error - Upper Limit Value

:LIMits:FCR:CH1:UPPer:VALue
:LIMits:FCR:CH1:UPPer:VALue?

Description: Set command defines Upper Limit Value for Frequency Correction measurement.
Query command returns parameter setting.

Range: -2000.0 to +2000.0 Hz

Units: Hz

Default Value: 0.0 Hz

Set/Query Format: NRf | NR2

Example: :LIMits:FCR:CH1:UPPer:VALue 500Hz
Sets Upper Limit Value for Frequency Correction measurements to 500.0 Hz.

Query Response: :LIMits:FCR:CH1:UPPer:VALue?
500.00

4.6 FSK ERROR

4.6.1 FSK Error - Averages

:METERs:FSKERR:CH1:AVERaging
:METERs:FSKERR:CH1:AVERaging?

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

Range: 1 to 250

Default Value: 1

Set/Query Format: NR1

Example: :METERs:FSKERR:CH1:AVERaging 100
Sets the number of readings taken to calculate Average FSK Error measurement to 100.

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

4.6.2 FSK Error - Average Measurement Reset

:METERs:FSKERR:CH1:CLEAR:AVG

Description: Command clears and resets Average FSK Error measurement.

Parameter/Query: none

4.6.3 FSK Error - Lower Limit Enable

:LIMits:FSKERR:CH1:LOWer:ENABle
:LIMits:FSKERR:CH1:LOWer:ENABle?

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

Parameter: OFF | ON | 0 | 1

Default Value: OFF

Set/Query Format: Boolean

Example: :LIMits:FSKERR:CH1:LOWer:ENABle ON
Enables Lower Limit for FSK Error measurement.

Query Response: :LIMits:FSKERR:CH1:LOWer:ENABle?
1

4.6.4 FSK Error - Lower Limit Value

:LIMits:FSKERR:CH1:LOWer:VALue
:LIMits:FSKERR:CH1:LOWer:VALue?

Description: Set command defines Lower Limit Value for FSK Error 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:FSKERR:CH1:LOWer:VALue 100
Sets Lower Limit Value for FSK Error measurement to 100.0%.

Query Response: :LIMits:FSKERR:CH1:LOWer:VALue?
100.00

4.6.5 FSK Error - Measurement Query

:METERs:FSKERR:CH1:STATus?

Description: Command returns FSK Error 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

status messages (when present):
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :METERs:FSKERR:CH1:STATus?
0,0,3, 100.000, 0.581, 113.982, 0.000,1

4.6.6 FSK Error - Measurement Type

:METERs:FSKERR:CH1:MODE
:METERs:FSKERR:CH1:MODE?

Description: Set command defines FSK Error measurement type.
Query command returns parameter setting.
Parameter: PEAK | AVERage
Default Value: PEAK
Set/Query Format: CPD | CRD
Example: :METERs:FSKERR:CH1:MODE AVERage
Sets FSK Error measurement to Average.
Query Response: :METERs:FSKERR:CH1:MODE?
AVER

4.6.7 FSK Error - Peak Measurement Reset

:METERs:FSKERR:CH1:CLEAR:PEAK

Description: Command clears and resets Peak FSK Error measurement.
Parameter/Query: none

4.6.8 FSK Error - Upper Limit Enable

:LIMits:FSKERR:CH1:UPPer:ENABle
:LIMits:FSKERR:CH1:UPPer:ENABle?

Description: Set command Enables/Disables Upper Limit for FSK Error measurement.
Query command returns parameter setting.
Parameter: OFF | ON | 0 | 1
Default Value: OFF
Set/Query Format: Boolean
Example: :LIMits:FSKERR:CH1:UPPer:ENABle ON
Enables Upper Limit for FSK Error measurement.
Query Response: :LIMits:FSKERR:CH1:UPPer:ENABle?
1

4.6.9 FSK Error - Upper Limit Value

:LIMits:FSKERR:CH1:UPPer:VALue
:LIMits:FSKERR:CH1:UPPer:VALue?

Description: Set command defines Upper Limit Value for FSK Error 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:FSKERR:CH1:UPPer:VALue 100
Sets Upper Limit Value for FSK Error measurement to 100.0%.
Query Response: :LIMits:FSKERR:CH1:UPPer:VALue?
100.00

4.7 INBAND POWER

4.7.1 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.

4.7.2 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.

4.7.3 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.

4.7.4 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.

4.7.5 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	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: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.

4.7.6 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.

4.7.7 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

4.7.8 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.

4.7.9 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 | dBµV

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.

4.8 SIGNAL POWER

4.8.1 Signal Power - Averages

:METERs:POWer:CH1:AVERaging
:METERs:POWer:CH1:AVERaging?

Description: Set command defines the 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 Average Signal Power measurement to 100.

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

4.8.2 Signal Power - Average Measurement Reset

:METERs:POWer:CH1:CLEAR:AVG

Description: Command clears and resets Average Signal Power measurement.

Parameter/Query: none

4.8.3 Signal Power - Lower Limit Enable

:LIMits:POWer:CH1:LOWer:ENABle
:LIMits:POWer:CH1: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 Signal Power measurement.

Query Response: :LIMits:POWer:CH1:LOWer:ENABle?
1

4.8.4 Signal Power - Lower Limit Value

:LIMits:POWer:CH1:LOWer:VALue
:LIMits:POWer:CH1: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: dBm
Default Value: 0.0 dBm
Set/Query Format: NRf | NR2
Example: :LIMits:POWer:CH1:LOWer:VALue -90dBm
Sets Lower Limit Value for Signal Power measurement to -90.0 dBm.
Query Response: :LIMits:POWer:CH1:LOWer:VALue?
-90.00

4.8.5 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 | CRD
Example: :METERs:POWer:TYPE AVER
Sets Signal Power measurement to Average.
Query Response: :METERs:POWer:TYPE?
AVER

4.8.6 Signal Power - Measurement Query

:METERs:POWer:CH1:STATus?

Description: Command returns Signal 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	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

status messages (when present):
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :METERs:POWer:CH1:STATus?
0,0,3 100.00, -30.183, -30.140, -30.241,6

4.8.7 Signal Power - Peak Measurement Reset

:METERs:POWer:CH1:CLEAR:PEAK

Description: Command clears and resets Peak Signal Power measurement.

Parameter/Query: none

4.8.8 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 | dBµV

Default Value: dBm

Set/Query Format: CPD | CRD

Example: :METERs:POWer:UNIts W
Displays Signal Power measurement in Watts.

Query Response: :METERs:POWer:UNIts?
W

4.8.9 Signal Power - Upper Limit Enable

:LIMits:POWer:CH1:UPPer:ENABle
:LIMits:POWer:CH1: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 Signal Power measurement.
Query Response: :LIMits:POWer:CH1:UPPer:ENABle?
1

4.8.10 Signal Power - Upper Limit Value

:LIMits:POWer:CH1:UPPer:VALue
:LIMits:POWer:CH1:UPPer:VALue?

Description: Set command defines Upper Limit Value for Signal Power measurement.
Query command returns parameter setting.
Range: -140.0 to +70.0 dBm
Units: dBm
Default Value: 0.0 dBm
Set/Query Format: NRf | NR2
Example: :LIMits:POWer:CH1:UPPer:VALue -80dBm
Sets Upper Limit Value for Signal Power measurements to -80.0 dBm.
Query Response: :LIMits:POWer:CH1:UPPer:VALue?
-80.00

4.9 SYMBOL CLOCK ERROR

4.9.1 Symbol Clock Error - Averages

:METERs:SCE:CH1:AVERaging
:METERs:SCE:CH1:AVERaging?

Description: Set command defines the 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 Average Symbol Clock Error measurement to 100.

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

4.9.2 Symbol Clock Error - Average Measurement Reset

:METERs:SCE:CH1:CLEAR:AVG

Description: Command clears and resets Average Symbol Clock Error measurement.

Parameter/Query: none

4.9.3 Symbol Clock Error - Lower Limit Enable

:LIMits:SCE:CH1:LOWer:ENABle
:LIMits:SCE:CH1: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 Symbol Clock Error measurement.

Query Response: :LIMits:SCE:CH1:LOWer:ENABle?
1

4.9.4 Symbol Clock Error - Lower Limit Value

:LIMits:SCE:CH1:LOWer:VALue
:LIMits:SCE:CH1: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 -500mHz
Sets Lower Limit Value for Symbol Clock Error measurement to -500.0 mHz.
Query Response: :LIMits:SCE:CH1:LOWer:VALue?
-500.00

4.9.5 Symbol Clock Error - Measurement Query

:METERs:SCE:CH1:STATus?

Description: Command returns Symbol Clock Error 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

status messages (when present):
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :METERs:SCE:CH1:STATus?
0,0,3 100.00, -2.487, -0.346, -6.642,18

4.9.6 Symbol Clock Error - Peak Measurement Reset

:METERs:SCE:CH1:CLEAR:PEAK

Description: Command clears and resets Peak Symbol Clock Error measurement.
Parameter/Query: none

4.9.7 Symbol Clock Error - Upper Limit Enable

:LIMits:SCE:CH1:UPPer:ENABle
:LIMits:SCE:CH1: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 Symbol Clock Error measurement.

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

4.9.8 Symbol Clock Error - Upper Limit Value

:LIMits:SCE:CH1:UPPer:VALue
:LIMits:SCE:CH1: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 500mHz
Sets Upper Limit Value for Symbol Clock Error measurement to 500.0 mHz.

Query Response: :LIMits:SCE:CH1:UPPer:VALue?
500.00

4.10 SYMBOL DEVIATION

4.10.1 Symbol Deviation - Averages

:METERs:SYMdev:CH1:AVERaging
:METERs:SYMdev:CH1:AVERaging?

Description: Set command defines the number of readings taken to calculate 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 Average Symbol Deviation measurement to 100.

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

4.10.2 Symbol Deviation - Average Measurement Reset

:METERs:SYMdev:CH1:CLEAR:AVG

Description: Command clears and resets Average Symbol Deviation measurement.

Parameter/Query: none

4.10.3 Symbol Deviation - Lower Limit Enable

:LIMits:SYMdev:CH1:LOWer:ENABle
:LIMits:SYMdev:CH1: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 Symbol Deviation measurement.

Query Response: :LIMits:SYMdev:CH1:LOWer:ENABle?
1

4.10.4 Symbol Deviation - Lower Limit Value

:LIMits:SYMdev:CH1:LOWer:VALue
:LIMits:SYMdev:CH1: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 Symbol Deviation measurement to 250.0 Hz.

Query Response: :LIMits:SYMdev:CH1:LOWer:VALue?
250.00

4.10.5 Symbol Deviation - Measurement Query

:METERs:SYMdev:CH1: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	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

status messages (when present):
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :METERs:SYMdev:CH1:STATus?
0,0,2,100.000,1946.569,2046.316,1800.000,2

4.10.6 Symbol Deviation - Peak Measurement Reset

:METERs:SYMdev:CH1:CLEAR:PEAK

Description: Command clears and resets Peak Symbol Deviation measurement.

Parameter/Query: none

4.10.7 Symbol Deviation - Upper Limit Enable

:LIMits:SYMdev:CH1:UPPer:ENABle
:LIMits:SYMdev:CH1: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 Symbol Deviation measurement.
Query Response: :LIMits:SYMdev:CH1:UPPer:ENABle?
1

4.10.8 Symbol Deviation - Upper Limit Value

:LIMits:SYMdev:CH1:UPPer:VALue
:LIMits:SYMdev:CH1: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 Symbol Deviation measurement to 500.0 Hz.
Query Response: :LIMits:SYMdev:CH1:UPPer:VALue?
500.00

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Chapter 5 - Audio/Demod Signal Rx Meter Remote Commands

5.1 INTRODUCTION

This chapter describes the Remote Commands used for configuring and obtaining Audio/Demod signal measurement data. Remote Commands are listed alphabetically by meter name.

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 = 20.0 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 = 20 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 - 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

5.4.4 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

5.4.5 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.

5.4.6 AF Distortion - Peak Measurement Reset

:AF:ANALyzer:DISTortion:CLEAR:PEAK

Description: Command clears and resets Peak AF Distortion measurement.
Parameter/Query: none

5.4.7 AF Distortion - Upper Limit Enable

:LIMits:AF:DISTortion:UPPer:ENABle
:LIMits:AF:DISTortion: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:DISTortion:UPPer:ENABle ON
Enables Upper Limit for AF Distortion measurement.

Query Response: :LIMits:AF:DISTortion:UPPer:ENABle?
1

5.4.8 AF Distortion - Upper Limit Value

:LIMits:AF:DISTortion:UPPer:VALue
:LIMits:AF:DISTortion: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:DISTortion:UPPer:VALue 1
Sets Upper Limit Value for AF Distortion measurement to 1.0%.

Query Response: :LIMits:AF:DISTortion:UPPer: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 Frequency - Upper Limit Enable

:LIMits:AF:FREQuency:UPPer:ENABle
:LIMits:AF:FREQuency:UPPer:ENABle?

Description: Set command Enables/Disables Upper 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:UPPer:ENABle ON
Enables Upper Limit for AF Frequency measurement.

Query Response: :LIMits:AF:FREQuency:UPPer:ENABle?
1

5.5.8 AF Frequency - Upper Limit Value

:LIMits:AF:FREQuency:UPPer:VALue
:LIMits:AF:FREQuency:UPPer:VALue?

Description: Set command defines the Upper 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:UPPer:VALue 2Hz
Sets Upper Limit Value for AF Frequency measurement to 2.0 Hz.

Query Response: :LIMits:AF:FREQuency:UPPer:VALue?
2.0

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 - 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.

5.6.6 AF Hum & Noise - Peak Measurement Reset

:AF:ANALyzer:HN:CLEAR:PEAK

Description: Command clears and resets Peak AF Hum & Noise measurement.
Parameter/Query: none

5.6.7 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 - Units

:CONFigure:AF:ANALyzer:LEVel:UNIts
:CONFigure:AF:ANALyzer:LEVel:UNIts?

Description: Set command defines the unit of measure for AF Level measurement.
Query command returns parameter setting.
Parameter: V | dBV | dBm | dBr
Default Value: dBm
Set/Query Format: CPD | CRD
Example: :CONFigure:AF:ANALyzer:LEVel:UNIts dBr
Displays AF Level measurement in dBr.
Query Response: :CONFigure:AF:ANALyzer:LEVel:UNIts?
DBR

5.7.8 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

5.7.9 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 - 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)

5.9.7 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

5.9.8 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

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 µW

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 - Peak Measurement Query

:FETCh:RF:ANALyzer:TRBPower:HOLD?

Description: Command returns Peak Broadband Power measurement data.

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

statusbyte (NR1):
0 = Valid
1 = 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:HOLD?
1,5,0.0091

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

5.10.6 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

5.10.7 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

5.10.8 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 µW
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 - Measurement Type

:CONFigure:MOD:ANALyzer:FM:MTYPe
:CONFigure:MOD:ANALyzer:FM:MTYPe?

Description: Set command defines measurement type for FM Deviation measurement.
Query command returns parameter setting.
Parameter: PEAK | RMS
Default Value: PEAK
Set/Query Format: CPD | CRD
Example: :CONFigure:MOD:ANALyzer:FM:MTYPe RMS
Sets Mod Analyzer Distortion measurement to RMS.
Query Response: :CONFigure:MOD:ANALyzer:FM:MTYPe?
RMS

5.11.8 FM Deviation - Offset Enable

:CONFigure:MOD:ANALyzer:FM:OFFSet:ENABle
:CONFigure:MOD:ANALyzer:FM:OFFSet:ENABle?

Description: Set command defines the FM Deviation Offset mode of operation.
Query command returns parameter setting.
Parameter: OFF | ON | 0 | 1
Default Value: ON
Set/Query Format: Boolean
Example: :CONFigure:MOD:ANALyzer:FM:OFFSet:ENABle ON
Locks FM Deviation Frequency Offset to RF Analyzer Frequency.
Query Response: :CONFigure:MOD:ANALyzer:FM:OFFSet:ENABle?
1

5.11.9 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.

5.11.10 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

5.11.11 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 | 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.

5.12.5 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	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: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.

5.12.6 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.

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 | dBµV

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:DISTortion:UPPer:ENABle
:LIMits:MOD:DISTortion: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:DISTortion:UPPer:ENABle ON
Enables Upper Limit for Modulation Distortion measurement.

Query Response: :LIMits:MOD:DISTortion:UPPer:ENABle?
1

5.13.8 Modulation Distortion - Upper Limit Value

:LIMits:MOD:DISTortion:UPPer:VALue
:LIMits:MOD:DISTortion: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:DISTortion:UPPer:VALue 1.0
Sets Upper Limit Value for Modulation Distortion measurements to 1.0%.

Query Response: :LIMits:MOD:DISTortion: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 Frequency - Measurement Query

:FETCh:MOD:ANALyzer:FREQuency?

Description: Command returns Modulation 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
8 = Squelch

avgcount (NR1): value

avg (NR2): Hz

Query Response: :FETCh:MOD:ANALyzer:FREQuency?
0,0,2979.00

NOTE

Statusbyte and Failbyte may return more than one condition as a bitmask.
Protocol must be defined as Analog to obtain valid Modulation Frequency measurement data.

5.14.6 Modulation Frequency - Peak Measurement Reset

:MOD:ANALyzer:FREQuency:CLEAR:PEAK

Description: Command clears and resets Peak Modulation Frequency 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

5.15.3 Mod Hum & Noise - Average Measurement Reset

:MOD:ANALyzer:HN:CLEAR:AVG

Description: Command clears and resets Average Mod Hum & Noise measurement.

Parameter/Query: none

5.15.4 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

5.15.5 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

5.15.6 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 - Peak Measurement Reset

:MOD:ANALyzer:HN:CLEAR:PEAK

Description: Command clears and resets Peak Mod Hum & Noise measurement.
Parameter/Query: none

5.15.8 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).

5.15.9 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

5.15.10 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

5.15.11 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 SNR - Lower Limit Enable

:LIMits:MOD:SNR:LOWer:ENABle
:LIMits:MOD:SNR:LOWer:ENABle?

Description: Set command Enables/Disables Lower 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:LOWer:ENABle ON
Enables Lower Limit for Mod SNR measurement.

Query Response: :LIMits:MOD:SNR:LOWer:ENABle?
1

5.17.4 Mod SNR - Lower Limit Value

:LIMits:MOD:SNR:LOWer:VALue
:LIMits:MOD:SNR:LOWer:VALue?

Description: Set command defines the Lower Limit Value for Mod SNR measurement.
Query command returns parameter setting.

Range: -100.0 to +100.0 dBr

Units: dBr

Default Value: 26.0 dBr

Set/Query Format: NRf | NR2

Example: :LIMits:MOD:SNR:LOWer:VALue 50dBr
Sets Lower Limit for Mod SNR measurement to 50.0 dBr.

Query Response: :LIMits:MOD:SNR: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 - 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)

5.17.7 Mod SNR - Peak Measurement Reset

:MOD:ANALyzer:SNR:CLEAR:PEAK

Description: Command clears and resets Peak Mod SNR measurement.

Parameter/Query: none

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

Chapter 6 - Modulation Accuracy and Power Remote Commands

6.1 INTRODUCTION

This chapter describes the Remote Commands used for configuring and obtaining NXDN Modulation Accuracy and Power measurements. Remote Commands are listed alphabetically under Tile headings.

6.2 CONSTELLATION GRAPH

6.2.1 Constellation - Persistence

:CONStellation:PERSistence
:CONStellation:PERSistence?

Description: Set command sets Persistence on Constellation graph.
Query command returns parameter setting.
Range: 1 to 10
Default Value: 1
Set/Query Format: NR1
Example: :CONStellation:PERSistence 5
Sets Constellation Graph Persistence to 5.
Query Response: :CONStellation:PERSistence?
5

6.2.2 Constellation - Trace Enable

:CONStellation:TRACe:ENABle
:CONStellation:TRACe:ENABle?

Description: Set command Enables/Disables Constellation trace.
Query command returns parameter setting.
Parameter: OFF | ON | 0 | 1
Default Value: OFF
Set/Query Format: Boolean
Example: :CONStellation:TRACe:ENABle ON
Enables Constellation trace.
Query Response: :CONStellation:TRACe:ENABle?
1

NOTE Trace must be enabled (ON) to return valid data.

6.2.3 Constellation - Trace Data Query

:CONStellation:TRACe:FETCh?

Description: Command returns Constellation 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 value

statuts message (ascii): (when present)
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :CONStellation:TRACe:FETCh?

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.
Constellation Trace must be enabled to return valid data.

6.3 DISTRIBUTION GRAPH

6.3.1 Distribution - Persistence

:DISTribution:PERSistence
:DISTribution:PERSistence?

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:PERSistence 5
Sets Distribution Graph Persistence to 5.

Query Response: :DISTribution:PERSistence?
5

6.3.2 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

NOTE Trace must be enabled (ON) to return valid data.

6.3.3 Distribution - Trace Data Query

:DISTribution:TRACe:FETCh?

Description: Command returns Distribution 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 value

statuts message (ascii): (when present)
signal not acquired\n
timed out waiting for TraceMutex\n
timed out waiting for data\n

Query Response: :DISTribution:TRACe:FETCh?

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.
Distribution Trace must be enabled to return valid data.

6.4 POWER OVER TIME

6.4.1 Power Over Time - Marker Enable

:PTIME:TRACe:MARKn:ENABle
:PTIME:TRACe:MARKn:ENABle?

Description: Set command Enables/Disables Marker 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)

6.4.2 Power Over Time - Marker Position

:PTIME:TRACe:MARKn:XPOS
:PTIME:TRACe:MARKn:XPOS?

Description: Set command defines Marker position on Power Over Time graph.
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 on Power Over Time graph.
Query Response: :PTIME:TRACe:MARK2:XPOS?
100

NOTE
MARKn = 1 or 2 (Marker 1 or 2)

6.4.3 Power Over Time - Marker Y Value Query

:PTIME:TRACe:MARKn:YVALue?

Description: Command returns Power Over Time Y value for 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.

6.4.4 Power Over Time - Span

:PTIME:SPAN
:PTIME:SPAN?

Description: Set command sets Span of Power Over Time graph.
Query command returns parameter setting.
Range: 10 to 1800 seconds
Units: seconds
Default Value: 10 seconds
Set/Query Format: NRf | NR1
Example: :PTIME:SPAN 500s
Sets Power Over Time graph Span to 500 seconds.
Query Response: :PTIME:SPAN?
500

6.4.5 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

NOTE Trace must be enabled (ON) to return valid data.

6.4.6 Power Over Time - Trace Data Query

:PTIME:TRACe:LIVE?

Description: Command returns Power Over Time 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 value
statuts message (ascii): signal not acquired\n
(when present) timed out waiting for TraceMutex\n
timed out waiting for data\n
Query Response: :PTIME:TRACe:LIVE?
1,2,0.00,10.45,330.00,10.45

NOTE Power Over TIme trace must be enabled to return valid data.

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