7200 Series

Radio Test Set

Remote Programming Manual

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Preface

ABOUT THIS MANUAL

This manual contains the following:

- Identifies conventions used in the manual;
- Describes common remote commands;
- Lists remote commands for the 7200 Configurable Automated Test Set (CATS).

NOMENCLATURE STATEMENT

The 7200 Configurable Automated Test Set is the official nomenclature for the test sets currently included in the 7200 Series. In this manual, 7200, unit or Test Set, refers to all 7200 models unless otherwise indicated.

INTENDED AUDIENCE

This manual is intended for personnel familiar with the use of remote command language. Review the 7200 Operation Manual prior to using the Test Set.

TEST SET REQUIREMENTS

Refer to the 7200 Operation Manual for information on the following:

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

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Chapter 1 - Introduction

1.1 INTRODUCTION

This chapter contains basic information for 7200 remote operation. Refer to the 7200 Operation Manual for general Test Set operation.

1.2 GENERAL INFORMATION

The 7200 can be operated remotely via an interface conforming to IEEE 488.2 syntax and style. The following Standard Commands for Programmable Instruments (SCPI) features have been implemented in the 7200 Remote Command structure:

- Error numbering scheme;
- Use of long and short form commands;
- Support of IEEE mandated commands.

Many of the remote command features supported by the 7200 are not defined by the SCPI standard; therefore, the Test Set is not fully compliant with SCPI requirements.

The 7200's remote command language has been designed to support the Test Set's Automated Scripting Utility which uses Python extension commands to integrate the Python command language with the 7200 Remote Programming commands. Users do not need to be familiar with the Python command language to use 7200 Remote Programming commands.

1.2.1 Test Set Remote Access

7200 Remote Access can be configured for GPIB or Network access. Refer to the 7200 Operation Manual for information about how to configure the Test Set for GPIB or Network access.

1.3 TRANSFERRING SCRIPTS TO TEST SET

Remote programming scripts are transferred to the 7200 using the File Management Utility window. Refer to the 7200 Operation Manual for use of the File Management Utility.

1.4 COMMAND GUIDELINES

The following guidelines should be followed when writing remote command scripts.

- Begin each script by restoring the Test Set to factory default state (*RST).
- Define parameters before enabling a function. For example, define RFGenerator1:FREQuency value before sending RFGenerator1:ENABle command.
- Include *WAI command as is appropriate in command sequence.

1.4.1 Command Short and Long Form

The elements of compound and query headers have a long and a short form, as defined by SCPI. Either the long or the short form may be entered as a command; other abbreviations are not permissible.

The short form is marked by upper case letters, the long form corresponds to the complete word. Uppercase and lowercase identify short form and long form only; 7200 remote commands are not case sensitive.

Queries always return the short form, or a numeric response in cases where the command provides a choice of numeric or character data.

1.4.1.A Case Sensitivity

As indicated in the section titled Command Short and Long Form, 7200 remote commands are not case sensitive. Upper and lowercase characters are completely interchangeable. There is no conflict between milli (m) and mega (M) as both cannot be applied to the same data.

Example:

AFCounter1:AVERage 100 is interpreted the same as AFC1:AVER 100

1.4.2 Command Punctuation

1.4.2.A Arrow Brackets < >

Text within angle brackets represents an actual value that needs to be inserted in the command string. For example, <n> or <x> indicate a variable that must be inserted in the command at this point.

Example:

AFCounter<n>:AVERage 100

<n> must be defined with a valid value as follows: AFCounter1:AVERage 100

1.4.2.B Choice Indicator

The vertical bar (|) separates a choice of parameters or commands. For example, 0 | 1 means ‘0 or 1.’

1.4.2.C Square Brackets [ ]

Square brackets [ ] indicate optional variables that do not need to be included in the command string, such as units of measurement.

1.4.2.D Terminators

A **<PROGRAM MESSAGE TERMINATOR>** (as defined in IEEE 488.2) can be a new line character (ASCII 10), a new line character with the ^END message asserted at the same time, or an ^END message asserted with the final character of the <PROGRAM MESSAGE>. The terminator may be preceded by any number of 'white space' characters - any single ASCII-encoded byte in the ranges 0 to 9 and 11 to 32 decimal.

A **<RESPONSE MESSAGE TERMINATOR>** (as defined in IEEE 488.2) is a new line character with the ^END message asserted at the same time.

Many GPIB controllers terminate program messages with a new line character and, by default, accept new line as the response message terminator. When transferring binary data, which may contain embedded new line characters, ensure that the controller uses only ^END messages. Usually this means that the controller's GPIB must be set up to generate and detect ^END. Refer to the documentation supplied with the controller.

1.5 PROGRAM DATA ELEMENTS

7200 Remote programming commands use the following data program elements:

1.5.1 Character Program Data (CPD)

Character Program Data is used to define a parameter best described as a short alpha or alphanumeric string.

Example:

AUD1
DEMod

1.5.2 Numeric Program Data

7200 Remote programming commands use the following numeric program elements:

1.5.2.A Integer

Variable is numeric and does not contain a defined decimal point.

Example:

10
175

1.5.2.B Decimal

Variable is numeric and does contain a defined decimal point.

Example:

12.5
825.0625

1.5.2.C Binary

Variable is in binary format.

Example:

1010
10101111

1.5.2.D Hexadecimal

Variable is in hexadecimal format. Hexadecimal values are preceded with #h or #H.

Example:

3E8
1D4C

1.5.3 String Program Data

String program data consists of a number of ASCII characters enclosed in quotes. Use either pairs of single (ASCII 39) or double (ASCII 34) quotes, but do not mix single and double in a string. A quote within a string must be enclosed within an extra pair of quotes.

Example:

'This string contains the word ' 'Hello' ' '

is interpreted as

This string contains the word 'Hello'

and

"This string contains the word " "Hello" " "

is interpreted as

This string contains the word "Hello"

1.5.3.A Hex-string

Uses characters 0-9 and A-F to produce hex pairs representing values from 0 to 255. There are no white spaces within the string.

1.5.3.B ASCII-string

Example:

"Script File Test 1" which refers to the file being loaded.

1.6 PROGRAM RESPONSE ELEMENTS

7200 Remote programming commands use the following formats for response data:

1.6.1 Character Response Data (CRD)

Variable is returned as a short alpha or alphanumeric string.

Example:

DEM
AUD1

1.6.2 Numeric Response Data

7200 Remote programming commands use the following numeric response elements:

1.6.2.A Integer

Variable is numeric and does not contain a defined decimal point.

Example:

10
175

1.6.2.B Decimal

Variable is numeric and does contain a defined decimal point.

Example:

12.5
825.0625

1.6.2.C Binary

Variable is in binary format.

Example:

1010
10101111

1.6.2.D Hexadecimal

Variable is in hexadecimal format. Hexadecimal values are preceeded with #h or #H.

Example:

3E8
1D4C

1.6.3 String Response Data

This takes a similar form to String Program Data except that the delimiting character is always a double quote (“ASCII34”).

1.6.3.A Hex-string

Returns characters 0-9 and A-F to produce hex pairs representing values within specified parameter range. There are no white spaces within the string.

1.6.3.B ASCII-string

Example:

“Call in progress.”

1.7 COMMAND TYPES

1.7.1 Set/Query Commands

The majority of the commands used within the 7200's remote command structure support set and query functionality.

1.7.1.A Set Commands

Set commands define a parameter.

Example:

AFCounter1:DISPlay:TYPe MAXimum

The Set Command defines the type of measurement displayed on the AF Counter.

1.7.1.B Query Commands

Query commands use the same command structure as the set command, but contain a '?' at the end of the command string instead of a variable.

Example:

AFCounter1:AVERage 50

AFCounter1:AVERage?

The Set Command defines the average setting for the AF Counter. The Query Command returns the average setting for the AF Counter.

1.7.2 Action Only Commands

Action only commands initiate a specific function or action. These commands do not require parameters and can not be queried. Typical use of Action Only commands is to clear average or peak readings and to move markers on the instrument tiles and measurement graph tiles.

Example:

AFCounter1:RESet

Command clears measurement data for AF Counter 1. Command does not require a parameter, nor can it be queried.

1.7.3 Query Only Commands

Query only commands return information only. These commands do not define parameters. Measurement query commands or status commands are the main use of query only commands. All query commands must include a '?' at the end of the command string.

Example:

AFCounter1:READing:LIVe?

Query command returns measurement data for AF Counter 1.

Some commands that are used to define a parameter can also be used as a query command by adding a '?' to the end of the command.

Example:

AFCounter1:ENABle ON enables measurements for AF Counter 1.

AFCounter1:ENABle? returns ON/OFF status for AF Counter 1.

NOTE	Query response always returns short form. For example, AVERage and WCASe are returned as AVER and WCAS.

Chapter 2 - Common/System Remote Commands

2.1 INTRODUCTION

This chapter lists Common and System Level remote command functions supported for the 7200.

2.2 COMMON COMMANDS

The following are IEEE mandated commands supported by the 7200.

2.2.1 Operation Complete State

***CLS**

Set Command:	Forces device to the Operation Complete Command Idle state and the Operation Complete Query Idle state.

2.2.2 Stored Command Sequence

***DDT var**
***DDT?**

Set Command:	Stores a command sequence that is executed by the *TRG command.
Query Command:	Returns command sequence.

2.2.3 Standard Event Status Enable Register

***ESE var**
***ESE?**

Set Command:	Sets the Standard Event Status Enable Register bits.
Query Command:	Returns defined variable.

2.2.4 Standard Events Status Register

***ESR?**

Query Command:	Returns contents of the Standard Events Status Register.

2.2.5 Test Set Identifier

***IDN?**

Query Command:	Returns Test Set identifying information.
Query Format:	ascii string
Query Data:	<manufacturer>,<model>,<serial number>,<software version>

2.2.6 Parallel Poll Enable Register

***PRE var**
***PRE?**

Set Command:	Sets the Parallel Poll Enable Register bits.
Query Command:	Returns defined variable.

2.2.7 Restore System Default Settings

***RST**

Set Command:	Resets Test Set to factory default state.

2.2.8 Service Request Enable Register

***SRE var**
***SRE?**

Set Command:	Sets the Service Request Enable Register bits.
Query Command:	Returns defined variable.

2.2.9 System Statusbyte

***STB?**

Query Command:	Returns statusbyte and Master Summary status bit.

2.2.10 System Trigger Command

***TRG**

Set Command:	Executes sequence of commands stored using the *DDT command.

2.3 SYSTEM ERROR REMOTE COMMANDS

The following are 7200 system level remote commands.

:SYSTem:ERRor?

Query Command:	Returns oldest error message in the error queue and then clears the error message from the queue.

:SYSTem:ERRor:ALL?

Query Command:	Returns all error messages in the error queue and then clears all error messages from the queue.

:SYSTem:ERRor:CODE:NEXT?

Query Command:	Returns first error message number in the error queue and then clears the error message from the queue.

:SYSTem:ERRor:COUNt?

Query Command:	Returns the number of error messages currently in the queue.

:SYSTem:VERSion?

Query Command:	Returns system version number.

2.4 SYSTEM CONFIGURATION COMMANDS

2.4.1 System Calendar

CONFigure:DATE var
CONFigure:DATE?

Set Command:	Sets Test Set's internal calendar.
Query Command:	Returns current date setting.
Variable (var):	real date
Set/Query Format:	YYYY/MM/DD
Set Example:	CONFigure:DATE 2013/09/12 Sets internal calendar to September 12, 2013.
Query Example:	CONFigure:DATE? 2013/09/12
NOTE	Changing the Test Set's internal date and time will deactivate licenses that have expiration dates (i.e., Try Before You Buy Options).

2.4.2 System Clock

CONFigure:TIMe var
CONFigure:TIMe?

Set Command:	Sets Test Set's internal clock.
Query Command:	Returns defined variable.
Variable (var):	real time
Set/Query Format:	HH:MM:SS (24 Hour format)
Set Example:	CONFigure:TIMe 19:25:44 Sets internal clock to 7:25:44 PM.
Query Example:	CONFigure:TIMe? 19:25:44
NOTE	Changing the Test Set's internal date and time will deactivate licenses that have expiration dates (i.e., Try Before You Buy Options).

2.4.3 System Frequency Reference (Reference Oscillator)

CONFigure:ROSC var
CONFigure:ROSC?

Set Command:	Defines Frequency Reference mode of operation.
Query Command:	Returns defined variable.
Variable (var):	INTernal | EXTernal
Default Value:	INTernal
Set/Query Format:	CPD | CRD
Set Example:	CONFigure:ROSC EXTernal Sets Frequency Reference to an external source.
Query Example:	CONFigure:ROSC? EXT
NOTE	An external reference must be conneted to Test Set for EXTernal mode to be valid.

2.4.4 System Hardware Version Information

CONFigure:VERSions?

Query Command:	Returns hardware version information.
Query Format:	ascii string

2.4.5 System Hardware Temperature

CONFigure:TEMPeratures

Query Command:	Returns temperatures of system hardware in Celsius.
Query Format:	ascii string

2.4.6 System Options List

OPTions:LIST?

Query Command:	Returns a list of options enabled on the Test Set.
Query Format:	string data, comma delimited

2.4.7 System Unique ID

OPTions:UID?

Query Command:	Returns the Test Set's unique ID.
Query Format:	alphanumeric, 12 characters

2.5 USER INTERFACE COMMANDS

2.5.1 User Interface - Open/Close Function Windows on the UI

DISPlay<n>:FRAME:SHOW "var",x,y,size
DISPlay<n>:FRAME:HIDE "var"

SHOW Command:	Opens specified function window on the user interface.		
HIDE Command:	Closes specified function window on the user interface.		
<n>:	Specifies the display to which command is applied.		
Parameter:	1		
Default Value:	1		
Set/Query Format:	Integer		
Variable ("var"):	"function window" (must be encased in quotes)		
Parameters:	AF_Counter/1/Meter		
	AFLevel/1/Meter	NrzGen/1/0 [3]	
	BurstPowerSignal/1/Meter [1]	NrzMeter/1/Meter [3]	
	Distortion/1/Meter	Oscope/1/Main [4]	
	DMM/1/Meter [2]	PeakPower/1/Meter	
	Fgen/1/0	PowerMeter/1/Meter	
	FreqCounter/1/Meter	Receiver/1/Main	
	FreqError/1/Meter	RmsPower/1/Meter	
	Generator/1/Main	SINAD/1/Meter	
	ModDisplay/1/0	SpectrumAnalyzer/1/Main	
	Modulator/1/Main	ZeroSpanAnalyzer/1/Main	
x,y:	x,y coordinates of the window, lower left corner orientation		
x range:	0 to 1280 pixels		
y range:	0 to 800 pixels		
size:	MIN (default window size) | MAX (full screen)		
SHOW Example:	DISPlay1:FRAME:SHOW "Distortion/1/Main", 25, 50, MIN Opens the Distortion Meter window in default size view and positions the window at 25 pixels right, 50 pixels from the lower left corner of the display area.		
HIDE Example:	DISPlay1:FRAME:HIDE "Distortion/1/Main" Closes the Distortion Meter window.		
NOTE	x and y range values indicate the visible display area. Any values above the indicated range will position the window outside of the visible display area. [1] Available when Option #136260 is enabled on the Test Set. [2] Available when Option #136257 is enabled on the Test Set. [3] Available when Option #136261 is enabled on the Test Set. [4] Available when Option #136256 is enabled on the Test Set.		

2.5.2 User Interface - Open/Close Launch Bar on the UI

DISP:LAUNCHBAR:STATe var
DISP:LAUNCHBAR:STATe?

Set Command:	Opens and closes the Launch Bar on the User Interface.
Query Command:	Returns defined variable.
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	DISP:LAUNCHBAR:STATe ON Opens Launch Bar.
Query Example:	DISP:LAUNCHBAR:STATe? 1

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Chapter 3 - Generator Remote Commands

3.1 INTRODUCTION

This chapter contains remote commands used to configure the Test Set's generators.

3.2 AF GENERATOR REMOTE COMMANDS

3.2.1 AF Generator - Enable

AFGenerator<n>:PARametric:SOURce<x>:ENABle var
AFGenerator<n>:PARametric:SOURce<x>:ENABle?

Set Command:	Enables/disables source <x> of AF Generator <n>.	
Query Command:	Returns defined variable.	
<n>:	Specifies AF Generator to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
<x>:	Specifies AF Generator source to which command is applied.	
Parameter:		1 | 2 | 3
Default Value:		1
Set/Query Format:		Integer
Variable (var):	state	
Parameter:		OFF | ON | 0 | 1
Default Value:		OFF
Set/Query Format:		Boolean
Set Example:	AFGenerator1:PARametric:SOURce2:ENABle ON Turns AF Generator 1, Signal Source 2 ON.	
Query Example:	AFGenerator1:PARametric:SOURce2:ENABle? 1	

3.2.2 AF Generator - Frequency

AFGenerator<n>:PARametric:SOURce<x>:FREQuency var <units>
AFGenerator<n>:PARametric:SOURce<x>:FREQuency? <units>

Set Command:	Defines frequency for source <x> of AF Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies AF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies AF Generator source to which command is applied.
Parameter:	1 | 2 | 3
Default Value:	1
Set/Query Format:	Integer
Variable (var):	frequency value
Range:	10 Hz to 40 kHz
Units:	Hz | kHz
Default Value:	100 Hz
Set/Query Format:	Decimal
Set Example:	AFGenerator1:PARametric:SOURce2:FREQuency 5kHz Sets frequency 2 of AF Generator 1 to 5.0 kHz.
Query Example:	AFGenerator1:PARametric:SOURce2:FREQuency? Hz 5000

3.2.3 AF Generator - Level

AFGenerator<n>:PARametric:SOURce<x>:LEVel var <units>
AFGenerator<n>:PARametric:SOURce<x>:LEVel? <units>

Set Command:	Defines level source <x> of AF Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies AF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies AF Generator source to which command is applied.
Parameter:	1 | 2 | 3
Default Value:	1
Set/Query Format:	Integer
Variable (var):	level value
Range:	1 mV to 7 V
Units:	mV | V
Default Value:	1.0 V
Set/Query Format:	Decimal
Set Example:	AFGenerator1:PARametric:SOURce2:LEVel 1V Sets level 2 of AF Generator 1 to 1 Volt.
Query Example:	AFGenerator1:PARametric:SOURce2:LEVel? mV 1000

3.2.4 AF Generator - Waveform Shape

AFGenerator<n>:PARametric:SOURce<x>:SHAPe var
AFGenerator<n>:PARametric:SOURce<x>:SHAPe?
AFGenerator<n>:PARametric:SOURce<x>:SHAPe:LIST?

Set Command:	Defines waveform type of source <x> for AF Generator <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid waveform shapes for AF Generator <n>.
<n>:	Specifies AF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies AF Generator source to which command is applied.
Parameter:	1 | 2 | 3
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal shape
Parameter:	SINE | SQUARE | TRIANGLE | RAMP
Default Value:	SINE
Set/Query Format:	CPD | CRD
Set Example:	AFGenerator1:PARametric:SOURce2:SHAPe SQUARE Sets AF Generator 1, Source 2, waveform shape to Square.
Query Example:	AFGenerator1:PARametric:SOURce2:SHAPe? SQU

3.3 DIGITAL DATA GENERATOR REMOTE COMMANDS

Digital Data Generator Remote Commands are only valid when Option #139261 is enabled.

3.3.1 Digital Data Generator - Data Rate

DDGenerator<n>:DATa:RATe var
DDGenerator<n>:DATa:RATe?
DDGenerator<n>:DATa:RATe:LIST?

Set Command:	Defines Digital Data Generator <n> signal data rate.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid data rates for Digital Data Generator <n>.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	data rate
Parameter:	75bps | 150bps | 300bps | 600bps | 1200bps | 2400bps | 4800bps | 4kbps
Default Value:	75bps
Set/Query Format:	CPD | CRD
Set Example:	DDGenerator1:DATa:RATe 300PBPS Sets data rate of Digital Data Generator 1 signal to 300 bps.
Query Example:	DDGenerator1:DATa:RATe? 300BPS

3.3.2 Digital Data Generator - Enable

DDGenerator<n>:ENABle var
DDGenerator<n>:ENABle?

Set Command:	Enables/disables Digtital Data Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	DDGenerator1:ENABle ON Turns Digital Data Generator 1 ON.
Query Example:	DDGenerator1:ENABle? 1

3.3.3 Digital Data Generator - Fixed Pattern

DDGenerator<n>:PATTern:FIXed var
DDGenerator<n>:PATTern:FIXed?
DDGenerator<n>:PATTern:FIXed:LIST?

Set Command:	Selects Fixed pattern for Digital Data Generator <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Fixed Pattern variables.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Fixed pattern
Parameter:	ADR_P25_STD_1011 | ADR_P25_STD_1011_CAL | ADR_P25_STD_SILENCE | ADR_X2_TDMA_1031_AMBE | ADR_SUPERFRAME_2 | ADR_SUPERFRAME_3 | ADR_SUPERFRAME_4 | ADR_SUPERFRAME_5 | ADR_SUPERFRAME_6
Default Value:	ADR P25 STD 1011
Set/Query Format:	CPD | ascii string
Set Example:	DDGenerator1:PATTern:FIXed ADR_SUPERFRAME_2 Selects ADR SUPERFRAME 2 as Fixed pattern for Digital Data Generator 1.
Query Example:	DDGenerator1:PATTern:FIXed? ADR_SUPERFRAME_2
NOTE	Command is only valid when Pattern Type is set to Fixed (DDGenerator<n>:PATTern:TYPe FIXED).

3.3.4 Digital Data Generator - Level

DDGenerator<n>:LEVel var
DDGenerator<n>:LEVel?

Set Command:	Defines level of Data Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	level value
Range:	100 mV to 5 V
Units:	V
Default Value:	1.0 V
Set/Query Format:	Decimal
Set Example:	DDGenerator1:LEVel 1 Sets level of Data Generator 1 to 1 Volt.
Query Example:	DDGenerator1:LEVel? 1

3.3.5 Digital Data Generator - Pattern Type

DDGenerator<n>:PATTern:TYPe var
DDGenerator<n>:PATTern:TYPe?
DDGenerator<n>:PATTern:TYPe:LIST?

Set Command:	Selects type of pattern being generated by Data Generator <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid pattern types for Digital Data Generator <n>.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	pattern type
Parameter:	RANDOM | FIXED | USER
Default Value:	RANDOM
Set/Query Format:	CPD | CRD
Set Example:	DDGenerator1:PATTern:TYPe FIXED Sets pattern of Digital Data Generator 1 signal to Fixed.
Query Example:	DDGenerator1:PATTern:TYPe? FIXED

3.3.6 Digital Data Generator - Polarity

DDGenerator<n>:POLarity var
DDGenerator<n>:POLarity?
DDGenerator<n>:POLarity:LIST?

Set Command:	Defines polarity of Digital Data Generator <n> signal.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid Polarity types.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	polarity
Parameter:	POSITIVE | NEGATIVE
Default Value:	POSITIVE
Set/Query Format:	CPD | CRD
Set Example:	DDGenerator1:POLarity NEGATIVE Sets polarity of Digital Data Generator 1 to Negative.
Query Example:	DDGenerator1:POLarity? NEGATIVE

3.3.7 Digital Data Generator - Random Pattern

DDGenerator<n>:PATTern:RANDom var
DDGenerator<n>:PATTern:RANDom?
DDGenerator<n>:PATTern:RANDom:LIST?

Set Command:	Selects type of Random pattern to be produced by the Digital Data Generator <n>.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid Random Pattern variables.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Random pattern
Parameter:	PN9 | PN10 | PN11 | PN12 | PN15
Default Value:	PN9
Set/Query Format:	CPD | CRD
Set Example:	DDGenerator1:PATTern:RANDom PN11 Selects PN11 as Random pattern of Digital Data Generator 1 signal.
Query Example:	DDGenerator1:PATTern:RANDom? PN11
NOTE	Command is only valid when Pattern Type is set to Random (DDGenerator<n>:PATTern:TYPe RANDOM).

3.3.8 Digital Data Generator - Signal Source

DDGenerator<n>:SOURce var
DDGenerator<n>:SOURce?
DDGenerator<n>:SOURce:LIST?

Set Command:	Selects signal source for Digital Data Generator <n>.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid signal sources for Digital Data Generator.
<n>:	Specifies Digital Data Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal source
Parameter:	AUDIO | MOD
Default Value:	AUDIO
Set/Query Format:	CPD | CRD
Set Example:	DDGenerator1:SOURce MOD Sets signal source of Digital Data Generator to Modulation Output.
Query Example:	DDGenerator1:SOURce? MOD

3.3.9 Digital Data Generator - User Defined Pattern

DDGenerator<n>:PATTern:USER var

DDGenerator<n>:PATTern:USER?

Set Command:	Selects type of User Defined pattern to be produced by the Digital Data Generator <n>.	
Query Command:	Returns defined variable.	
<n>:	Specifies Digital Data Generator to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
Variable (var):	user defined pattern	
Default Value:		n/a
Set/Query Format:		CPD | CRD
Set Example:	DDGenerator1:PATTern:USER test_1 Selects User Generated pattern file named test_1 as the pattern of Digital Data Generator 1 signal.	
Query Example:	DDGenerator1:PATTern:USER? test_1	
NOTE	Command is only valid when Pattern Type is set to User Defined (DDGenerator<n>:PATTern:TYPe USER).	

3.4 MODULATION GENERATOR REMOTE COMMANDS

3.4.1 Modulation Generator - Enable

MODulator<n>:PARametric:SOURce<x>:ENABle var
MODulator<n>:PARametric:SOURce<x>:ENABle?

Set Command:	Enables/disables source <x> of Modulation Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Modulation Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies source to which command is applied.
Parameter:	1 | 2 | 3 | 4
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	MODulator1:PARametric:SOURce2:ENABle ON Turns Modulation Source 2 for Generator 1 ON.
Query Example:	MODulator1:PARametric:SOURce2:ENABle? 1
NOTE	Variable 4 designates External Modulator. MOD<n>:PAR:FOR must be set to a valid modulation type before sending MOD<n>:PAR:SOUR<x>:ENAB command.

3.4.2 Modulation Generator - Modulation Leveling Status

MODulator<n>:LEVeling?

Query Command:	Returns leveling status for Modulation Generator <n>.
<n>:	Specifies Modulation Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Query Format:	numeric
Query Data:	0 = Leveling is complete
	1 = Leveling is active
Query Example:	MODulator1:LEVeling? 1 Modulation Generator is performing leveling process (active).

3.4.3 Modulation Generator - Frequency

MODulator<n>:PARametric:SOURce<x>:FREQuency var <units>
MODulator<n>:PARametric:SOURce<x>:FREQuency? <units>

Set Command:	Defines frequency of source <x> of Modulation Generator <n>.	
Query Command:	Returns defined variable.	
<n>:	Specifies Modulation Generator to which command is applied.	
	Parameter:	1
	Default Value:	
	Set/Query Format:	Integer
<x>:	Specifies source to which command is applied.	
	Parameter:	1 | 2 | 3
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	frequency value	
	Range:	0.0 to 40.0 kHz
	Units:	Hz | kHz | MHz
	Default Value:	0.0 kHz
	Set/Query Format:	Decimal
Set Example:	MODulator1:PARametric:SOURce2:FREQuency 30kHz Sets source 2 frequency of Modulation Generator 1 to 30.0 kHz.	
Query Example:	MODulator1:PARametric:SOURce1:FREQuency? Hz 30000	
NOTE	MOD<n>:PAR:FOR must be set to a valid modulation type before sending MOD<n>:PAR:SOUR<x>:FREQ var command.	

3.4.4 Modulation Generator - Modulation Level

MODulator<n>:PARametric:SOURce<x>:LEVel var <units>
MODulator<n>:PARametric:SOURce<x>:LEVel? <units>

Set Command:	Defines modulation level of signal being generated by source <x> of Modulation Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Modulation Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies source to which command is applied.
Parameter:	1 | 2 | 3 | 4
Default Value:	1
Set/Query Format:	Integer
Variable (var):	level value
AM/LSB/SSB Range:	0 to 100%
FM Range:	0.0 to 1.0 MHz
PM Range:	0 to 12 radians
<units>:	Defined by selected modulation type
AM/LSB/USB Units:	%
FM Units:	Hz | kHz | MHz
PM Units:	rad (radians)
Default Value:	0.0 <units>
Set/Query Format:	Decimal
Set Example:	MODulator1:PARametric:SOURce2:LEVel 10rad Sets PM modulation Level for Modulation Generator 1, Source 2 to 10 radians.
Query Example:	MODulator1:PARametric:SOURce2:LEVel? rad 10
NOTE	MOD<n>:PAR:FOR must be set to a valid modulation type before sending MOD<n>:PAR:SOUR<x>:LEV var command. Variable 4 designates External Modulator.

3.4.5 Modulation Generator - Modulation NRZ Level

MODulator<n>:PARametric:NRZ:LEVel var <units>
MODulator<n>:PARametric:NRZ:LEVel? <units>

Set Command:	Defines modulation level of NRZ signal being generated by Modulation Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Modulation Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	level value
AM/LSB/SSB Range:	0 to 100%
FM Range:	0.0 to 1.0 MHz
PM Range:	0 to 12 radians
AM/LSB/USB Units:	%
FM Units:	Hz | kHz | MHz
PM Units:	rad (radians)
Default Value:	0.0 <units>
Set/Query Format:	Decimal
Set Example:	MODulator1:PARametric:NRZ:LEVel 10rad Sets PM modulation Level for Modulation Generator 1 to 10 radians.
Query Example:	MODulator1:PARametric:NRZ:LEVel? rad 10
NOTE	MODulator<n>:PARametric:FORmat must be set to an NRZ Modulation for this command to be valid. This command is only valid when Option #139261 is enabled on the Test Set.

3.4.6 Modulation Generator - Modulation Type/Modulator Function

MODulator<n>:PARametric:FORmat var
MODulator<n>:PARametric:FORmat?
MODulator<n>:PARametric:FORmat:LIST?

Set Command:	Defines type of modulation applied to modulated signal.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Modulator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	modulation type
Parameter:	AM | AMNRZ | FM | FMNRZ | IQ_FILE | LSB | LSBNRZ | NONE | OFF | PLAYRECORD | PM | PMNRZ | SSB | USB | USBNRZ
Default Value:	None
Set/Query Format:	CPD | CRD
Set Example:	MODulator1:PARametric:FORmat PM Sets modulation format to PM.
Query Example:	MODulator1:PARametric:FORmat? PM
NOTE	Modulation type must be defined at the beginning of the Modulation Generator command sequence. NRZ Modulations are only valid when Option #139261 is enabled on the Test Set. IQ_FILE is only valid when Option #139270 is enabled on the Test Set. PLAYRECORD is only valid when Option #139272 is enabled on the Test Set.

3.4.7 Modulation Generator - Waveform Type

MODulator<n>:PARametric:SOURce<x>:SHAPe var
MODulator<n>:PARametric:SOURce<x>:SHAPe?
MODulator<n>:PARametric:SOURce<x>:SHAPe:LIST?

Set Command:	Defines waveform type for source <x> of Modulation Generator <n>.	
Query Command:	Returns defined variable.	
List Command:	Returns list of valid parameters.	
<n>:	Specifies Modulation Generator to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	Specifies source to which command is applied.	
	Parameter:	1 | 2 | 3
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	waveform shape	
	Parameter:	SINE | SQUARE | TRIANGLE | RAMP
	Default Value:	SINE
	Set/Query Format:	CPD | CRD
Set Example:	MODulator1:PARametric:SOURce2:SHAPe SQUARE Sets waveform type of Modulation Generator 1 Source 2 to Square.	
Query Example:	MODulator1:PARametric:SOURce2:SHAPe? SQU	
NOTE	MOD<n>:PAR:FOR must be set to a valid modulation type before sending MOD<n>:PAR:SOUR<x>:SHAP var command.	

3.5 IQ FILE GENERATOR REMOTE COMMANDS

IQ File Generator Remote Commands are only valid when Option #139270 is enabled on the Test Set.

Refer to Section 4.5, Record Signal Remote Commands for IQ Record Receiver Remote Commands.

3.5.1 IQ File Generator - Load IQ Waveform File

MODulator:ARB:CREator:WAVeform "var"
MODulator:ARB:CREator:WAVeform?

Set Command:	Loads IQ File to be played.
Query Command:	Returns the name of the IQ Waveform file which is currently loaded.
Variable (var):	full path and file name
Parameter:	User defined
Default Value:	N/A
Set/Query Format:	string
Set Example:	MODulator:ARB:CREator:WAVeform "/USER/iqfiles/ rf_waveform.aiq" Loads IQ file named rf_waveform.aiq file.
Query Example:	MODulator:ARB:CREator:WAVeform? "/USER/iqfiles/rf_waveform.aiq"
NOTE	IQ File must be imported to the Test Set /USER/iqfiles/ directory before sending set command. Query command returns "", when on IQ File is loaded. Send MODulator:ARB:CREator:PMODe:ARM command to play IQ waveform.

3.5.2 IQ File Generator - Play Waveform

MODulator:ARB:CREator:PMODe:ARM

Set Command:	Sends single shot of the loaded IQ Creator waveform.
NOTE	IQ File must be opened before sending this command (MODulator:ARB:CREator:WAVeform var). Modulation Generator must be enabled to output IQ waveform (MODulator<n>:PARametric:SOURce<x>:ENABle ON).

3.5.3 IQ File Generator - Playback Mode

MODulator:ARB:CREator:PMODe var
MODulator:ARB:CREator:PMODe?
MODulator:ARB:CREator:PMODe:LIST?

Set Command:	Defines the output mode of the IQ Waveform.
Query Command:	Returns defined variable.
List Command:	Returns valid play back modes of operation.
Variable (var):	playback mode
Parameter:	CONTinuous | SINGLE-SW
Default Value:	CONTinuous
Set/Query Format:	CPD | CRD
Set Example:	MODulator:ARB:CREator:PMODe SINGLE-SW Sets IQ waveform to playback in a single sw burst.
Query Example:	MODulator:ARB:CREator:PMODe? SINGLE-SW
NOTE	IQ waveforms with a bandwidth <250 kHz can only be played in CONTinuous mode.

3.5.4 IQ File Generator - Playback Status

MODulator:ARB:CREator:STATe?

Query Command:	Returns play state of arbitrary waveform.
Query Data:	IDLE | ARMED | PLAYING | LOADING

3.6 PLAYBACK RECORDED SIGNAL REMOTE COMMANDS

Record/Playback Remote Commands are only valid when Option #139272 is enabled on the Test Set.

NOTE	The Generator Modulation Record/Playback and Receiver IQ Record Functions were merged into the IQ Record-Playback Window in software version 2.1.0. The remote commands in this section were deprecated in software version 2.1.0. The remote commands in this section are supported in software version 2.1.0, but will not be supported in future software releases. In order to avoid script failure, transition to new IQ Record-Playback Remote commands documented in Chapter 11 - IQ Record-Playback Remote Commands.

3.6.1 Record/Playback - Playback Mode

MODulator:ARB:PLAYback:PMODe var
MODulator:ARB:PLAYback:PMODe?

Set Command:	Defines the output mode of the recorded waveform.
Query Command:	Returns defined variable.
Variable (var):	playback mode
Parameter:	CONTinuous | SINGLE-SW
Default Value:	CONTinuous
Set/Query Format:	CPD | CRD
Set Example:	MODulator:ARB:PLAYback:PMODe SINGLE-SW Plays back waveform in a single burst.
Query Example:	MODulator:ARB:PLAYback:PMODe? SINGLE-SW
NOTE	Modulation type must be to IQ File for set command to be valid (MODulator<n>:PARametric:FORmat PLAYRECORD).

3.6.2 Record/Playback - Playback State

MODulator:ARB:PLAYback:STATe var

MODulator:ARB:PLAYback:STATe?

Set Command:	Plays single shot of waveform when Mode is set to SINGLE-SW.
Query Command:	Returns defined variable or play back state.
Variable (var):	playback mode
Set Parameter:	ARMED
Query Data:	ARMED | IDLE | LOADING | PLAYING
Default Value:	n/a
Set/Query Format:	CPD | CRD
Set Example:	MODulator:ARB:PLAYback:STATe ARMED Plays back waveform in a single burst.
Query Example:	MODulator:ARB:PLAYback:STATe? SINGLE-SW
NOTE	Modulation type must be to Record/Playback for set command to be valid (MODulator<n>:PARametric:FORmat PLAYRECORD). Playback Mode must be set to SINGLE -SW for set command to be valid (MODulator:ARB:PLAYback:MODe SINGLE-SW). A recorded waveform must be available for set command to be valid.

3.6.3 Record/Playback - Timing Delay

MODulator:ARB:PLAYback:DELay var [units]

MODulator:ARB:PLAYback:DELay? <units>

Set Command:	Defines the length of the pause before the recorded waveform is played.
Query Command:	Returns defined variable.
Variable (var):	time delay
Range:	0 to 1000 seconds
Default Value:	0 seconds
Set/Query Format:	CPD | CRD
<units>:	ms | s
Default Unit:	s
Set Example:	MODulator:ARB:PLAYback:DELay 500 Sets pause before recorded waveform is played to 500 seconds.
Query Example:	MODulator:ARB:PLAYback:DELay? ms 500000
NOTE	Modulation type must be to Record/Playback for set command to be valid (MODulator<n>:PARametric:FORmat PLAYRECORD).

3.7 RF GENERATOR REMOTE COMMANDS

3.7.1 RF Generator - Enable

RFGenerator<n>:ENABle var
RFGenerator<n>:ENABle?

Set Command:	Enables/disables RF Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies RF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	RFGenerator1:ENABle ON Turns RF Generator 1 ON.
Query Example:	RFGenerator1:ENABle? 1

3.7.2 RF Generator - Frequency

RFGenerator<n>:FREQuency var <units>
RFGenerator<n>:FREQuency? <units>

Set Command:	Defines frequency for RF Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies RF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	frequency value
Range:	1.0 MHz to 2.6 GHz
Default Value:	100.0 MHz
Units:	Hz | kHz | MHz | GHz
Default Units:	Hz
Set/Query Format:	NR1 <units>
Set Example:	RFGenerator1:FREQuency 825.625MHz Sets frequency of RF Generator 1 to 825.625 MHz.
Query Example:	RFGenerator1:FREQuency? kHz 825625

3.7.3 RF Generator - Level

RFGenerator<n>:LEVel var <units>
RFGenerator<n>:LEVel? <units>

Set Command:	Defines level of RF Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies RF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	level value
T/R Range:	-130.0 to -30.0 dBm
GEN Range:	-110.0 to +10.0 dBm
Units:	dBm
T/R Default Value:	-30.0 dBm
GEN Default Value:	0.0 dBm
Set/Query Format:	Decimal
Set Example:	RFGenerator1:LEVel -45DBM Sets level of RF Generator 1 to -45 dBm.
Query Example:	RFGenerator1:LEVel? dBm -45

3.7.4 RF Generator - Output Connector

RFGenerator<n>:PORT var
RFGenerator<n>:PORT?

Set Command:	Selects output connector for RF Generator <n>.
Query Command:	Returns defined variable.
<n>:	Specifies RF Generator to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	output port
Parameter:	GEN | TR
Default Value:	TR
Set/Query Format:	CPD | CRD
Set Example:	RFGenerator1:PORT GEN Sets output port of RF Generator 1 to GEN connector.
Query Example:	RFGenerator1:PORT? GEN

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Chapter 4 - RF Receiver Remote Commands

4.1 INTRODUCTION

This chapter lists remote commands for configuring RF Receiver parameters.

4.2 SIGNAL ROUTING REMOTE COMMANDS

4.2.1 Audio Input/Output Routing

AUDio<n>:PORT var
AUDio<n>:PORT?

Set Command:	Defines routing of Audio 1 and Audio 2 Connector <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Audio Connector to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	port routing
Audio 1 Variables:	AUDIN | AUDBAL | DDG
Default Value:	AUDIN
Audio 2 Variables:	AUDIN | AUDBAL | AFG | DEMOD
Default Value:	AFG
Set/Query Format:	CRD | CRD
Set Example:	AUDio1:PORT DDG Routes the defined Digital Data Generator signal to the Audio 1 Connector as an output signal.
Query Example:	AUDio1:PORT? DDG
NOTE	AFG (AF Generator) and DDG (Digital Data Generator) signals must be configured when AFG or DDG is defined as an output signal. Refer to the 7200 Operation Manual for detailed Audio Routing information. DDG is available when Option #139261 is enabled on the Test Set.
NOTE	Software Version 1.0.9 remote command updates: AUDio<n>:Port var replaces AUDIOPORT:OUT var AUDio<n>:Port ? replaces AUDIOPORT:OUT? Update scripts accordingly.

4.2.2 Audio Filter Type

AUDio<n>:Filter:TYPe var
AUDio<n>:Filter:TYPe?
AUDio<n>:Filter:TYPe:LIST?

Set Command:	Selects the type of audio filter to be included in specified audio signal path <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Audio Filter types.
<n>:	Specifies audio component to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	filter type
Parameter:	15_KHZ_LP | 20_KHZ_LP | 300_HZ_LP | 300HZ-15KHZ_BP | 300HZ-20KHZ_BP | 300HZ-3.4KHZ_BP | 300HZ-3KHZ_BP | 300HZ-40KHZ_BP | 300HZ-5KHZ_BP | 300HZ_HP | 3_KHZ_LP | 40_KHZ_LP | 5_KHZ_LP | NONE
Default Value:	NONE
Set/Query Format:	CPD | CRD
Set Example:	AUDio1:Filter:TYPe 20_KHZ_LP Selects 20 kHz LP filter to include in audio signal path.
Query Example:	AUDio1:Filter:TYPe? 20_KHZ_LP

4.2.3 Demod (RF) Filter Type

RFReceiver<n>:FILTer:TYPe var
RFReceiver<n>:FILTer:TYPe?
RFReceiver<n>:FILTer:TYPe:LIST?

Set Command:	Selects the type of audio filter to be included in RF signal path for defined receiver.
Query Command:	Returns defined variable.
List Command:	Returns list of valid FIlter Types.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default value:	1
Set/Query Format:	Integer
Variable (var):	filter type
Parameter:	NONE | 300 Hz LP | 3 kHz LP | 5 kHz LP | 15 kHz LP | 20 kHz LP | 40 kHz LP | 300Hz HP | 300Hz-3kHz BP | 300Hz-3.4kHz BP | 300Hz-5kHz BP | 300Hz-15kHz BP | 300Hz-20kHz BP | 300Hz-40kHz BP
Default Value:	NONE
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:FILTer:TYPe 20 kHz LP Selects 20 kHz LP filter to include in Receiver 1 RF signal path.
Query Example:	RFReceiver1:FILTer:TYPe? 20 KHZ LP

4.3 BURST POWER DEMOD REMOTE COMMANDS

These remote commands are only valid when Option #139260 is enabled on the Test Set.

Refer to section Section 5.8, Burst Power Meter Remote Commands for additional remote commands.

4.3.1 Burst Power Meter - Bandwidth

RFReceiver<n>:DEModulation:BBPower:BANDwidth var <units>
RFReceiver<n>:DEModulation:BBPower:BANDwidth? <units>

Set Command:	Defines the bandwidth of the signal burst for specified RF Receiver<n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Range:	1.0 to 80.0 MHz
Default Value:	80.0 MHz
[units]:	unit of measurement
Parameters:	Hz | kHz | MHz | GHz
Default:	Hz
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:DEModulation:BBPower:BANDwidth 5MHZ Sets Bandwidth of RF Receiver 1 to 5.0 MHz.
Query Example:	RFReceiver1:DEModulation:BBPower:BANDwidth? 5000000

4.3.2 Burst Power Meter - Cycle Period

RFReceiver<n>:DEModulation:BBPower:CPERiod var [units]

RFReceiver<n>:DEModulation:BBPower:CPERiod? [units]

Set Command:	Defines the time between each signal burst for specified RF Receiver<n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Range:	0.001 to 1 s
Default Value:	1 s
[units]:	unit of measurement
Parameter:	ms | s
Default:	s
Set/Query Format:	CPD | CRD [units]
Set Example:	RFReceiver1:DEModulation:BBPower:CPERiod 500ms Sets cycle period of RF Receiver 1 to 10 milliseconds.
Query Example:	RFReceiver1:DEModulation:BBPower:CPERiod? S .500

4.3.3 Burst Power Meter - Maximum NonBurst Power

RFReceiver<n>:DEModulation:BBPower:LTHReshold var

RFReceiver<n>:DEModulation:BBPower:LTHReshold?

Set Command:	Defines Burst Power Maximum Non-Burst Power for specified RF Receiver <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	limit value
Range:	-150 to 100 dBm
Units:	dBm
Default Value:	-10 dBm
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:DEModulation:BBPower:LTHReshold -30 Sets the maximum non-burst power for RF Receiver 1 to -30 dBm.
Query Example:	RFReceiver1:DEModulation:BBPower:LTHReshold? -30
NOTE	In prior software releases this parameter was called Lower Threshold.

4.3.4 Burst Power Meter - Minimum Burst Power

RFReceiver<n>:DEModulation:BBPower:UTHReshold var
RFReceiver<n>:DEModulation:BBPower:UTHReshold?

Set Command:	Defines Minimum Burst Power for specified RF Receiver <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	limit value
Range:	-150 to 100 dBm
Units:	dBm
Default Value:	-5 dBm
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:DEModulation:BBPower:UTHReshold -10 Sets the Minimum Burst Power for RF Receiver 1 to -10 dBm.
Query Example:	RFReceiver1:DEModulation:BBPower:UTHReshold? -10
NOTE	In prior software releases this parameter was called Upper Threshold.

4.4 RECEIVER REMOTE COMMANDS

4.4.1 Receiver - Demodulated Signal Type/Receive Function

RFReceiver<n>:DEModulation var
RFReceiver<n>:DEModulation?
RFReceiver<n>:DEModulation:LIST?

Set Command:	Defines type of signal or receive function being processed/performed by Receiver <n>.	
Query Command:	Returns defined variable.	
List Command:	Returns list of valid parameters.	
<n>:	Specifies Receiver to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	signal type	
	Parameter:	AM | FM | PM | SSB | BURSTPOWER | IQRECORD
	Default Value:	FM
	Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:DEModulation PM Sets Receiver 1 to demodulated a PM signal.	
Query Example:	RFReceiver1:DEModulation? PM	
NOTE	BURSTPOWER is only valid when Option #139260 is enabled on the Test Set. IQRECORD is only valid when Option #139272 is enabled on the Test Set.	

4.4.2 Receiver - Frequency

RFReceiver<n>:FREQuency var <units>
RFReceiver<n>:FREQuency? <units>

Set Command:	Defines frequency of Receiver <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	real value
Range:	1.0 MHz to 2.6 GHz
Default Value:	100 MHz
Units:	Hz | kHz | MHz | GHz
Default Units:	Hz
Set/Query Format:	NR1 <units>
Set Example:	RFReceiver1:FREQuency 1GHz Sets frequency of Receiver 1 to 1.0 GHz.
Query Example:	RFReceiver1:FREQuency? MHz 1000

4.4.3 Receiver - IF Bandwidth

RFReceiver<n>:BANDwidth var
RFReceiver<n>:BANDwidth?

Set Command:	Defines IF Bandwidth for Receiver <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	IF Bandwidth modulation type dependent
FM Modulation:	250Hz | 3kHz | 6.25kHz | 12.5kHz | 25kHz | 50kHz | 100kHz | 300kHz | 500kHz | 5MHz
AM/PM/LSB/USB Modulation:	250Hz | 3kHz | 6.25kHz | 12.5kHz | 25kHz | 50kHz | 100kHz
Default Value:	12.5kHz
Set/Query Format:	CPD | NR1 (Hz)
Set Example:	RFReceiver1:BANDwidth 25kHz Sets IF Bandwidth of Receiver 1 to 25.0 kHz.
Query Example:	RFReceiver1:BANDwidth? 25000

4.4.4 Receiver - Input Connector

RFReceiver<n>:PORT var
RFReceiver<n>:PORT?

Set Command:	Selects Receiver <n> input connector.
Query Command:	Returns defined variable.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	input port
Parameter:	ANT | TR
Default Value:	TR
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:PORT ANT Sets input port of Receiver 1 to ANT Connector.
Query Example:	RFReceiver1:PORT? ANT

4.4.5 Receiver - Reference Level

RFReceiver<n>:REFerence:LEVel var
RFReceiver<n>:REFerence:LEVel?

Set Command:	Defines reference level for Receiver <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	reference value
ANT Parameter:	-70dBm | -50dBm | -40dBm | -20dBm | -10dBm | 0dBm | +10dBm
Default Value:	+10dBm
T/R Parameter:	-10dBm | 0dBm | 20dBm | 30dBm | 40dBm | 50dBm
Default Value:	+50dBm
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:REFerence:LEVel 0dBm Sets reference level for Receiver 1 to 0.0 dBm.
Query Example:	RFReceiver1:REFerence:LEVel? 0
	Available parameters are dependent on the selected Input Connector. Define Input Connector (RFReceiver1:PORT) before sending command to define Reference Level.

4.5 RECORD SIGNAL REMOTE COMMANDS

IQ Record Remote Commands are only valid when Option #139272 is enabled on the Test Set.

NOTE	The Generator Modulation Record/Playback and Receiver IQ Record Functions were merged into the IQ Record-Playback Window in software version 2.1.0. The remote commands in this section were deprecated in software version 2.1.0. The remote commands in this section are supported in software version 2.1.0, but will not be supported in future software releases. In order to avoid script failure, transition to new IQ Record-Playback Remote commands documented in Chapter 11 - IQ Record-Playback Remote Commands.

4.5.1 IQ Record - Enable

RFReceiver<n>:DEModulation:IQRecord:RECord var
RFReceiver<n>:DEModulation:IQRecord:RECord?

Set Command:	Enables/disables IQ Record function on Receiver <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	RFReceiver1:DEModulation:IQRecord:RECord ON Enables IQ Record.
Query Example:	RFReceiver1:DEModulation:IQRecord:RECord? 1

4.5.2 IQ Record - Record Time

RFReceiver<n>:DEModulation:IQRecord:RTIMe var [units]
RFReceiver<n>:DEModulation:IQRecord:RTIMe? [units]

Set Command:	Defines the length of time RF Receiver<n> records the incoming signal.
Query Command:	Returns defined variable.
<n>:	Specifies RF Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Range:	1 ms to 100 s
Default Value:	1.0 s
[units]:	unit of measurement
Parameter:	ms | s
Default:	s
Set/Query Format:	CPD | CRD [units]
Set Example:	RFReceiver1:DEModulation:IQRecord:RTIMe 10s Sets RF Receiver 1 to record incoming signal for 10 seconds.
Query Example:	RFReceiver1:DEModulation:IQRecord:RTIMe? 10000

4.5.3 IQ Record - Sample Rate

RFReceiver<n>:DEModulation:IQRecord:SRATe var [units]
RFReceiver<n>:DEModulation:IQRecord:SRATe? [units]

Set Command:	Defines sampling rate used by Receiver <n> to record incoming signal.
Query Command:	Returns defined variable.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	data rate
Range:	1 Hz to 80 MHz
Default Value:	10000
Set/Query Format:	NR1 [units]
[units]:	unit of measurement
Parameters:	Hz
Default Value:	Hz
Set Example:	RFReceiver1:DEModulation:IQRecord:SRATe 1000000 Sets sampling rate of RF Receiver 1 to 1000000 Hz.
Query Example:	RFReceiver1:DEModulation:IQRecord:SRATe? 1000000
NOTE	Software prior to version 1.3.5-10 supports Hz | kHz | MHz units of measurement.

4.5.4 IQ Record - Status

RFReceiver<n>:DEModulation:IQRecord:RPRogress?

Query Command:	Returns completion status of recording process as a percent.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
Query Example:	RFReceiver<n>:DEModulation:IQRecord:RPRogress? 45 Indicates recording process is 45% complete.

Chapter 5 - Meter Remote Commands

5.1 INTRODUCTION

This chapter identifies remote commands for controlling measurement parameters.

5.2 SIGNAL ROUTING REMOTE COMMANDS

5.2.1 Audio Input/Output Routing

AUDio<n>:PORT var
AUDio<n>:PORT?

Set Command:	Defines routing of Audio 1 and Audio 2 Connector <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Audio Connector to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	port routing
Audio 1 Variables:	AUDIN | AUDBAL | DDG
Default Value:	AUDIN
Audio 2 Variables:	AUDIN | AUDBAL | AFG | DEMOD
Default Value:	AFG
Set/Query Format:	CRD | CRD
Set Example:	AUDio1:PORT DDG Routes the defined Digital Data Generator signal to the Audio 1 Connector as an output signal.
Query Example:	AUDio1:PORT? DDG
NOTE	AFG (AF Generator) and DDG (Digital Data Generator) signals must be configured when AFG or DDG is defined as an output signal. Refer to the 7200 Operation Manual for detailed Audio Routing information. DDG is available when Option #139261 is enabled on the Test Set.
NOTE	Software Version 1.0.9 remote command updates: AUDio<n>:Port var replaces AUDIOPORT:OUT var AUDio<n>:Port ? replaces AUDIOPORT:OUT? Update scripts accordingly.

5.2.2 Audio Filter Type

AUDio<n>:Filter:TYPe var
AUDio<n>:Filter:TYPe?
AUDio<n>:Filter:TYPe:LIST?

Set Command:	Selects the type of audio filter to be included in specified audio signal path <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Audio Filter types.
<n>:	Specifies audio component to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	filter type
Parameter:	15_KHZ_LP | 20_KHZ_LP | 300_HZ_LP | 300HZ-15KHZ_BP | 300HZ-20KHZ_BP | 300HZ-3.4KHZ_BP | 300HZ-3KHZ_BP | 300HZ-40KHZ_BP | 300HZ-5KHZ_BP | 300HZ_HP | 3_KHZ_LP | 40_KHZ_LP | 5_KHZ_LP | NONE
Default Value:	NONE
Set/Query Format:	CPD | CRD
Set Example:	AUDio1:Filter:TYPe 20_KHZ_LP Selects 20 kHz LP filter to include in audio signal path.
Query Example:	AUDio1:Filter:TYPe? 20_KHZ_LP

5.2.3 Demod (RF) Filter Type

RFReceiver<n>:FILTer:TYPe var
RFReceiver<n>:FILTer:TYPe?
RFReceiver<n>:FILTer:TYPe:LIST?

Set Command:	Selects the type of audio filter to be included in RF signal path for defined receiver.
Query Command:	Returns defined variable.
List Command:	Returns list of valid FIlter Types.
<n>:	Specifies Receiver to which command is applied.
Parameter:	1
Default value:	1
Set/Query Format:	Integer
Variable (var):	filter type
Parameter:	NONE | 300 Hz LP | 3 kHz LP | 5 kHz LP | 15 kHz LP | 20 kHz LP | 40 kHz LP | 300Hz HP | 300Hz-3kHz BP | 300Hz-3.4kHz BP | 300Hz-5kHz BP | 300Hz-15kHz BP | 300Hz-20kHz BP | 300Hz-40kHz BP
Default Value:	NONE
Set/Query Format:	CPD | CRD
Set Example:	RFReceiver1:FILTer:TYPe 20 kHz LP Selects 20 kHz LP filter to include in Receiver 1 RF signal path.
Query Example:	RFReceiver1:FILTer:TYPe? 20 KHZ LP

5.3 AF COUNTER REMOTE COMMANDS

5.3.1 AF Counter - Number of Averages

AFCounter<n>:AVERage var
AFCounter<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	AFCounter1:AVERage 50 Sets number of measurements used to calculate average measurements for AF Counter 1 to 50.
Query Example:	AFCounter1:AVERage? 50

5.3.2 AF Counter - Measurement Displayed

AFCounter<n>:DISPlay:TYPe var
AFCounter<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimun | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	AFCounter1:DISPlay:TYPe MAXimum Displays maximum reading on the AF Counter 1 Meter window.
Query Example:	AFCounter1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.3.3 AF Counter - Meter Range (Display Setting)

AFCounter<n>:DISPlay:RANGe var
AFCounter<n>:DISPlay:RANGe?
AFCounter<n>:DISPlay:RANGe:LIST?

Set Command:	Selects range of meter <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	1kHz | 2kHz | 5kHz | 10kHz | 20kHz | 50kHz | 100kHz | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	AFCounter1:DISPlay:RANGe 20kHz Sets bar graph scale on AF Counter 1 to 20.0 kHz.
Query Example:	AFCounter1:DISPlay:RANGe? 20KHZ

5.3.4 AF Counter - Reading - Return Average

AFCounter<n>:READing:AVERage? [units]

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | KHz
Default:	Hz
Query Data:	NR2 [units]
Query Example:	AFCounter1:READing:AVERage? 33980.5
Query Example:	AFCounter1:READing:AVERage? kHz 3.39805

5.3.5 AF Counter - Reading - Return Live

AFCounter<n>:READing:LIVe? [units]

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | KHz
Default:	Hz
Query Data:	NR2 [units]
Query Example:	AFCounter1:READing:LIVe? 34574.3
Query Example:	AFCounter1:READing:LIVe? kHz 3.45743

5.3.6 AF Counter - Reading - Return Maximum

AFCounter<n>:READing:MAXimum? [units]

Query Command:	Returns maximum (peak) reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | KHz
Default:	Hz
Query Data:	NR2 [units]
Query Example:	AFCounter1:READing:MAXimum? 39973.5
Query Example:	AFCounter1:READing:MAXimum? kHz 3.99735

5.3.7 AF Counter - Reading - Return Minimum

AFCounter<n>:READing:MINimum? [units]

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | KHz
Default:	Hz
Query Data:	NR2 [units]
Query Example:	AFCounter1:READing:MINimum? 25076.0
Query Example:	AFCounter1:READing:MINimum? kHz 2.50760

5.3.8 AF Counter - Reading - Reset

AFCounter<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n> .
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.3.9 AF Counter - Reading - State

AFCounter<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.3.10 AF Counter - Readings - Status

AFCounter<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.3.11 AF Counter - Signal Source

AFCounter<n>:SOURce var
AFCounter<n>:SOURce?
AFCounter<n>:SOURce:LIST?

Set Command:	Selects signal source for meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid signal sources for AF Counter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal source
Parameter:	AUDIO | DEMOD
Default Value:	AUDIO
Set/Query Format:	CPD | CRD
Set Example:	AFCounter1:SOURce DEMOD Sets signal source for AF Counter 1 to Demod.
Query Example:	AFCounter1:SOURce? DEMOD

5.4 AF LEVEL METER REMOTE COMMANDS

5.4.1 AF Level Meter - Number of Averages

AFLevel<n>:AVERage var
AFLevel<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.	
Query Command:	Returns defined variable.	
<n>:	Specifies meter to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
Variable (var):	averaging value	
Range:		1 to 100
Default Value:		5
Set/Query Format:		Integer
Set Example:	AFLevel1:AVERage 50 Sets number of measurements used to calculate average measurements for AF Level Meter 1 to 50.	
Query Example:	AFLevel1:AVERage? 50	

5.4.2 AF Level Meter - Impedance Value

AFLevel<n>:IMPedance var
AFLevel<n>:IMPedance?
AFLevel<n>:IMPedance:LIST?

NOTE	AFLevel<n>:IMPedance commands are obsolete. Update scripts with AFLevel<n>:LOAD commands to avoid script failure.

AFLevel<n>:LOAD var
AFLevel<n>:LOAD?
AFLevel<n>:LOAD:LIST?

Set Command:	Defines Impedance value for AF Level meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Impedance parameters.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Impedance value
Parameter:	HiZ | 150_OHM | 300_OHM | 600_OHM
Default Value:	Hi Z
Set/Query Format:	CPD | CRD
Set Example:	AFLevel1:LOAD 150_OHM Sets LOAD of AF Level Meter 1 to 150 Ohms.
Query Example:	AFLevel1:LOAD? 150_OHM
NOTE	600 Ohm is only valid when Audio Input is set to Audio Balanced (AUDIO<n>:PORT AUDBAL).

5.4.3 AF Level Meter - Measurement Displayed

AFLevel<n>:DISPlay:TYPe var
AFLevel<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	AFLevel1:DISPlay:TYPe MAXimum Displays maximum measurements on AF Level Meter 1.
Query Example:	AFLevel1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.4.4 AF Level Meter - Meter Range (Display Only)

AFLevel<n>:DISPlay:RANGe var
AFLevel<n>:DISPlay:RANGe?
AFLevel<n>:DISPlay:RANGe:LIST?

Set Command:	Selects range of meter <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	meter range
Audio Input Parameters:	10mV | 20mV | 50mV | 100mV | 200mV | 500mV | 1V | 2V | 5V | 10V | AUTO
Default Value:	10V
Demod Input Parameters:	
AM/LSB/USB:	10% | 30% | 100% | AUTO
FM:	10kHz | 20kHz | 50kHz | 100kHz | AUTO
PM:	1rad | 2rad | 5rad | 10rad | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	AFLevel1:DISPlay:RANGe 20kHz Sets bar graph scale on AF Level Meter 1 to 20.0 kHz.
Query Example:	AFLevel1:DISPlay:RANGe? 20KHZ

5.4.5 AF Level Meter - Reading - Return Average

AFLevel<n>:READing:AVERage?

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Defined by Source and Modulation type
Query Example:	AFLevel1:READing:AVERage? 4822.509

5.4.6 AF Level Meter - Reading - Return Live

AFLevel<n>:READing:LIVe?

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Defined by Source and Modulation type
Query Example:	AFLevel1:READing:LIVe? 4748.655

5.4.7 AF Level Meter - Reading - Return Maximum

AFLevel<n>:READing:MAXimum?

Query Command:	Returns maximum (peak) reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Defined by Source and Modulation type
Query Example:	AFLevel1:READing:MAXimum? 4853.635

5.4.8 AF Level Meter - Reading - Return Minimum

AFLevel<n>:READing:MINimum?

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Defined by Source and Modulation type
Query Example:	AFLevel1:READing:MAXimum? 12140.455

5.4.9 AF Level Meter - Reading - Reset

AFLevel<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.4.10 AF Level Meter - Reading - State

AFLevel<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.4.11 AF Level Meter - Reading - Status

AFLevel<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.4.12 AF Level Meter - Signal Source

AFLevel<n>:SOURce var
AFLevel<n>:SOURce?
AFLevel<n>:SOURce:LIST?

Set Command:	Selects signal source for meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid signal sources for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal source
Parameter:	AUDIO | DEMOD
Default Value:	AUDIO
Set/Query Format:	CPD | CRD
Set Example:	AFLevel1:SOURce DEMOD Sets signal source of AF Level Meter 1 to Demod.
Query Example:	AFLevel1:SOURce? DEMOD

5.5 AM PEAK POWER METER REMOTE COMMANDS

5.5.1 AM Peak Power Meter - Number of Averages

POWer:RECeiver:PEAK<n>:AVERage var
POWer:RECeiver:PEAK<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for specified meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	POWer:RECeiver:PEAK1:AVERage 50 Sets number of measurements used to calculate average measurements for Peak Power Meter 1 to 50.
Query Example:	POWer:RECeiver:PEAK1:AVERage? 50

5.5.2 AM Peak Power Meter - Reading - Return Average

POWer:RECeiver:PEAK<n>:READing:AVERage? [units]

Query Command:	Returns average reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:PEAK1:READing:AVERage? 9.2328

5.5.3 AM Peak Power Meter - Reading - Return Live

POWer:RECeiver:PEAK<n>:READing:LIVe? [units]

Query Command:	Returns live reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:PEAK1:READing:LIVe? 9.7247

5.5.4 AM Peak Power Meter - Reading - Return Maximum

POWer:RECeiver:PEAK<n>:READing:MAXimum? [units]

Query Command:	Returns maximum reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:PEAK1:READing:MAXimum? 9.8437

5.5.5 AM Peak Power Meter - Reading - Return Minimum

POWer:RECeiver:PEAK<n>:READing:MINimum? [units]

Query Command:	Returns minimum reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:PEAK1:READing:MINimum? 8.2579

5.5.6 AM Peak Power Meter - Reading - Reset

POWer:RECeiver:PEAK<n>:RESet

Set Command:	Clears all readings for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.5.7 AM Peak Power Meter - Reading - State

POWer:RECeiver:PEAK<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.5.8 AM Peak Power Meter - Reading - Status

POWer:RECeiver:PEAK<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.6 AM RMS POWER METER REMOTE COMMANDS

5.6.1 AM RMS Power Meter - Number of Averages

POWer:RECeiver:RMS<n>:AVERage var
POWer:RECeiver:RMS<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for specified meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	POWer:RECeiver:RMS1:AVERage 50 Sets number of measurements used to calculate average measurements for RMS Power Meter 1 to 50.
Query Example:	POWer:RECeiver:RMS1:AVERage? 50

5.6.2 AM RMS Power Meter - Reading - Return Average

POWer:RECeiver:RMS<n>:READing:AVERage? [units]

Query Command:	Returns average reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:RMS1:READing:AVERage? 9.2328

5.6.3 AM RMS Power Meter - Reading - Return Live

POWer:RECeiver:RMS<n>:READing:LIVe? [units]

Query Command:	Returns live reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:RMS1:READing:LIVe? 9.7247

5.6.4 AM RMS Power Meter - Reading - Return Maximum

POWer:RECeiver:RMS<n>:READing:MAXimum? [units]

Query Command:	Returns maximum reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:RMS1:READing:MAXimum? 9.8437

5.6.5 AM RMS Power Meter - Reading - Return Minimum

POWer:RECeiver:RMS<n>:READing:MINimum? [units]

Query Command:	Returns minimum reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	NR2 [units]
Query Example:	POWer:RECeiver:RMS:READing:MINimum? 8.2579

5.6.6 AM RMS Power Meter - Reading - Reset

POWer:RECeiver:RMS<n>:RESet

Set Command:	Clears all readings for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.6.7 AM RMS Power Meter - Reading - State

POWer:RECeiver:RMS<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.6.8 AM RMS Power Meter - Reading - Status

POWer:RECeiver:RMS<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.7 BER (NRZ) METER REMOTE COMMANDS

These remote commands are only valid when Option #139261 is enabled on the Test Set.

5.7.1 BER (NRZ) Meter - Measurement Displayed

BER<n>:DISPlay:TYPe var
BER<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	BER1:DISPlay:TYPe MAXimum Displays maximum measurements on BER Meter 1.
Query Example:	BER1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.7.2 BER (NRZ) Meter - Data Rate

BER<n>:DATa:RATe var
BER<n>:DATa:RATe?
BER<n>:DATa:RATe:LIST?

Set Command:	Defines data rate for specified measurement meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid data rates for BER meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	data rate
Parameter:	75bps | 150bps | 300bps | 600bps | 1200bps | 2400bps | 4800bps | 16kbps
Default Value:	75bps
Set/Query Format:	CPD | CRD
Set Example:	BER1:DATa:RATe 300bps Sets data rate of BER NRZ Meter 1 to 300 bps.
Query Example:	BER1:DATa:RATe? 300

5.7.3 BER (NRZ) Meter - Meter Range (Display Only)

BER<n>:RANGe var
BER<n>:RANGe?
BER<n>:RANGe:LIST?

Set Command:	Selects range of bar graph for specified measurement meter <n>.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid ranges for specified measurement meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	meter range
Parameter:	.0001% | .001% | .01% | .1% | 1% | 10% | 100% | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	BER1:RANGe .1% Sets bar graph scale on BER NRZ Meter 1 to .1%.
Query Example:	BER1:RANGe? .1

5.7.4 BER (NRZ) Meter - Enable Measurements

BER<n>:ENABle var
BER<n>:ENABle?

Set Command:	Enables/disables measurement meter <n> function.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	BER1:ENABle ON Turns BER NRZ Meter 1 ON.
Query Example:	BER1:ENABle? 1

5.7.5 BER (NRZ) Meter - Pattern Type

BER<n>:PATTern:TYPe var
BER<n>:PATTern:TYPe?
BER<n>:PATTern:TYPe:LIST?

Set Command:	Defines pattern for specified measurement meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid pattern types.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	pattern type
Parameter:	RANDOM | FIXED | USER
Default Value:	RANDOM
Set/Query Format:	CPD | CRD
Set Example:	BER1:PATTern:TYPe FIXED Sets pattern type for BER NRZ Meter 1 to Fixed.
Query Example:	BER1:PATTern:TYPe? FIXED

5.7.6 BER (NRZ) Meter - Reading - Return Live

BER<n>:READing:LIVe?

Query Command:	Returns live reading for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Query Data:	Returns data string.
Query Example:	BER1:READing:LIVe? .05

5.7.7 BER (NRZ) Meter - Reading - Reset

BER<n>:RESet

Set Command:	Clears all readings for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.7.8 BER (NRZ) Meter - Reading - Total Bit Errors

BER<n>:READing:ERRors?

Query Command:	Returns number of bits received in error for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Query Data:	Returns integer.
Query Example:	BER1:READing:ERRors? 10

5.7.9 BER (NRZ) Meter - Reading - Total Bits Received

BER<n>:READing:TOTal?

Query Command:	Returns total of number of bits received by specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Query Data:	Returns integer.
Query Example:	BER1:READing:TOTal? 7500

5.7.10 BER (NRZ) Meter - Signal Source

BER<n>:SOURce var
BER<n>:SOURce?
BER<n>:SOURce:LIST?

Set Command:	Selects signal source for specified measurement meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid signal sources for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal source
Parameter:	AUDIO | DEMOD
Default Value:	AUDIO
Set/Query Format:	CPD | CRD
Set Example:	BER1:SOURce DEMOD Sets signal source of BER NRZ Meter 1 to Demod.
Query Example:	BER1:SOURce? DEMOD

5.7.11 BER (NRZ) Meter - Fixed Pattern

BER<n>:PATTern:FIXed var
BER<n>:PATTern:FIXed?
BER<n>:PATTern:FIXed:LIST?

Set Command:	Selects Fixed pattern for specified measurement meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Fixed Pattern variables.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Fixed pattern
Parameter:	ADR_SUPERFRAME_2 | ADR_SUPERFRAME_3 | ADR_SUPERFRAME_4 | ADR_SUPERFRAME_5 | ADR_SUPERFRAME_6 | ADR_P25_STD_1011 | ADR_P25_STD_1011_CAL | ADR_P25_STD_SILENCE | ADR_X2_TDMA_1031_AMBE
Default Value:	ADR_P25_STD_1011
Set/Query Format:	CPD | CRD
Set Example:	BER1:PATTern:FIXed ADR_SUPERFRAME_2 Selects ADR SUPERFRAME 2 as the Fixed pattern for BER NRZ Meter 1.
Query Example:	BER1:PATTern:FIXed? ADR_SUPERFRAME_2
NOTE	Command is only valid when Pattern Type is set to Fixed (BER<n>:PATTern:TYPe FIXED).

5.7.12 BER (NRZ) Meter - Random Pattern

BER<n>:PATTern:RANDom var
BER<n>:PATTern:RANDom?
BER<n>:PATTern:RANDom:LIST?

Set Command:	Selects Random pattern for specified measurement meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Random Pattern variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Random pattern
Parameter:	PN9 | PN10 | PN11 | PN12 | PN15
Default Value:	PN9
Set/Query Format:	CPD | CRD
Set Example:	BER1:PATTern:RANDom PN11 Selects PN11 as Random pattern BER NRZ Meter 1.
Query Example:	BER1:PATTern:RANDom? PN11
NOTE	Command is only valid when Pattern Type is set to Random (BER<n>:PATTern:TYPe RANDOM).

5.7.13 BER (NRZ) Meter - User Defined Pattern

BER<n>:PATTern:USER var
BER<n>:PATTern:USER?

Set Command:	Defines type of User Defined pattern for specified measurement meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	user defined pattern
Default Value:	n/a
Set/Query Format:	CPD | CRD
Set Example:	BER1:PATTern:USER pattern_xyz Selects pattern file named pattern_xyz for the user defined pattern for BER NRZ Meter 1.
Query Example:	BER1:PATTern:USER? pattern_xyz
NOTE	Command is only valid when Pattern Type is set to User Defined (BER<n>:PATTern:TYPe USER).

5.7.14 BER (NRZ) Meter - Polarity

BER<n>:POLarity var
BER<n>:POLarity?
BER<n>:POLarity:LIST?

Set Command:	Defines polarity of specified measurement meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid Polarity types.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	polarity
Variables (var):	POSITIVE | NEGATIVE
Default Value:	POSITIVE
Set/Query Format:	CPD | CRD
Set Example:	BER1:POLarity NEGATIVE Sets polarity of BER NRZ Meter 1 to Negative.
Query Example:	BER1:POLarity? NEGATIVE

5.8 BURST POWER METER REMOTE COMMANDS

These remote commands are only valid when Option #139260 is enabled on the Test Set.

Refer to section Section 4.3, Burst Power Demod Remote Commands for additional remote commands.

5.8.1 Burst Power Meter - Meter Range (Display Only)

POWer:BURst<n>:DISPlay:RANGe var
POWer:BURst<n>:DISPlay:RANGe?
POWer:BURst<n>:DISPlay:RANGe:LIST?

Set Command:	Selects range of bar graph for specified meter<n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for Burst meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameters:	.0001% | .001% | .01% | .1% | 1% | 10% | 100% | AUTO
Default Value:	Auto
Set/Query Format:	CPD | CRD
Set Example:	POWer:BURst1:DISPlay:RANGe .1 Sets bar graph scale on Burst Power Meter 1 to 0.1 %.
Query Example:	POWer:BURst1:DISPlay:RANGe? .1

5.8.2 Burst Power Meter - Reading - Total Bursts Dropped

POWer:BURst<n>:READing:TDR?

Query Command:	Returns total number of received bursts which were dropped for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Query Data:	Returns integer.
Query Example:	POWer:BURst1:READing:TDR? 11

5.8.3 Burst Power Meter - Reading - Total Bursts Received

POWer:BURst<n>:READing:TBUR?

Query Command:	Returns number of bursts received for specified measurement meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Query Data:	Returns integer.
Query Example:	POWer:BURst1:READing:TBUR? 878950

5.8.4 Burst Power Meter - Reading - Return Live

POWer:BURst<n>:READing:LIVe?

Query Command:	Returns live reading for specified meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	POWer:BURst1:READing:LIVe? 9.7247

5.8.5 Burst Power Meter - Reading - Reset

POWer:BURst<n>:RESet

Set Command:	Clears all readings for specified meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.8.6 Burst Power Meter - Reading - State

POWer:BURst<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.8.7 Burst Power Meter - Reading - Status

POWer:BURst<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.9 DISTORTION METER REMOTE COMMANDS

5.9.1 Distortion Meter - Number of Averages

DISTortion<n>:AVERage var
DISTortion<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	DISTortion1:AVERage 50 Sets number of measurements used to calculate average measurements for Distortion Meter 1 to 50.
Query Example:	DISTortion1:AVERage? 50

5.9.2 Distortion Meter - Frequency of Notch Filter

DISTortion<n>:FILTer:NOTCh:FREQuency var [units]
DISTortion<n>:FILTer:NOTCh:FREQuency?

Set Command:	Selects frequency of notch filter used to perform measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	notch filter frequency value
Range:	10.0 Hz to 10.0 kHz
Default Value:	1.0 kHz
[units]:	unit of measurement
Parameter:	Hz | kHz
Default:	Hz
Set/Query Format:	CPD | CRD (Hz)
Set Example:	DISTortion1:FILTer:NOTCh:FREQuency 5000 Sets frequency of Distortion Meter 1 notch filter to 5000 Hz.
Query Example:	DISTortion1:FILTer:NOTCh:FREQuency? 5000
NOTE	Query command no longer supports user defined unit of measurement. Query value will be returned in Hz.

5.9.3 Distortion Meter - Measurement Displayed

DISTortion<n>:DISPlay:TYPe var
DISTortion<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	DISTortion1:DISPlay:TYPe MAXimum Displays maximum measurements on Distortion Meter 1.
Query Example:	DISTortion1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.9.4 Distortion Meter - Meter Range (Display Only)

DISTortion<n>:DISPlay:RANGe var
DISTortion<n>:DISPlay:RANGe?
DISTortion<n>:DISPlay:RANGe:LIST?

Set Command:	Selects range of meter <n> bar graph.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid ranges for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	meter range
Parameter:	10% | 30% | 50% | 100% | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	DISTortion1:DISPlay:RANGe 50% Sets bar graph scale on Distortion Meter 1 to 50%.
Query Example:	DISTortion1:DISPlay:RANGe? 50%

5.9.5 Distortion Meter - Reading - Return Average

DISTortion<n>:READing:AVERage?

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	%
Query Data:	Returns decimal as a percent.
Query Example:	DISTortion1:READing:AVERage? 7.4391

5.9.6 Distortion Meter - Reading - Return Live

DISTortion<n>:READing:LIVe?

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	%
Query Data:	Returns decimal as a percent.
Query Example:	DISTortion1:READing:LIVe? 7.443

5.9.7 Distortion Meter - Reading - Return Maximum

DISTortion<n>:READing:MAXimum?

Query Command:	Returns maximum (peak) reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	%
Query Data:	Returns decimal as a percent.
Query Example:	DISTortion1:READing:MAXimum? 7.9964

5.9.8 Distortion Meter - Reading - Return Minimum

DISTortion<n>:READing:MINimum?

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	%
Query Data:	Returns decimal as a percent.
Query Example:	DISTortion1:READing:MINimum? 6.8412

5.9.9 Distortion Meter - Reading - Reset

DISTortion<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.9.10 Distortion Meter - Reading - State

DISTortion<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.9.11 Distortion Meter - Reading - Status

DISTortion<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.9.12 Distortion Meter - Signal Source

DISTortion<n>:SOURce var
DISTortion<n>:SOURce?
DISTortion<n>:SOURce:LIST?

Set Command:	Selects signal source for meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid signal sources for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal source
Parameter:	AUDIO | DEMOD
Default Value:	AUDIO
Set/Query Format:	CPD | CRD
Set Example:	DISTortion1:SOURce DEMOD Sets signal source of Distortion Meter 1 to Demod.
Query Example:	DISTortion1:SOURce? DEMOD

5.10 RF COUNTER REMOTE COMMANDS

5.10.1 RF Counter - Number of Averages

RFCounter<n>:AVERage var
RFCounter<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	RFCounter1:AVERage 50 Sets number of measurements used to calculate average measurements for RF Counter 1 to 50.
Query Example:	RFCounter1:AVERage? 50

5.10.2 RF Counter - Measurement Displayed

RFCounter<n>:DISPlay:TYPe var
RFCounter<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	RFCounter1:DISPlay:TYPe MAX Displays maximum measurements on RF Counter 1.
Query Example:	RFCounter1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.10.3 RF Counter - Meter Range (Display Only)

RFCounter<n>:DISPlay:RANGe var

RFCounter<n>:DISPlay:RANGe?

NOTE	RFCounter<n>:DISPlay:RANGe commands are obsolete. Update scripts with RFCounter<n>:RANGe commands to avoid script failure.

RFCounter<n>:RANGe var

RFCounter<n>:RANGe?

Set Command:	Selects range of meter <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	100 kHz | 1 MHz | 10 MHz | 100 MHz | 1 GHz | 5 GHz | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	RFCounter1:RANGe 100 kHz Sets bar graph scale on RF Counter 1 to 100.0 kHz.
Query Example:	RFCounter1:RANGe? 100 KHZ

5.10.4 RF Counter - Reading - Return Average

RFCounter<n>:READing:AVERage? [units]

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz | GHz
Default:	Hz
Query Data:	NR2
Query Example:	RFCounter1:READing:AVERage? 999999999.8736897707

5.10.5 RF Counter - Reading - Return Live

RFCounter<n>:READing:LIVe? [units]

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz | GHz
Default:	Hz
Query Data:	NR2
Query Example:	RFCounter1:READing:LIVe? kHz 999999.9998399290489

5.10.6 RF Counter - Reading - Return Maximum

RFCounter<n>:READing:MAXimum? [units]

Query Command:	Returns maximum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz | GHz
Default:	Hz
Query Data:	NR2
Query Example:	RFCounter1:READing:MAXimum? GHz 0.99999999999126898409

5.10.7 RF Counter - Reading - Return Minimum

RFCounter<n>:READing:MINimum? [units]

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz | GHz
Default:	Hz
Query Data:	NR2
Query Example:	RFCounter1:READing:MINimum? MHz 999.99999999126885086

5.10.8 RF Counter - Reading - Reset

RFCounter<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.10.9 RF Counter - Reading - State

RFCounter<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.10.10 RF Counter - Reading - Status

RFCounter<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.11 RF ERROR METER REMOTE COMMANDS

5.11.1 RF Error Meter - Number of Averages

RFERror<n>:AVERage var
RFERror<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	RFERror1:AVERage 50 Sets number of measurements used to calculate average measurements for RF Error Meter 1 to 50.
Query Example:	RFERror1:AVERage? 50

5.11.2 RF Error Meter - Measurement Displayed

RFERror<n>:DISPlay:TYPe var
RFERror<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	RFERror1:DISPlay:TYPe MAXimum Displays maximum measurements on RF Error Meter 1.
Query Example:	RFERror1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.11.3 RF Error Meter - Meter Range (Display Only)

RFERror<n>:DISPlay:RANGe var

RFERror<n>:DISPlay:RANGe?

NOTE	RFERror<n>:DISPlay:RANGe commands are obsolete. Update scripts with RFERror<n>:RANGe commands to avoid script failure.

RFERror<n>:RANGe var

RFERror<n>:RANGe?

Set Command:	Selects range of meter <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameters:	10 Hz | 100 Hz | 1 kHz | 10 kHz | 100 kHz | 1 MHz | 10 MHz | 50 MHz | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	RFERror1:RANGe 100 kHz Sets bar graph scale on RF Error Meter 1 to 100.0 kHz.
Query Example:	RFERror1:RANGe? 100 KHZ

5.11.4 RF Error Meter - Reading - Return Average

RFERror<n>:READing:AVERage? [units]

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz
Default Value:	Hz
Query Data:	NR2
Query Example:	RFERror1:READing:AVERage? -0.13603130355477333069

5.11.5 RF Error Meter - Reading - Return Live

RFERror<n>:READing:LIVe? [units]

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz
Default Value:	Hz
Query Data:	NR2
Query Example:	RFERror1:READing:LIVe? kHz -0.0001484295353293418884 3

5.11.6 RF Error Meter - Reading - Return Maximum

RFERror<n>:READing:MAXimum? [units]

Query Command:	Returns maximum (peak) reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz
Default Value:	Hz
Query Data:	NR2
Query Example:	RFERror1:READing:MAXimum? -0.066938810050487518311

5.11.7 RF Error Meter - Reading - Return Minimum

RFERror<n>:READing:MINimum? [units]

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
[units]:	unit of measurement
Parameter:	Hz | kHz | MHz
Default Value:	Hz
Query Data:	NR2
Query Example:	RFERror1:READing:MINimum? -0.24738255888223648071

5.11.8 RF Error Meter - Reading - Reset

RFERror<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.11.9 RF Error Meter - Reading - State

RFERor<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.11.10 RF Error Meter - Reading - Status

RFERror<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.12 RF POWER METER REMOTE COMMANDS

5.12.1 RF Power Meter - Number of Averages

RFPower<n>:AVERage var
RFPower<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	RFPower1:AVERage 50 Sets number of measurements used to calculate average measurements for RF Power Meter 1 to 50.
Query Example:	RFPower1:AVERage? 50

5.12.2 RF Power Meter - Display Measurement Mode

RFPower<n>:DISPlay:MODe var
RFPower<n>:DISPlay:MODe?
RFPower<n>:DISPlay:MODe:LIST?

Set Command:	Defines measurement mode of RF Power readings on meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	mode
Parameter:	ABSolute | RELative
Default Value:	ABS
Set/Query Format:	CPD | CRD
Set Example:	RFPower1:DISPlay:MODe RELATIVE Displays relative power measurement on RF Power Meter 1.
Query Example:	RFPower1:DISPlay:MODe? REL

5.12.3 RF Power Meter - Measurement Type

RFPower<n>:DISPlay:TYPe var
RFPower<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n> window.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	RFPower1:DISPlay:TYPe MAXimum Displays maximum measurements on RF Power Meter 1.
Query Example:	RFPower1:DISPlay:TYPe? MAX
NOTE	Command is no longer valid in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.12.4 RF Power Meter - Normalize Meter

RFPower<n>:NORMalize

Set Command:	Clears and resets specified RF Power Meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.12.5 RF Power Meter - Reading - Return Average

RFPower<n>:READing:AVERage?

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:READing:AVERage? 9.2328

5.12.6 RF Power Meter - Reading - Return Live

RFPower<n>:READing:LIVe?

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:READing:LIVe? 9.7247

5.12.7 RF Power Meter - Reading - Return Maximum

RFPower<n>:READing:MAXimum?

Query Command:	Returns maximum (peak) reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:READing:MAXimum? 9.8437

5.12.8 RF Power Meter - Reading - Return Minimum

RFPower<n>:READing:MINimum?

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:READing:MINimum? 8.2579

5.12.9 RF Power Meter - Reading - Reset

RFPower<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.12.10 RF Power Meter - Relative Reading - Locks Value

RFPower<n>:RELative:SET

Set Command:	Sets value for Relative measurements on meter <n> to current value.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
NOTE	Set value can be queried using RFPower<n>:RELative:VALue? command.

5.12.11 RF Power Meter - Relative Reading - Sets Value

RFPower<n>:RELative:VALue var [units]
RFPower<n>:RELative:VALue? [units]

Set Command:	Defines value used for Relative measurements for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	relative value
Range:	-200 to 100 dBm
Default Value:	0.0 dBm
[units]:	dBm
Set/Query Format:	Numeric
Set Example:	RFPower1:RELative:VALue -40dBm Sets relative value for relative power measurements on RF Power Meter 1 to -40.0 dBm.
Query Example:	RFPower1:RELative:VALue? -40

5.12.12 RF Power Meter - Relative Reading - Return Average

RFPower<n>:RELative:READing:AVERage?

Query Command:	Returns average relative RF Power reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:RELative:READing:AVERage? 42.7188

5.12.13 RF Power Meter - Relative Reading - Return Live

RFPower<n>:RELative:READing:LIVe?

Query Command:	Returns live relative RF Power reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:RELative:READing:LIVe? 43.2244

5.12.14 RF Power Meter - Relative Reading - Return Maximum

RFPower<n>:RELative:READing:MAXimum?

Query Command:	Returns maximum relative RF Power reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:RELative:READing:MAXimum? 49.8437

5.12.15 RF Power Meter - Relative Reading - Return Minimum

RFPower<n>:RELative:READing:MINimum?

Query Command:	Returns minimum relative RF Power reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dBm
Query Data:	Returns decimal in specified units.
Query Example:	RFPower1:RELative:READing:MINimum? 33.2579

5.12.16 RF Power Meter - Span Value

RFPower<n>:SPAN var
RFPower<n>:SPAN?
RFPower<n>:SPAN:LIST?

Set Command:	Defines span of RF Power Meter <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies RF Power Meter to which command is applied.
Parameter:	1
Default value:	1
Set/Query Format:	Integer
Variable (var):	span value
Parameter:	5kHz | 10kHz | 20kHz | 50kHz | 100kHz | 200kHz | 500kHz | 1MHz | 2MHz | 5MHz | 10MHz | 20MHz | 50MHz | 90MHz
Default Value:	5 kHz
Set/Query Format:	CPD | CRD
Set Example:	RFPower1:SPAN 10kHz Sets span of RF Power Meter 1 to 10.0 kHz.
Query Example:	RFPower1:SPAN? 10KHZ

5.13 SINAD METER REMOTE COMMANDS

5.13.1 SINAD Meter - Number of Averages

SINad<n>:AVERage var
SINad<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	SINad1:AVERage 50 Sets number of measurements used to calculate average measurements for SINAD Meter 1 to 50.
Query Example:	SINad1:AVERage? 50

5.13.2 SINAD Meter - Frequency of Notch Filter

SINad<n>:FILTer:NOTCh:FREQuency var <units>
SINad<n>:FILTer:NOTCh:FREQuency?

Set Command:	Selects frequency of notch filter used to perform measurement for meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Number
Variable (var):	notch filter frequency value
Range:	10.0 Hz to 10.0 kHz
Default Value:	1.0 kHz
[units]:	notch filter frequency unit of measurement
Parameter:	Hz | kHz
Default Value:	Hz
Set/Query Format:	CPD | CRD (Hz)
Set Example:	SINad1:FILTer:NOTCh:FREQuency 1 kHz Sets frequency of SINAD Meter 1 notch filter to 1.0 kHz.
Query Example:	SINad1:FILTer:NOTCh:FREQuency? 1000

5.13.3 SINAD Meter - Measurement Displayed

SINad<n>:DISPlay:TYPe var
SINad<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on meter <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	SINad1:DISPlay:TYPe MAXimum Displays maximum measurements on SINAD Meter 1.
Query Example:	SINad1:DISPlay:TYPe? MAX
NOTE	Command is no longer supported in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

5.13.4 SINAD Meter - Meter Range (Display Only)

SINad<n>:DISPlay:RANGe var
SINad<n>:DISPlay:RANGe?
SINad<n>:DISPlay:RANGe:LIST?

Set Command:	Selects range of meter <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for meter.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	20dB | 40dB | 60dB | AUTO
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	SINad1:DISPlay:RANGe 60dB Sets bar graph scale on SINAD Meter 1 to 60.0 dB.
Query Example:	SINad1:DISPlay:RANGe? 60DB

5.13.5 SINAD Meter - Reading - Return Average

SINad<n>:READing:AVERage?

Query Command:	Returns average reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dB
Query Data:	Returns decimal in specified units.
Query Example:	SINad1:READing:AVERage? 49.9627

5.13.6 SINAD Meter - Reading - Return Live

SINad<n>:READing:LIVe?

Query Command:	Returns live reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dB
Query Data:	Returns decimal in specified units.
Query Example:	SINad1:READing:LIVe? 49.8339

5.13.7 SINAD Meter - Reading - Return Maximum

SINad<n>:READing:MAXimum?

Query Command:	Returns maximum (peak) reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dB
Query Data:	Returns decimal in specified units.
Query Example:	SINad1:READing:MAXimum? 50.1231

5.13.8 SINAD Meter - Reading - Return Minimum

SINad<n>:READing:MINimum?

Query Command:	Returns minimum reading for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	dB
Query Data:	Returns decimal in specified units.
Query Example:	SINad1:READing:MINimum? 49.7824

5.13.9 SINAD Meter - Reset Meter

SINad<n>:RESet

Set Command:	Clears average, live, max and min readings for meter <n>.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

5.13.10 SINAD Meter - Reading - State

SINad<n>:READing:INValid?

Query Command:	Returns statusbyte indicating whether or not meter reading is valid.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Valid
	1 = Invalid

5.13.11 SINAD Meter - Reading - Status

SINad<n>:READing:ACQuiring?

Query Command:	Returns statusbyte indicating whether or not meter has acquired data to perform valid measurement.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer
statusbyte:	0 = Data acquired
	1 = Acquiring data

5.13.12 SINAD Meter - Signal Source

SINad<n>:SOURce var
SINad<n>:SOURce?
SINad<n>:SOURce:LIST?

Set Command:	Selects signal source for meter <n>.	
Query Command:	Returns defined variable.	
List Command:	Returns list of valid signal sources for meter.	
<n>:	Specifies meter to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	signal source	
	Parameter:	AUDIO | DEMOD
	Default Value:	AUDIO
	Set/Query Format:	CPD | CRD
Set Example:	SINad1:SOURce DEMOD Sets signal source of SINAD Meter 1 to Demod.	
Query Example:	SINad1:SOURce? DEMOD	

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Chapter 6 - Instrument Remote Commands

6.1 INTRODUCTION

This chapter lists the remote commands for the 7200 DMM, Oscilloscope, Spectrum Analyzer and Zero Span Analyzer.

6.2 DIGITAL MULTIMETER REMOTE COMMANDS

These remote commands are only valid when Option #139257 is enabled on the Test Set.

6.2.1 DMM - Number of Averages

DMM<n>:AVERage var
DMM<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for DMM <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	DMM1:AVERage 50 Sets number of measurements used to calculate average measurements for DMM 1 to 50.
Query Example:	DMM1:AVERage? 50

6.2.2 DMM - Measurement Displayed

DMM<n>:DISPlay:TYPe var
DMM<n>:DISPlay:TYPe?

Set Command:	Selects type of measurement displayed on DMM <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	displayed measurement
Parameter:	AVERage | LIVe | MINimum | MAXimum
Default Value:	LIVe
Set/Query Format:	CPD | CRD
Set Example:	DMM1:DISPlay:TYPe MAXimum Displays maximum measurements on DMM 1.
Query Example:	DMM1:DISPlay:TYPe? MAX
NOTE	Command is no longer valid in software version 1.2.4 and later. Remove command from scripts to avoid script errors.

6.2.3 DMM - Mode of Operation

DMM<n>:MODe var
DMM<n>:MODe?
DMM<n>:MODe:LIST?

Set Command:	Defines DMM <n> measurement mode.
Query Command:	Returns defined variable.
List Command:	Returns list of valid operation modes.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	measurement mode
Parameter:	VDC | VAC | IDC | IAC | OHMS
Default Value:	VDC
Set/Query Format:	CPD | CRD
Set Example:	DMM1:MODe IDC Sets measurement mode of DMM1 to DC Current.
Query Example:	DMM1:MODe? IDC

6.2.4 DMM - AC Current Meter Range (Display Only)

DMM<n>:RANGe:IAC var
DMM<n>:RANGe:IAC?
DMM<n>:RANGe:IAC:LIST?

Set Command:	Selects range of DMM <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for IAC measurements.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	AUTO | 10mA | 100mA | 1A
Default Value:	1A
Set/Query Format:	CPD | CRD
Set Example:	DMM1:RANGe:IAC 10MA Sets bar graph scale on DMM 1 to 10 mA.
Query Example:	DMM1:RANGe:IAC? 10MA

6.2.5 DMM - DC Current Meter Range (Display Only)

DMM<n>:RANGe:IDC var
DMM<n>:RANGe:IDC?
DMM<n>:RANGe:IDC:LIST?

Set Command:	Selects range of DMM <n> bar graph.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid ranges for IDC measurements.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	AUTO | 20mA | 200mA | 1A
Default Value:	1A
Set/Query Format:	Decimal
Set Example:	DMM1:RANGe:IDC 200MA Sets bar graph scale on DMM 1 to 200 mA.
Query Example:	DMM1:RANGe:IDC? 200MA

6.2.6 DMM - AC Volts Meter Range (Display Only)

DMM<n>:RANGe:VAC var
DMM<n>:RANGe:VAC?
DMM<n>:RANGe:VAC:LIST?

Set Command:	Selects range of DMM <n> bar graph.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid ranges for VAC measurements.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	AUTO | 50mV | 500mV | 5V | 50V | 300V
Default Value:	300V
Set/Query Format:	CPD | CRD
Set Example:	DMM1:RANGe:VAC 50mV Sets bar graph scale on DMM 1 to 50 mV.
Query Example:	DMM1:RANGe:VAC? 50mV

6.2.7 DMM - DC Volts Meter Range (Display Only)

DMM<n>:RANGe:VDC var
DMM<n>:RANGe:VDC?
DMM<n>:RANGe:VDC:LIST?

Set Command:	Selects range of DMM <n> bar graph.
Query Command:	Returns defined variable.
Query Command:	Returns list of valid ranges for VDC measurements.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	AUTO | 100mV | 1V | 10V | 100V | 300V
Default Value:	300V
Set/Query Format:	CPD | CRD
Set Example:	DMM1:RANGe:VDC 10V Sets bar graph scale on DMM 1 to 10 Volts.
Query Example:	DMM1:RANGe:VDC? 10V

6.2.8 DMM - Ohms Meter Range (Display Only)

DMM<n>:RANGe:OHMS var
DMM<n>:RANGe:OHMS?
DMM<n>:RANGe:OHMS:LIST?

Set Command:	Selects range of DMM <n> bar graph.
Query Command:	Returns defined variable.
List Command:	Returns list of valid ranges for Ohms measurements.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	range value
Parameter:	AUTO | 100OHM | 1kOHM | 10kOHM | 100kOHM | 1MOHM | 10MOHM | 100MOHM
Default Value:	100MOHM
Set/Query Format:	CPD | CRD
Set Example:	DMM1:RANGe:OHMS 1kohm Sets bar graph scale on DMM 1 to 1kOHM.
Query Example:	DMM1:RANGe:OHMS? 1KOHM

6.2.9 DMM - Reading - Return Average

DMM<n>:READing:AVERage?

Query Command:	Returns average reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
VAC/VDC Units:	Volts
IAC/IDC Units:	Amps
Ohms Units:	Ohms
Query Data:	Returns decimal value in specified unit.
Query Example:	DMM1:READing:AVERage? 6.038984156475635076e-06
NOTE	Unit of measurement is dependent on the defined mode of operation (DMM<n>:MODe).

6.2.10 DMM - Reading - Return Live

DMM<n>:READing:LIVe?

Query Command:	Returns live reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
VAC/VDC Units:	Volts
IAC/IDC Units:	Amps
Ohms Units:	Ohms
Query Data:	Returns decimal value in specified unit.
Query Example:	DMM1:READing:LIVe? 1.9940752983093261719
NOTE	Unit of measurement is dependent on the defined mode of operation (DMM<n>:MODe).

6.2.11 DMM - Reading - Return Maximum

DMM<n>:READing:MAXimum?

Query Command:	Returns maximum (peak) reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
VAC/VDC Units:	Volts
IAC/IDC Units:	Amps
Ohms Units:	Ohms
Query Data:	Returns decimal value in specified unit.
Query Example:	DMM1:READing:MAXimum? 1.9940865039825439453
NOTE	Unit of measurement is dependent on the defined mode of operation (DMM<n>:MODe).

6.2.12 DMM - Reading - Return Minimum

DMM<n>:READing:MINimum?

Query Command:	Returns minimum reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
VAC/VDC Units:	Volts
IAC/IDC Units:	Amps
Ohms Units:	Ohms
Query Data:	Returns decimal value in specified unit.
Query Example:	DMM1:READing:MINimum? -0.054996207356452941895
NOTE	Unit of measurement is dependent on the defined mode of operation (DMM<n>:MODe).

6.2.13 DMM - Reading - Reset

DMM<n>:RESet

Set Command:	Clears average, live, max and min readings for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

6.2.14 DMM Shunt - Number of Averages

DMM<n>:SHUNt:AVERage var
DMM<n>:SHUNt:AVERage?

Set Command:	Defines number of measurements used to calculate average shunt measurement for DMM <n>.
Query Command:	Returns defined variable.
<n>:	Specifies meter to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	DMM1:SHUNt:AVERage 50 Sets number of measurements used to calculate average measurements for DMM 1 to 50.
Query Example:	DMM1:SHUNt:AVERage? 50

6.2.15 DMM Shunt - Enable

DMM<n>:SHUNt:ENABle var
DMM<n>:SHUNt:ENABle?

Set Command:	Enables/disables DMM <n> Shunt function.
Query Command:	Returns defined variable.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	DMM1:SHUNt:ENABle ON Enables shunt on DMM 1.
Query Example:	DMM1:SHUNt:ENABle? 1

6.2.16 DMM Shunt - Mode

DMM<n>:SHUNt:MODe var
DMM<n>:SHUNt:MODe?
DMM<n>:SHUNt:MODe:LIST?

Set Command:	Defines shunt mode of operation for DMM <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid shunt modes.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	shunt mode
Parameter:	AC | DC
Default Value:	DC
Set/Query Format:	CPD | CRD
Set Example:	DMM1:SHUNt:MODe DC Sets shunt mode of operation of DMM 1 to DC.
Query Example:	DMM1:SHUNt:MODe? DC

6.2.17 DMM Shunt - Return Average Reading

DMM<n>:SHUNt:READing:AVERage?

Query Command:	Returns average shunt reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Amps
Query Data:	Returns decimal value in specified units.
Query Example:	DMM1:SHUNt:READing:AVERage 0.25538410991430282593

6.2.18 DMM Shunt - Return Live Reading

DMM<n>:SHUNt:READing:LIVe?

Query Command:	Returns live shunt reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Amps
Query Data:	Returns decimal value in specified units.
Query Example:	DMM1:SHUNt:READing:LIVe? 0.25538410991430282593

6.2.19 DMM Shunt - Return Maximum Reading

DMM<n>:SHUNt:READing:MAXimum?

Query Command:	Returns maximum (peak) shunt reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Amps
Query Data:	Returns decimal value in specified units.
Query Example:	DMM1:SHUNt:READing:MAXimum? 0.25712721981108188629

6.2.20 DMM Shunt - Return Minimum Reading

DMM<n>:SHUNt:READing:MINimum?

Query Command:	Returns minimum shunt reading for DMM <n>.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Format:	Integer
Units:	Amps
Query Data:	Returns decimal value in specified units.
Query Example:	DMM1:SHUNt:READing:MINimum? 0.25538410991430282593

6.2.21 DMM Shunt - Reading - Reset

DMM<n>:SHUNt:RESet

Set Command:	Clears average, live, max and min readings for DMM <n> shunt readings.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set Format:	Integer

6.2.22 DMM Shunt - Value

DMM<n>:SHUNt:VALue var <units>
DMM<n>:SHUNt:VALue? <units>

Set Command:	Defines Shunt Resistor value used for DMM <n> Shunt calculations.
Query Command:	Returns defined variable.
<n>:	Specifies DMM to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	shunt value
Range:	Defined by shunt capabilities.
Units:	Ohm | kOhm | MOhm
Default Value:	0.00 Ohm
Set/Query Format:	CPD | CRD
Set Example:	DMM1:SHUNt:VALue 0.01OHM Sets shunt value of DMM1 to 0.01 Ohms.
Query Example:	DMM1:SHUNt:VALue? ohm .01

6.3 OSCILLOSCOPE REMOTE COMMANDS

These remote commands are only valid when Option #139256 is enabled on the Test Set.

6.3.1 Oscilloscope - Horizontal Scale (Sweep Time)

OSCilloscope<n>:SCALe:TIMe var
OSCilloscope<n>:SCALe:TIMe?
OSCilloscope<n>:SCALe:TIMe:LIST?

Set Command:	Defines horizontal sweep rate for Oscilloscope <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	sweep rate
Parameter:	50ns | 100ns | 200ns | 500ns | 1µs | 2µs | 5µs | 10µs | 20µs | 50µs | 100µs | 200µs | 500µs | 1ms | 2ms | 5ms | 10ms | 20ms | 50ms | 100ms
Default Value:	50ns
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:SCALe:TIMe 10µs Sets sweep rate of Scope 1 to 10 µs.
Query Example:	OSCilloscope1:SCALe:TIMe? 10us

6.3.2 Oscilloscope - Impedance

OSCilloscope<n>:TRACe<x>:IMPedance var
OSCilloscope<n>:TRACe<x>:IMPedance?
OSCilloscope<n>:TRACe<x>:IMPedance:LIST?

Set Command:	Defines impedance value of Scope <n>, Trace <x>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	impedance value
Parameter:	50Ohm | 1MOhm
Default Value:	1MOhm
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRACe2:IMPedance 1MOhm Sets impedance value of Scope 1, Trace 2 to 1 MOhm.
Query Example:	OSCilloscope1:TRACe2:IMPedance? 1MOHM

6.3.3 Oscilloscope - Trace Coupling

OSCilloscope<n>:TRACe<x>:COUPling var
OSCilloscope<n>:TRACe<x>:COUPling?
OSCilloscope<n>:TRACe<x>:COUPling:LIST?

Set Command:	Defines signal coupling for Oscilloscope <n>, Trace <x>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	coupling mode
Parameter:	AC | DC | GND
Default Value:	AC
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRACe2:COUPling DC Sets coupling mode of Scope 1, Trace 2 to DC Coupling.
Query Example:	OSCilloscope1:TRACe2:COUPling? DC

6.3.4 Oscilloscope - Return Trace Data

OSCilloscope<n>:TRACe<x>:DATa?

Query Command:	Returns trace data for Oscilloscope <n>, Trace <x>.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Query Format:	Returns data string.
Query Data:	<# data points>,<y values>
Query Example:	OSCilloscope1:TRACe2:DATa? 1000,2.29072,2.20888,2.12705,2.08613,1.96338,1.84062, 1.67696,1.5542,1.34962,1.18595,1.02228,0.858608,0.694938, 0.490351,0.408516,0.244847,0.122095,-0.0415747,-0.0824921, -0.205244,-0.24642,-0.287079,-0.287079,-0.287079, -0.24642,-0.205244,-0.44327,...

6.3.5 Oscilloscope - Probe Type

OSCilloscope<n>:TRACe<x>:PROBe:TYPe var
OSCilloscope<n>:TRACe<x>:PROBe:TYPe?
OSCilloscope<n>:TRACe<x>:PROBe:TYPe:LIST?

Set Command:	Defines Probe Type for Scope <n>, Trace <x>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	probe type
Parameter:	1x | 10x
Default Value:	1x
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRACe2:PROBe:TYPe 10x Sets probe type of Scope 1, Trace 2 to 10x.
Query Example:	OSCilloscope1:TRACe2:PROBe:TYPe? 10X
NOTE	10X is only valid when Impedance is set to 1MOhm (OSCilloscope<n>:TRACe<x>:IMPedance 1MOhm)

6.3.6 Oscilloscope - Vertical Offset

OSCilloscope<n>:TRACe<x>:SCALe:VERTical:OFFSet var [units]
OSCilloscope<n>:TRACe<x>:SCALe:VERTical:OFFSet? <units>

Set Command:	Defines vertical scale offset of Scope <n>, Trace <x>.
Query Command:	Returns defined variable.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	vertical offset value
Range:	-40 to +40 V
Default Value:	0.0 V
[units]:	unit of measurement
Units:	mV | V
Default:	V
Set/Query Format:	Decimal
<units>:	unit of measurement
Parameter:	mV | V
Set Example:	OSCilloscope1:TRACe2:SCALe:VERTical:OFFSet 2V Sets vertical offset of Scope 1, Trace 2 to 2 Volts.
Query Example:	OSCilloscope1:TRACe2:SCALe:VERTical:OFFSet? mV 2000

6.3.7 Oscilloscope - Vertical Scale

OSCilloscope<n>:TRACe<x>:SCALe:VERTical var
OSCilloscope<n>:TRACe<x>:SCALe:VERTical?
OSCilloscope<n>:TRACe<x>:SCALe:VERTical:LIST?

Set Command:	Defines vertical scale of Scope <n>, Trace <x>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	vertical scale, /div
Parameter:	defined by probe type and impedance
1X, 50Ohm:	1mV | 2mV | 5mV | 10mV | 20mV | 50mV | 100mV | 200mV | 500mV | 1V
1X, 1MOhm:	1mV | 2mV | 5mV | 10mV | 20mV | 50mV | 100mV | 200mV | 500mV | 1V | 2V | 5V
10X, 1MOhm:	1mV | 2mV | 5mV | 10mV | 20mV | 50mV | 100mV | 200mV | 500mV | 1V | 2V | 5V | 10V | 20V | 50V
Default Value:	5.0 V
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRACe2:SCALe:VERTical 2mV Sets Scope 1, Trace 2 Vertical Scale to 2 mV.
Query Example:	OSCilloscope1:TRACe2:SCALe:VERTical? MV 2
NOTE	Scope Trace Source must be set (OSC<n>:TRAC<x>:SOURce) before sending OSC<n>:TRAC<x>:SCAL:VERT var command.

6.3.8 Oscilloscope - Signal Source

OSCilloscope<n>:TRACe<x>:SOURce var
OSCilloscope<n>:TRACe<x>:SOURce?
OSCilloscope<n>:TRACe<x>:SOURce:LIST?

Set Command:	Defines signal source for Oscilloscope <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies Scope Trace to which command is applied.
Parameter:	1 | 2
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal source
Parameter:	OFF | CH1 | CH2
Default Value:	OFF
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRACe2:SOURce CH2 Sets signal source of Scope 1, Trace 2 to Channel 2.
Query Example:	OSCilloscope1:TRACe2:SOURce? CH2

6.3.9 Oscilloscope - Trigger Coupling Mode

OSCilloscope<n>:TRIGger:COUPling var
OSCilloscope<n>:TRIGger:COUPling?
OSCilloscope<n>:TRIGger:COUPling:LIST?

Set Command:	Defines Trigger Coupling Mode for Oscilloscope <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	coupling mode
Parameter:	AC | DC | HF_REJECT | LF_REJECT
Default Value:	AC
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRIGger:COUPling LF_REJECT Sets coupling mode of Scope 1 Trigger to LF Reject.
Query Example:	OSCilloscope1:TRIGger:COUPling? LF_REJECT
NOTE	AC is only valid when Trigger Source is set to External (OSCilloscope<n>:TRIGger:SOURce EXT)

6.3.10 Oscilloscope - Trigger Edging Mode

OSCilloscope<n>:TRIGger:EDGe var
OSCilloscope<n>:TRIGger:EDGe?
OSCilloscope<n>:TRIGger:EDGe:LIST?

Set Command:	Defines Trigger edging mode or operation for Oscilloscope <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	edging mode
Parameter:	RISING | FALLING
Default Value:	RISING
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRIGger:EDGe FALLING Sets trigger edge mode of operation of Scope 1 to Falling.
Query Example:	OSCilloscope1:TRIGger:EDGe? FALLING

6.3.11 Oscilloscope - Trigger Level

OSCilloscope<n>:TRIGger:LEVel var
OSCilloscope<n>:TRIGger:LEVel?

Set Command:	Defines Trigger Level for Oscilloscope <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	trigger level
Range:	-40 to +40 V
Units:	mV | V
Default Value:	0.0 V
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRIGger:LEVel 5V Sets trigger level of Scope 1 to 5 Volts.
Query Example:	OSCilloscope1:TRIGger:LEVel? mv 5000

6.3.12 Oscilloscope - Trigger Mode of Operation

OSCilloscope<n>:TRIGger:MODe
OSCilloscope<n>:TRIGger:MODe?
OSCilloscope<n>:TRIGger:MODe:LIST?

Set Command:	Defines Trigger mode of operation for Oscilloscope <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Scope to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	trigger mode
Parameter:	AUTO | NORMAL | SINGLE
Default Value:	AUTO
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRIGger:MODe NORMAL Sets trigger mode of operation of Scope 1 to Normal.
Query Example:	OSCilloscope1:TRIGger:MODe? NORMAL

6.3.13 Oscilloscope - Trigger Source

OSCilloscope<n>:TRIGger:SOURce var
OSCilloscope<n>:TRIGger:SOURce?
OSCilloscope<n>:TRIGger:SOURce:LIST?

Set Command:	Defines Trigger source for Oscilloscope <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Scope to which command is applied.
List Command:	Returns list of valid parameters.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	trigger source
Parameter:	CH1 | CH2 | EXT
Default Value:	CH1
Set/Query Format:	CPD | CRD
Set Example:	OSCilloscope1:TRIGger:SOURce CH2 Sets trigger source of Scope 1 to Channel 2.
Query Example:	OSCilloscope1:TRIGger:SOURce? CH2

6.4 SPECTRUM ANALYZER

6.4.1 Spectrum Analyzer - Number of Averages

SANalyzer<n>:AVERage var
SANalyzer<n>:AVERage?

Set Command:	Defines number of measurements used to calculate average measurement for Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	averaging value
Range:	1 to 100
Default Value:	5
Set/Query Format:	Integer
Set Example:	SANalyzer1:AVERage 50 Sets number of measurements used to calculate average measurements for Spectrum Analyzer 1 to 50.
Query Example:	SANalyzer1:AVERage? 50

6.4.2 Spectrum Analyzer - Center Frequency Value

SANalyzer<n>:CF var <units>
SANalyzer<n>:CF? <units>

Set Command:	Defines center frequency of Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	center frequency value
Range:	1 MHz to 2.6 GHz
Default Value:	1000.0 MHz
Units:	Hz | kHz | MHz
Set/Query Format:	CPD | CRD
Set Example:	SANalyzer1:CF 2GHz Sets center frequency of Spectrum Analyzer 1 to 2.0 GHz.
Query Example:	SANalyzer1:CF? MHz 2000
NOTE	Command is only valid when Span is set to value greater than 100 MHz (SANalyzer<n>:SPAN). When Span value is set to a value less than 90 MHz Spectrum Analyzer Center Frequency is defined by Receiver Frequency (RFReceiver<n>:FREQuency).

6.4.3 Spectrum Analyzer - Enable Trace

SANalyzer<n>:ENABle var
SANalyzer<n>:ENABle?

Set Command:	Enables/disables signal trace on Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal trace state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	SANalyzer1:ENABle ON Turns Spectrum Analyzer 1 signal trace ON.
Query Example:	SANalyzer1:ENABle? 1

6.4.4 Spectrum Analyzer - Return Trace Data

SANalyzer<n>:DATa?

Query Command:	Returns trace data for Spectrum Analyzer <n>.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Query Data:	<# data points>, <ydata>
Query Example:	SANalyzer1:DATa? 1001,-43.99380493440625,-44.0677337646484375, -45.0848770144015625,-47.2730560302734375, -48.76873779296875,-49.87749481201171875, -50.98912811279296875,-52.72415924072265625, -54.3040618896484375,-55.470672607421875, -55.888748489453125,...

6.4.5 Spectrum Analyzer - FFT Window Type

SANalyzer<n>:FFT:WINDow var
SANalyzer<n>:FFT:WINDow?
SANalyzer<n>:FFT:WINDow:LIST?

Set Command:	Defines FFT Window of Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	FFT Type
Parameter:	RECTANGLE | BLACKMAN | HAMMING | HANNING | TRIANGLE | KAISER | FLATTOP
Default Value:	BLACKMAN
Set/Query Format:	CPD | CRD
Set Example:	SANalyzer1:FFT:WINDow HAMMING Sets Spectrum Analyzer 1 FFT Window to Hamming.
Query Example:	SANalyzer1:FFT:WINDow? HAMMING

6.4.6 Spectrum Analyzer - Resolution Bandwidth Value

SANalyzer<n>:RBW:VALue var
SANalyzer<n>:RBW:VALue?
SANalyzer<n>:RBW:VALue:LIST?

Set Command:	Defines RBW value of Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	RBW value (range is dependent on selected Span value)
5 kHz Span:	0.25Hz | 0.5Hz | 1Hz | 2Hz | 5Hz | 10Hz | 20Hz
10 kHz Span:	0.5Hz | 1Hz | 2Hz | 5Hz | 10Hz | 20Hz | 50Hz
20 kHz Span:	1Hz | 2Hz | 5Hz | 10Hz | 20Hz | 50Hz | 100Hz
50 kHz Span:	2Hz | 5Hz | 10Hz | 20Hz | 50Hz | 100Hz | 200Hz
100 kHz Span:	5Hz | 10Hz | 20Hz | 50Hz | 100Hz | 200Hz | 500Hz
200 kHz Span:	10Hz | 20Hz | 50Hz | 100Hz | 200Hz | 500Hz | 1kHz
500 kHz Span:	20Hz | 50Hz | 100Hz | 200Hz | 500Hz | 1kHz | 2kHz
1 MHz Span:	50Hz | 100Hz | 200Hz | 500Hz | 1kHz | 2kHz | 5kHz
2 MHz Span:	100Hz | 200Hz | 500Hz | 1kHz | 2kHz | 5kHz | 10kHz
5 MHz Span:	200Hz | 500Hz | 1kHz | 2kHz | 5kHz | 10kHz | 20kHz
10 MHz Span:	500Hz | 1kHz | 2kHz | 5kHz | 10kHz | 20kHz | 50kHz
20 MHz Span:	1kHz | 2kHz | 5kHz | 10kHz | 20kHz | 50kHz | 100kHz
50 MHz Span:	2kHz | 5kHz | 10kHz | 20kHz | 50kHz | 100kHz | 200kHz
90 MHz Span:	5kHz | 10kHz | 20kHz | 50kHz | 100kHz | 200kHz | 500kHz
100 | 200 MHz Span:	10kHz | 20kHz | 50kHz | 100kHz | 200kHz | 500kHz
500 MHz Span:	20kHz | 50kHz | 100kHz | 200kHz | 500kHz
1 GHz Span:	50kHz | 100kHz | 200kHz | 500kHz
2 | 2.6 GHz Span:	100kHz | 200kHz | 500kHz
Default Value:	5 kHz
Set/Query Format:	CPD | CRD
Set Example:	SANalyzer1:RBW:VALue 1kHz Sets RBW of Spectrum Analyzer 1 to 1.0 kHz.
Query Example:	SANalyzer1:RBW:VALue? 1KHZ

6.4.7 Spectrum Analyzer - Span Value

SANalyzer<n>:SPAN var
SANalyzer<n>:SPAN?
SANalyzer<n>:SPAN:LIST?

Set Command:	Defines span of Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
List Command:	Returns list of valid parameters.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	span value
Parameter:	5kHz | 10kHz | 20kHz | 50kHz | 100kHz | 200kHz | 500kHz | 1MHz | 2MHz | 5MHz | 10MHz | 20MHz | 50MHz | 90MHz | 100MHz | 200MHz | 500MHz | 1GHz | 2GHz | 2.6GHz
Default Value:	5 kHz
Set/Query Format:	CPD | CRD
Set Example:	SANalyzer1:SPAN 10kHz Sets span of Spectrum Analyzer 1 to 10.0 kHz.
Query Example:	SANalyzer1:SPAN? 10KHZ

6.4.8 Spectrum Analyzer - Top of Scale

SANalyzer<n>:DISPlay:TOS var
SANalyzer<n>:DISPlay:TOS?

Set Command:	Defines top of graph's vertical scale.
Query Command:	Returns defined variable.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	value
Range:	-200 to +100 dBm
Default Value:	30 dBm
Set/Query Format:	Numeric
Set Example:	SANalyzer1:DISPlay:TOS 20 Sets top of vertical scale of Spectrum Analyzer 1 to 20.0 dBm.
Query Example:	SANalyzer1:DISPlay:TOS? 20

6.4.9 Spectrum Analyzer - Vertical Scale

SANalyzer<n>:DISPlay:SCALe:VERTical var
SANalyzer<n>:DISPlay:SCALe:VERTical?

Set Command:	Defines vertical scale of Spectrum Analyzer.
Query Command:	Returns defined variable.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	vertical scale
Range:	1 to 50 dB
Default Value:	5 dB
Set/Query Format:	Numeric
Set Example:	SANalyzer1:DISPlay:SCALe:VERTical 10 Sets Spectrum Analyzer 1 Vertical Scale to 10.0 dB/Division.
Query Example:	SANalyzer1:DISPlay:SCALe:VERTical? 10

6.5 ZERO SPAN ANALYZER

6.5.1 Zero Span Analyzer - Enable Trace

ZANalyzer<n>:ENABle var
ZANalyzer<n>:ENABle?

Set Command:	Enables/disables signal trace on Zero Span Analyzer <n>.
Query Command:	Returns defined variable.
<n>:	Specifies Zero Span Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	signal trace state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	ZANalyzer1:ENABle ON Turns Zero Span Analyzer 1 trace ON.
Query Example:	ZANalyzer1:ENABle? 1

6.5.2 Zero Span Analyzer - Return Trace Data

ZANalyzer<n>:DATa?

Query Command:	Returns trace data for Zero Span Analyzer <n>.
<n>:	Specifies Zero Span Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Query Data:	<# data points>, < ydata>
Query Example:	ZANalyzer1:DATa? 500,-47.13982391357421875,-47.20241546630859375,-47.26836395263671875,-47.338287353515625,-47.4114227294921875,-47.4868927001953125,-47.57566070556640625,-47.667572021484375,-47.74938201904296875,...

6.5.3 Zero Span Analyzer - Resolution Bandwidth Value

ZANalyzer<n>:RBW:VALue var
ZANalyzer<n>:RBW:VALue?
ZANalyzer<n>:RBW:VALue:LIST?

Set Command:	Defines RBW value of Zero Span Analyzer <n>.
Query Command:	Returns defined variable.
List Command:	Returns a list of valid parameters.
<n>:	Specifies Zero Span Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	RBW value
Parameter:	500Hz | 1kHz | 2kHz | 5kHz | 10kHz
Default Value:	500 Hz
Set/Query Format:	CPD | CRD
Set Example:	ZANalyzer1:RBW:VALue 2kHz Sets RBW of Zero Span Analyzer 1 to 2.0 kHz.
Query Example:	ZANalyzer1:RBW:VALue? 2KHZ

6.5.4 Zero Span Analyzer - Sweep Value

ZANalyzer<n>:SCALe:TIMe var
ZANalyzer<n>:SCALe:TIMe?
ZANalyzer<n>:SCALe:TIMe:LIST?

Set Command:	Defines horizontal sweep rate of Spectrum Analyzer <n>.
Query Command:	Returns defined variable.
List Command:	Returns a list of valid parameters.
<n>:	Specifies Spectrum Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	sweep rate value in ms/div (range is dependent on selected RBW value)
500 Hz RBW:	1ms | 2.5ms | 5ms | 10ms | 25ms | 50ms | 100ms | 250ms | 500ms
1 kHz RBW:	500µs | 1ms | 2.5ms | 5ms | 10ms | 25ms | 50ms | 100ms | 250ms | 500ms
2 kHz RBW:	250µs| 500µs | 1ms | 2.5ms | 5ms | 10ms | 25ms | 50ms | 100ms | 250ms | 500ms
5 kHz RBW:	100µs | 250µs| 500µs | 1ms | 2.5ms | 5ms | 10ms | 25ms | 50ms | 100ms | 250ms | 500ms
10 kHz RBW:	100µs | 250µs| 500µs | 1ms | 2.5ms | 5ms | 10ms | 25ms | 50ms | 100ms | 250ms
Default Value:	500 ms
Set/Query Format:	CPD | CRD
Set Example:	ZANalyzer1:SCALe:TIMe 10ms Sets horizontal sweep of Zero Span Analyzer 1 to 10 ms.
Query Example:	ZANalyzer1:SCALe:TIMe? 10MS

6.5.5 Zero Span Analyzer - Top of Scale

ZANalyzer<n>:DISPlay:TOS var
ZANalyzer<n>:DISPlay:TOS?

Set Command:	Defines top of graph's vertical scale.
Query Command:	Returns defined variable.
<n>:	Specifies Zero Span Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	value
Range:	-200 to +100 dBm
Default Value:	0.0 dBm
Set/Query Format:	Numeric
Set Example:	ZANalyzer1:DISPlay:TOS 5 Sets top of vertical scale of Zero Span Analyzer 1 to 5.0 dBm.
Query Example:	ZANalyzer1:DISPlay:TOS? 5

6.5.6 Zero Span Analyzer - Vertical Scale

ZANalyzer<n>:DISPlay:SCALe:VERTical var
ZANalyzer<n>:DISPlay:SCALe:VERTical?

Set Command:	Defines vertical scale of Zero Span Analyzer.
Query Command:	Returns defined variable.
<n>:	Specifies Zero Span Analyzer to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	vertical scale
Range:	1 to 50 dB
Default Value:	15 dB
Set/Query Format:	CPD | CRD
Set Example:	ZANalyzer1:DISPlay:SCALe:VERTical 10 Sets Zero Span Analyzer 1 Vertical Scale to 10.0 dB.
Query Example:	ZANalyzer1:DISPlay:SCALe:VERTical? 10

Chapter 7 - Marker Remote Commands

7.1 INTRODUCTION

This chapter lists the commands used to configure 7200 marker functions. To use these commands for a specific function they must be prefixed according to the function to which they apply. Refer to the examples below.

Marker remote commands are only valid when the function is supported on the Test Window. Marker remote commands identify which Test function(s) support the marker remote command.

Spectrum Analyzer Marker Commands

SANalyzer1:MARKer:ADD

SANalyzer1:MARKer1:PEAK:MAXimum

Zero Span Analyzer Marker Commands

ZANalyzer1:MARKer:ADD

ZANalyzer1:MARKer1:PEAK:MAXimum

7.2 MARKER REMOTE COMMANDS

7.2.1 Marker - Add Marker

MARKer:ADD

Set Command:	Adds next sequential marker to UI and returns number of new marker in integer format.
Set Example:	SANalyzer1:MARKer:ADD 2 Marker 2 was added to the UI.
Applies To:	SANalyzer, ZANalyzer
NOTE	Markers are auto-numbered and cannot be user defined.

7.2.2 Marker - Delete Marker

MARKer<n>:DELete

Set Command:	Deletes Marker <n> from UI.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer, ZANalyzer

7.2.3 Marker - Marker Delta Pair

MARKer<n>:DELTa:PAIR var
MARKer<n>:DELTa:PAIR?

Set Command:	Enables delta measurements between Marker <n> (parent) and second marker (child) (var).
Query Command:	Returns marker paired with Marker <n>.
<n>:	Specifies first Marker in delta pairing (parent).
Parameter:	1 to 6
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Defines second Marker in delta pairing (child).
Range:	1 to 6
Default Value:	1
Set/Query Format:	Integer
Set Example:	SANalyzer1:MARKer1:DELTa:PAIR 3 Enables Marker Delta measurements between Marker 1 and Marker 3.
Query Example:	SANalyzer1:MARKer1:DELTa:PAIR? 3 Indicates that Marker 1 is paired with Marker 3.
Applies To:	SANalyzer, ZANalyzer
NOTE	Returns “0” if Marker <n> is unpaired.

7.2.4 Marker - Returns Marker Delta X Value

MARKer<n>:DELTa:READing:X?

Query Command:	Returns marker delta x delta reading.
<n>:	Specifies Parent Marker or marker pairing to which command is applied.
Parameter:	1 to 6
Default Value:	1
Query Format:	Integer
Query Data:	xdelta
Query Format:	data string
Query Example:	SANalyzer1:MARKer1:DELTa:READing:X? 0.000732
Applies To:	SANalyzer, ZANalyzer

7.2.5 Marker - Returns Marker Delta Y Value

MARKer<n>:DELTa:READing:Y?

Query Command:	Returns marker delta y delta reading.
<n>:	Specifies Parent Marker or marker pairing to which command is applied.
Parameter:	1 to 6
Default Value:	1
Query Format:	Integer
Query Data:	ydelta
Query Format:	data string
Query Example:	SANalyzer1:MARKer1:DELTa:READing:Y? 43.29
Applies To:	SANalyzer, ZANalyzer

7.2.6 Marker - List Active Markers

MARKer:LIST?

Query Command:	Returns a list of markers currently active on the UI.
Query Data:	Returns numeric data string
Query Example:	SANalyzer1:MARKer:LIST? 1,3,4,6
Applies To:	SANalyzer, ZANalyzer

7.2.7 Marker - Move Marker to Left Edge

MARKer<n>:LEFT

Set Command:	Moves Marker <n> to left edge of span.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.8 Marker - Move Marker to Right Edge

MARKer<n>:RIGHt

Set Command:	Moves Marker <n> to right edge of span.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.9 Marker - Move Marker Left to Peak

MARKer<n>:PEAK:LEFT

Set Command:	Moves Marker <n> left to first peak on signal.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.10 Marker - Move Marker Left to Next Data Point

MARKer<n>:LEFT:NEXT:POINt

Set Command:	Moves Marker <n> left to next data point on signal.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.11 Marker - Move Marker to Maximum Peak

MARKer<n>:PEAK:MAXimum

Set Command:	Moves Marker <n> to highest peak on signal.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.12 Marker - Move Marker to Minimum Peak

MARKer<n>:PEAK:MINimum

Set Command:	Moves Marker <n> to lowest peak on signal.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.13 Marker - Move Marker Right to Peak

MARKer<n>:PEAK:RIGHt

Set Command:	Moves Marker <n> right to first peak on signal.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.14 Marker - Move Marker Right to Next Data Point

MARKer<n>:RIGHt:NEXT:POINt

Set Command:	Moves Marker <n> right to next data point on signal.
<n>:	Specifies marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set Format:	Integer
Applies To:	SANalyzer

7.2.15 Marker - Position of Marker on Signal Trace

MARKer<n>:POSition var
MARKer<n>:POSition?

Set Command:	Defines x position of Marker <n>.
Query Command:	Returns current position of Marker <n>.
<n>:	Specifies Marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set/Query Format:	Integer
Variable (var):	Marker Position
Range:	Defined by span setting
Default Value:	Center Frequency
Set/Query Format:	
Set Example:	MARKer2:POSition Positions Marker 2 at
Query Example:	MARKer2:POSition?
Applies To:	SANalyzer, ZANalyzer

7.2.16 Marker - Returns X Value at Marker Position

MARKer<n>:READing:X?

Query Command:	Returns x value at Marker <n> position.
<n>:	Specifies Marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set/Query Format:	Integer
Query Data:	Returns decimal value
Query Example:	SANalyzer1:MARKer4:READing:X? 1000.19049072265625
Applies To:	SANalyzer, ZANalyzer

7.2.17 Marker - Returns Y Value at Marker Position

MARKer<n>:READing:Y?

Query Command:	Returns Y value at Marker <n> position.
<n>:	Specifies Marker to which command is applied.
Parameter:	1 to 6
Default Value:	1
Set/Query Format:	Integer
Query Data:	Returns decimal value.
Query Example:	SANalyzer1:MARKer4:READing:Y? -52.74583251953125
Applies To:	SANalyzer, ZANalyzer

Chapter 8 - External Device Control

8.1 INTRODUCTION

This chapter lists remote commands which are used to control external devices.

8.2 UNIT UNDER TEST POWER SUPPLY REMOTE COMMANDS

These remote commands are only valid when Option #139263 is enabled on the Test Set.

8.2.1 UUTPS - Create UUTPS Connection

UUTPSFACTORY<n>:CREate var
UUTPSFACTORY<n>:CREate?

Set Command:	Establishes a network connection with an external power supply.
Query Command:	Returns UUTPS IP address for specified UUTPS connection.
<n>:	Defines UUTPS identifier which allows customers to establish connections to multiple devices.
<n> range:	0 to 255
var:	UUTPS IP Address
Set Format:	string
Set Example:	UUTPSFACTORY1:CREate “10.200.123.45” Establishes network connection with External Power Supply at IP Address 10.200.123.45.
Query Example:	UUTPSFACTORY1:CREate? “10.200.123.45”
NOTE	This command must be sent prior to sending other UUTPS<n> commands. The external power supply must be properly configured for network operation before sending UUTPSFACTORY<n>:CREate command.

8.2.2 UUTPS - Enable Output

UUTPS<n>:OUTPut:ENABle var
UUTPS<n>:OUTPut:ENABle?

Set Command:	Enables/disables Output of UUTPS <n>.
Query Command:	Returns defined variable.
<n>:	Specifies UUTPS to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	UUTPS1:OUTPut:ENABle ON Turns output of UUTPS 1 ON.
Query Example:	UUTPS1:OUTPut:ENABle? 1

8.2.3 UUTPS - Return Errors

UUTPS<n>:ERRor?

Query Command:	Returns error received from the external power supply.
<n>:	Specifies UUTPS to which command is applied.
Query Format:	ascii string
Query Data:	<error#>,<error description>
Query Example:	UUTPS1:ERRor? “0, No Error”
NOTE	Error message queue is flushed by sending successive query command until 0, “No Error” is received.

8.2.4 UUTPS - Terminate UUTPS Connection

UUTPS<n>:DELete

Set Command:	Terminates Test Set’s control of power supply and deletes controlling UUTPS window from Test Set.
<n>:	Specifies UUTPS to which command is applied.

8.2.5 UUTPS - Self Test

UUTPS<n>:TEST?

Query Command:	Activates UUTPS <n> self test and returns self test status.
<n>:	Specifies UUTPS to which command is applied.
Query Data:	0 = UUTPS Self test passed
	1 = UUTPS Self test failed
Query Example:	UUTPS1:TEST? 0

8.2.6 UUTPS - Current Measurements - Enable Protection

UUTPS<n>:CURRent:PROTection:ENABle var
UUTPS<n>:CURRent:PROTection:ENABle?

Set Command:	Defines how Test Set responds to an under-voltage condition.
Query Command:	Returns defined variable.
<n>:	Specifies UUTPS to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	UUTPS1:CURRent:PROTection:ENABle ON Turns UUTPS 1 current protection ON.
Query Example:	UUTPS1:CURRent:PROTection:ENABle? 1
NOTE	When Protection is ON, the unit disables the RF Output when the output voltage drops below the minimum limit for > 0.5 sec. When Protection is OFF, the unit switches to constant current mode when the output voltage drops below the minimum limit for > 0.5 sec.

8.2.7 UUTPS - Current Measurements - Define Protection Limit

UUTPS<n>:CURRent:PROTection:LIMit <units>
UUTPS<n>:CURRent:PROTection:LIMit?<units>

Set Command:	Defines Current (AMPS) protection limit for UUTPS <n>.
Query Command:	Returns defined variable.
<n>:	Specifies UUTPS to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	limit value
Range:	See External Device specifications.
Units:	µA | mA | A
Default Value:	See External Device specifications.
Set/Query Format:	Decimal
Set Example:	UUTPS1:CURRent:PROTection:LIMit 200mA Sets UUTPS 1 current protection limit to 200 mA.
Query Example:	UUTPS1:CURRent:PROTection:LIMit? mA 200

8.2.8 UUTPS - Current Measurements - Return Protection Status

UUTPS<n>:CURRent:PROTection:STATus?

Query Command:	Reports if over Current protection has been tripped.
<n>:	Specifies UUTPS to which command is applied.
Query Format:	numeric
Query Data:	0 = Not tripped 1 = Tripped
Query Example:	UUTPS1:CURRent:PROTection:STATus? 0

8.2.9 UUTPS - Current Measurements - Return Reading

UUTPS<n>:CURRent:READing?

Query Command:	Returns measured current
<n>:	Specifies UUTPS to which command is applied.
Query Format:	Decimal
Query Example:	UUTPS1:CURRent:READing? 1.23

8.2.10 UUTPS - Voltage Measurements - Define Level

UUTPS<n>:VOLTage:LEVel <units>
UUTPS<n>:VOLTage:LEVel?<units>

Set Command:	Sets desired output voltage of UUTPS <n> when running in constant voltage mode.
Query Command:	Returns defined variable.
<n>:	Specifies UUTPS to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	level value
Range:	See External Device specifications.
Units:	µV | mV | V
Default Value:	See External Device specifications.
Set/Query Format:	Decimal
Set Example:	UUTPS1:VOLTage:LEVel 1.0V Sets voltage level of UUTPS 1 to 1.0 Volts.
Query Example:	UUTPS1:VOLTage:LEVel? V 1

8.2.11 UUTPS - Voltage Measurements - Define Under-Voltage Protection Limit

UUTPS<n>:VOLTage:PROTection:LLIMit var
UUTPS<n>:VOLTage:PROTection:LLIMit?

Set Command:	Defines under-voltage protection limit for UUTPS <n>.
Query Command:	Returns defined variable.
<n>:	Specifies UUTPS to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	limit value
Range:	See External Device specifications.
Units:	µV | mV | V
Default Value:	See External Device specifications.
Set/Query Format:	Decimal
Set Example:	UUTPS1:VOLTage:PROTection:LLIMit 5.0V Sets UUTPS 1 under-voltage protection limit to 5.0 Volts.
Query Example:	UUTPS1:VOLTage:PROTection:LLIMit? V 5.0

8.2.12 UUTPS - Voltage Measurements - Define Over-Voltage Protection Limit

UUTPS<n>:VOLTage:PROTection:ULIMit var
UUTPS<n>:VOLTage:PROTection:ULIMit?

Set Command:	Defines over-voltage protection limit for UUTPS <n>.
Query Command:	Returns defined variable.
<n>:	Specifies UUTPS to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	limit value
Range:	See External Device specifications.
Units:	µV | mV | V
Default Value:	See External Device specifications.
Set/Query Format:	Decimal
Set Example:	UUTPS1:VOLTage:PROTection:ULIMit 500mV Sets UUTPS 1 over-voltage protection limit to 500 mV.
Query Example:	UUTPS1:VOLTage:PROTection:ULIMit? mV 500

8.2.13 UUTPS - Voltage Measurements - Return Protection Status

UUTPS<n>:VOLTage:PROTection:STATus?

Query Command:	Reports if over voltage protection has been tripped.
<n>:	Specifies UUTPS to which command is applied.
Query Data:	0 = No over voltage fault is active
	1 = Output has been disabled due to over-voltage fault
Query Example:	UUTPS1:VOLTage:PROTection:STATus? 1

8.2.14 UUTPS - Voltage Measurements - Return Reading

UUTPS<n>:VOLTage:READing?

Query Command:	Returns measured voltage.
<n>:	Specifies UUTPS to which command is applied.
Query Format:	Decimal
Query Example:	UUTPS1:VOLTAGE:READING? 0.5

Chapter 9 - ZIF Connector Control

9.1 INTRODUCTION

This chapter lists remote commands which are used to route signals to and from the Front Panel ZIF Connector pins. Some ZIF Connector Remote Commands require signal routing configuration and/or the use of external adapter cable connections.

Refer to the following for assistance with configuring ZIF Remote Commands:

- 7200 Operation Manual, Appendix A - Pin-Out Tables, A.7, ZIF I/O Connector.
- 7200 Operation Manual, Chapter 3 - Test Set Functions, 3.4, Signal Routing.
- 7200 Operation Manual, Chapter 3 - Test Set Functions, 3.11, ZIF Connector.
- Section 9.3, Command Examples

9.2 ZIF CONNECTOR REMOTE COMMANDS

9.2.1 ZIF Connector - Audio Input Routing

ZIF<n>:AUDIN <x>,var
ZIF<n>:AUDIN? <x>

Set Command:	Defines how the audio signal is routed from the ZIF Connector pin or Front Panel Audio Connectors to the Test Set's internal audio card.	
Query Command:	Returns the pin or connector to which the specified internal audio input connector is routing the audio signal.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
<x>:	Specifies the internal audio card input connector to which the signal is routed.	
Parameter:		1 | 2
Default Value:		1
Set/Query Format:		Integer
Variable (var):	Specifies the Front Panel Connector or ZIF Connector Pin which is routing the audio signal.	
Parameter:		NONE | MEAS1 | MEAS2 | MEAS3 | MEAS4 | FRONTPANEL
Audio 1 Default Value:		FRONTPANEL
Audio 2 Default Value:		NONE
Set/Query Format:		CPD | CRD
Set Example:	ZIF1:AUDIN 1,MEAS1 Routes the signal from ZIF Connector Measurement 1 Pin to the Test Set Audio Card Input Connector 1.	
Query Example:	ZIF1:AUDIN? 1 MEAS1	
NOTE	Define Audio Routing must also be configured (AUDIO<n>:PORT var) to define the audio signal source. Impedance may also need to be defined depending on signal (AFLevel<n>:IMPedance).	

9.2.2 ZIF Connector - Audio Output Routing

ZIF<n>:AUDOUT <x>,var

ZIF<n>:AUDOUT? <x>

Set Command:	Defines how the audio signal is routed from the the Test Set's internal audio card to the ZIF Connector pin or Front Panel Audio Connectors.	
Query Command:	Returns defined parameter.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	Specifies the internal audio card output connector from which the signal is being routed.	
	Parameter:	1 | 2
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	Specifies the Front Panel Connector or ZIF Connector Pin to which the audio output signal is being routed.	
	Parameter:	NONE | MEAS1 | MEAS2 | MEAS3 | MEAS4 | FRONTPANEL
	Audio 1 Default Value:	FRONTPANEL
	Audio 2 Default Value:	NONE
	Set/Query Format:	CPD | CRD
Set Example:	ZIF1:AUDOUT 1,MEAS1 Routes the audio output signal from the Audio Card Output Connector 1 to the ZIF Connector Measurement 1 pin.	
Query Example:	ZIF1:AUDOUT? 1 MEAS1	
NOTE	Audio Routing must be configured (AUDIO<n>:PORT var) to define the audio signal source.	

9.2.3 ZIF Connector - DMM - Enable

ZIF<n>:DMMSTATE var

ZIF<n>:DMMSTATE?

Set Command:	Enables/disables the signal being routed from the ZIF Connector DMM 1 and 2 pins.	
Query Command:	Returns defined state.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	state	
	Parameter:	OFF | ON | 0 | 1
	Default Value:	OFF
	Set/Query Format:	Boolean
Set Example:	ZIF1:DMMSTATE ON Enables signal at ZIF Connector pin for DMM 1 and 2	
Query Example:	ZIF1:DMMSTATE? 1	
NOTE	The ZIF<n>:DMMSTATE command must be executed before the ZIF<n>:DMM <x>,var command is sent.	

9.2.4 ZIF Connector - DMM - Select Pin

ZIF<n>:DMM <x>,var

ZIF<n>:DMM? <x>

Set Command:	Defines how the internal signal is routed from the ZIF Connector DMM pin <x> to the ZIF Connector Measurement Pin <var>.	
Query Command:	Returns the measurement pin that is defined for the specified ZIF DMM Connector Pin.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:	1	
Default Value:	1	
Set/Query Format:	Integer	
<x>:	Specifies ZIF Connector DMM pin to which the command is applied.	
Parameter:	1 | 2	
Default Value:	1	
Set/Query Format:	Integer	
Variable (var):	Input source	
Parameter:	MEAS1 | MEAS2 | MEAS3 | MEAS4 | MEAS5 | MEAS6 | MEAS7 | MEAS8	
Default Value:	MEAS1	
Set/Query Format:	CPD | CRD	
Set Example:	ZIF1:DMM 1,MEAS5 Routes the signal from ZIF Connector DMM Pin 1 to ZIF Connector Measurement 5 Pin.	
Query Example:	ZIF1:DMM? 1 MEAS5	
NOTE	The ZIF<n>:DMMSTATE command must be executed before the ZIF<n>:DMM <x>,var command is sent. Requires exterior adapter cable connecting ZIF Connector DMM pins to the Front Panel DMM Connectors.	

9.2.5 ZIF Connector - Grounding Pin

ZIF<n>:GROUND <x>,var
ZIF<n>:GROUND? <x>

Set Command:	Connects (ON) or disconnects (OFF) the specified ZIF Connector Pin <x> to ground.	
Query Command:	Returns current state for specified ZIF Connector Pin.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	Specifies ZIF Connector pin to be grounded.	
	Parameter:	MEAS5 | MEAS6 | DMM1
	Set/Query Format:	CPD | CRD
Variable (var):	state	
	Parameter:	OFF | ON | 0 | 1
	Default Value:	OFF
	Set/Query Format:	Boolean
Set Example:	ZIF1:GROUND MEAS5, ON Grounds Measurement 5 pin on ZIF Connector.	
Query Example:	ZIF1:GROUND? MEAS5 1 Indicates ZIF Connector Measurement 5 Pin is grounded (ON).	

9.2.6 ZIF Connector - LED - FDX Status

ZIF<n>:FDXLED?

Query Command:	Returns status of LAN9500 Ethernet FDX LED.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer

9.2.7 ZIF Connector - LED - LNKA Status

ZIF<n>:LNKALED?

Query Command:	Returns status of LAN9500 Ethernet LNKA LED.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer

9.2.8 ZIF Connector - LED - SPD Status

ZIF<n>:SPDLED?

Query Command:	Returns status of LAN9500 Ethernet SPD LED.
<n>:	Specifies ZIF Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer

9.2.9 ZIF Connector - LED - Enable LED Zero

ZIF<n>:LED var
ZIF<n>:LED?

Set Command:	Enables/disables ZIF Connector LED Zero pin.
Query Command:	Returns current state.
<n>:	Specifies ZIF Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	ZIF1:LED ON Enables ZIF Connector 1 LED Zero pin.
Query Example:	ZIF1:LED? 1

9.2.10 ZIF Connector - Open Collector - Enable Output

ZIF<n>:OC:OUT <x>,var
ZIF<n>:OC:OUT? <x>

Set Command:	Enables/disables output on ZIF Connector Open Collector pin.
Query Command:	Returns current state.
<n>:	Specifies ZIF Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies OC collector to which command is applied.
Parameter:	1 to 8
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	ZIF1:OC:OUT 1,ON Enables output on ZIF Connector 1 Open Collector pin.
Query Example:	ZIF1:OC:OUT? 1 1

9.2.11 ZIF Connector - Open Collector - Input Status

ZIF<n>:OC:IN? <x>

Query Command:	Returns Open Collector Input status.
<n>:	Specifies ZIF Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies OC Input Connector to which command is applied.
Parameter:	1 to 8
Default Value:	1
Set/Query Format:	Integer

9.2.12 ZIF Connector - Oscilloscope - Enable Trace

ZIF<n>:SCOPESTATE var

ZIF<n>:SCOPESTATE?

Set Command:	Enables/disables ZIF Connector signal for Oscilloscope Channel 1 and 2.	
Query Command:	Returns defined variable.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	signal trace state	
	Parameter:	OFF | ON | 0 | 1
	Default Value:	OFF
	Set/Query Format:	Boolean
Set Example:	ZIF1:SCOPESTATE ON Enables ZIF Connector pin signal for Oscilloscope Channel 1 and 2.	
Query Example:	ZIF1:SCOPESTATE? 1	
NOTE	The ZIF<n>:SCOPESTATE command must be executed before the ZIF<n>:SCOPE <x>,var command is sent.	

9.2.13 ZIF Connector - Oscilloscope Signal Source

ZIF<n>:SCOPE <x>,var

ZIF<n>:SCOPE? <x>

Set Command:	Selects ZIF Connector pin for source for Oscilloscope Channel <x>.	
Query Command:	Returns ZIF Connector pin selected as source for Oscilloscope Channel <n>.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:	1	
Default Value:	1	
Set/Query Format:	Integer	
<x>:	Specifies Scope Channel to which command is applied.	
Parameter:	1 | 2	
Set/Query Format:	Integer	
Variable (var):	signal source	
Parameter:	MEAS1 | MEAS2 | MEAS3 | MEAS4 | MEAS5 | MEAS6 | MEAS7 | MEAS8	
Default Value:	MEAS1	
Set/Query Format:	CPD | CRD	
Set Example:	ZIF1:SCOPE 1,MEAS4 Sets ZIF Connector 1 MEAS4 Pin as signal source of Oscillocope Channel 1.	
Query Example:	ZIF1:SCOPE? 1 MEAS4	
NOTE	The ZIF<n>:SCOPESTATE command must be executed before the ZIF<n>:SCOPE <x>,var command is sent. Requires external adapter cable to connect ZIF Connector Scope pins to Front Panel Scope Channel 1 and 2 Connectors.	

9.2.14 ZIF Connector - TTL 3.3 Volt - Enable Pin Output

ZIF<n>:TTL:THREE:OUT <x>,var

ZIF<n>:TTL:THREE:OUT? <x>

Set Command:	Enables/disables output on ZIF Connector TTL 3.3V pin.	
Query Command:	Returns defined state.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	Specifies volt pin to which command is applied.	
	Parameter:	0 to 3
	where:	0 = Pin 14C
		1 = Pin 14D
		2 = Pin 14E
		3 = Pin 14F
	Set/Query Format:	Integer
Variable (var):	state	
	Parameter:	OFF | ON | 0 | 1
	Default Value:	OFF
	Set/Query Format:	Boolean
Set Example:	ZIF1:TTL:THREE:OUT 1,ON Enables TTL 3.3 Volt Output at pin 14D on ZIF Connector 1.	
Query Example:	ZIF1:TTL:THREE:OUT? 1 1	
NOTE	<x> Parameter has changed to 0 through 3 in software version 1.2.4 and later. Update scripts accordingly to avoid script failure.	

9.2.15 ZIF Connector - TTL 3.3 Volt - Input Status

ZIF<n>:TTL:THREE:IN? <x>

Query Command:	Returns status of ZIF Connector 3.3 Volt Input Pin.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
<x>:	Specifies pin to which command is applied.	
Parameter:		0 to 3
where:		0 = Pin 2A
		1 = Pin 2B
		2 = Pin 2C
		3 = Pin 2D
Set/Query Format:		Integer
Query Data:		0 | 1
where:		0 = No Input
		1 = 3.3 V Input
Query Example:	ZIF1:TTL:THREE:IN? 2 1	
	Query example indicates there is a 3.3V input at pin 2C on the ZIF Connector.	

9.2.16 ZIF Connector - TTL 5 Volt - Enable Pin Output

ZIF<n>:TTL:FIVE:OUT <x>,var

ZIF<n>:TTL:FIVE:OUT? <x>

Set Command:	Enables/disables output on ZIF Connector TTL 5V pins.	
Query Command:	Returns defined state of specified pin.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	Specifies pin to which command is applied.	
	Parameter:	1 to 4
	where:	1 = Pin 13C
		2 = Pin 13D
		3 = Pin 13E
		4 = Pin 13F
	Set/Query Format:	Integer
Variable (var):	state	
	Parameter:	OFF | ON | 0 | 1
	Default Value:	OFF
	Set/Query Format:	Boolean
Set Example:	ZIF1:TTL:FIVE:OUT 1,ON Enables TTL 5 Volt Output at pin 13C on ZIF Connector 1.	
Query Example:	ZIF1:TTL:FIVE:OUT? 1 1	

9.2.17 ZIF Connector - TTL 5 Volt - Input Status

ZIF<n>:TTL:FIVE:IN? <x>

Query Command:	Returns status of ZIF Connector 5 Volt Input Pin.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
<x>:	Specifies pin to which command is applied.	
Parameter:		1 to 4
where:		1 = Pin 1A
		2 = Pin 1B
		3 = Pin 1C
		4 = Pin 1D
Set/Query Format:		Integer
Query Data:		0 | 1
where:		0 = No Input
		1 = 5V Input
Query Example:	ZIF1:TTL:FIVE:IN? 3 1	
	Query example indicates there is a 5 Volt input at pin 1C on the ZIF Connector.	

9.2.18 ZIF Connector - Version of FPGA

ZIF<n>:VERSION:FPGA?

Query Command:	Returns version of Front Panel Switch Matrix FPGA.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer

9.2.19 ZIF Connector - Version of Printed Circuit Board

ZIF<n>:VERSION:BOARD?

Query Command:	Returns version of Front Panel Switch Matrix PCB.	
<n>:	Specifies ZIF Connector to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer

9.2.20 ZIF Connector - Voltage Out 1 - Define Level

ZIF<n>:VOUT:ONE:LEVEL var <units>

ZIF<n>:VOUT:ONE:LEVEL? <units>

Set Command:	Defines output level for VOUT1 Pin.	
Query Command:	Returns defined variable.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	level value	
	Range:	2 to 10 V
	Default Value:	0
	Set/Query Format:	decimal
<units>:	Specifies units of measurement.	
	Parameter:	nV | µV | mV | V
	Default Value:	Volts
	Set/Query Format:	CPD
Set Example:	ZIF1:VOUT:ONE:LEVEL 5V Enables output on VOUT 1 Pin to 5 Volt.	
Query Example:	ZIF1:VOUT:ONE:LEVEL? V 5	

9.2.21 ZIF Connector - Voltage Out 2 - Define Level

ZIF<n>:VOUT:TWO:LEVEL var <units>

ZIF<n>:VOUT:TWO:LEVEL? <units>

Set Command:	Defines output level for VOUT 2 Pin.	
Query Command:	Returns defined variable.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	Specifies Pin to which command is applied.	
	Parameter:	1 | 2
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	trigger level	
	Range:	1.4 to 4.8 V
	Units:	nV | µV | mV | V
	Default Value:	0.0
	Set/Query Format:	decimal
Set Example:	ZIF1:VOUT:TWO:LEVEL 2V Sets output level of VOUT 2 Pin to 2.0 Volts.	
Query Example:	ZIF1:VOUT:TWO:LEVEL? V 2	

9.2.22 ZIF Connector - Voltage Out 2 - State

ZIF<n>:VOUT:TWO:STATe var
ZIF<n>:VOUT:TWO:STATe?

Set Command:	Enables/disables Voltage Output 2 for ZIF 1 Connector.	
Query Command:	Returns current state.	
<n>:	Specifies ZIF Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
Variable (var):	state	
	Parameter:	OFF | ON | 0 | 1
	Default Value:	OFF
	Set/Query Format:	Boolean
Set Example:	ZIF1:VOUT:TWO:STATe ON Sets output level of ZIF Connector 1 Voltage Out Pin 2 to ON.	
Query Example:	ZIF1:VOUT:TWO:STATe? 1	

9.3 COMMAND EXAMPLES

The following are examples of basic commands to route signals through the ZIF Connector through the Test Set.

9.3.1 DMM Signal Routing

Refer to the 7200 Operation Manual, Section 3.11.3.A, DMM Signal Routing, for signal routing diagram.

```
ZIF1:DMMSTATE ON          //sends signal from ZIF Connector DMM 1 and 2 Pins to
                          //Front Panel DMM Connectors
ZIF1:DMM 1,MEAS4          //routes signal through ZIF Connector Measurement Pin 4
                          //to ZIF Connector DMM 1 pin which must be connected
                          //to the Front Panel DMM 1 (DMM-) Connector
ZIF1:GROUND DMM1, OFF     //ungrounds ZIF Connector DMM1 pin
DMM1:MODE VDC             //sets Test Set DMM to perform VDC measurements
DMM1:READ:LIV?            //returns Test Set DMM live reading
```

9.3.2 Oscilloscope Signal Routing

Refer to the 7200 Operation Manual, Section 3.11.3.B, Oscilloscope Signal Routing, for signal routing diagram.

```
ZIF1:SCOPESTATE ON        //sends signal from ZIF Connector Scope 1 and 2 Pins to
                          //Front Panel Scope CH1 and CH2 Connectors
ZIF1:SCOPE 2,MEAS3        //routes signal through ZIF Connector Measurement Pin 3
                          //to ZIF Connector Scope 2 pin which must be connected
                          //to the Front Panel Oscilloscope CH2 Connector
OSC1:TRAC1:SOUR CH2       //selects Scope CH2 connector as input signal source for
                          //Trace 1
OSC1:TRAC1:DAT?           //returns Scope Trace 1 data
```

9.3.3 Input Audio Signal Routing

Refer to the 7200 Operation Manual, Section 3.11.3.C, Audio Input/Output Signal Routing, for signal routing diagram.

9.3.3.A Audio Signal Source: Front Panel Audio Connector Input

```
AUDIO1:PORT AUDIN          //routes audio input signal from the Audio 1 input port
                           //of audio card to audio processor
ZIF1:AUDIN 1,FRONTPANEL    //routes input signal from Front Panel Audio
                           //Connector to the Audio 1 input port of the Audio
                           Card
DIST1:SOUR AUDIO           //defines audio as source for Distortion Meter
                           //measurements
DIST1:READ:LIV?            //returns live Distortion Meter reading
```

9.3.3.B Audio Signal Source: ZIF Measurement Pin Input

```
ZIF1:AUDIN 2,MEAS1         //routes audio input signal from ZIF Connector
                           //Measurement 1 Pin to the Audio 2 input port of the
                           //Audio Card
AUDIO2:PORT DEMOD          //routes signal from the Audio 2 input port of audio
                           //card to audio demodulators
DIST1:SOUR DEMOD           //defines demodulated audio signal as source for
                           //Distortion Meter measurements
DIST1:READ:LIV?            //returns live Distortion Meter reading
```

9.3.4 Modulated/Demodulated Signal Routing

Refer to the 7200 Operation Manual, Section 3.11.3.D, Modulated/Demodulated Signal Routing, for signal routing diagram.

9.3.4.A Route Input Signal to RF Modulator

```
AUDIO1:PORT AUDIN                  //routes audio input signal from the Audio 1 input
                                   //port of audio card to audio processor
ZIF1:AUDIN 1,FRONTPANEL            //routes input signal from Front Panel Audio
                                   //Connector to the Audio 1 input port of the Audio
                                   //Card
MOD1:PAR:SOURce4:ENAB ON           //set Generator Modulation to receive an external
                                   //signal
MOD1:PAR:FOR FM                    //sets Modulator to receive an external FM signal
MOD1:PAR:SOURce4:LEV 100kHz        //sets External Modulator Level to receive an
                                   //external signal at 100 kHz
```

9.3.4.B Route Demodulated Signal to Output Connector/ZIF Measurement Pin

```
RFR1:PORT ANT                      //selects ANT Connector as signal input connector
RFR1:FREQ 625MHz                   //sets RF Receiver to receive a 625 MHz frequency
                                   //input signal
RFR1:DEM FM                        //sets RF Receiver to receive and demodulate an
                                   //incoming FM signal.
RFR1:BAND 12.5kHz                  //sets RF Receiver to receive and process a 12.5 kHz
                                   //bandwidth signal
AUDIO2:PORT DEMOD                  //routes demodulated signal from RF Receiver to the
                                   //Audio 2 output port of audio card
ZIF1:AUDOUT 2,MEAS2                //routes output audio signal from the Audio 2 output
                                   //port of the Audio Card to ZIF Connector
                                   //Measurement Pin 2
```

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Chapter 10 - Intelligent Cable Assembly RIM Connector Control

10.1 INTRODUCTION

This chapter lists remote commands which are used to route signals to and from the Intelligent Cable Assembly RIM Connector pins. Some RIM Connector Remote Commands require signal routing configuration and/or the use of external adapter cable connections.

Refer to the following for assistance with configuring RIM Connector Remote Commands:

- 7200 Operation Manual, Appendix A - Pin-Out Tables, A.8, Intelligent Cable Assembly RIM Connector.
- 7200 Operation Manual, Fig. 6-17, Intelligent Cable Assembly Block Diagram.
- 7200 Operation Manual, section 6.3, Intelligent Cable Assembly.

10.2 RIM CONNECTOR REMOTE COMMANDS

10.2.1 RIM Connector - Analog Signal Routing

RIM<n>:ANALOG:ROUTe <x>,var
RIM<n>:ANALOG:ROUTe? <x>

Set Command:	Defines analog signal routing of RIM Connector.
Query Command:	Returns
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	RIM signal must be enclosed in “quotes”
Parameter:	Meas1 | Meas2 | Meas3 | Meas4 | GndTarget | GndTest2 | GndTest3 | GndTest4 | GndTest5 | GndTest6 | GndTest7 | GndTest8 | GndTest9 | GndTest10 | GndTest11 | GndTest12 | GndTest13 GndTest14 | GndTest15 | RimMeas7Host | RimMeas8Host | ExtPwrRtnTarget
Default Value:	n/a
Set/Query Format:	quoted string
Variable (var):	signal route end point
Default Value:	NONE
Meas1:	NONE | LOAD | MEAS1TARGET | MEAS9TARGET | MEAS13TARGET
Meas2:	NONE | LOAD | MEAS2TARGET | MEAS10TARGET | MEAS14TARGET
Meas3:	NONE | MEAS3TARGET | MEAS11TARGET | MEAS15TARGET | SPEAKER
Meas4:	NONE | MEAS4TARGET | MEAS12TARGET | MEAS16TARGET | SPEAKER
GndTest#:	GNDTEST_GND | GNDTEST_GND_TESTVOLTAGE | GNDTEST_NONE | GNDTEST_TESTVOLTAGE
RimMeas7Host:	RIMMEAS7HOST_GND_TESTVOLTAGE | RIMMEAS7HOST_RIMMEAS7TARGET
RimMeas8Host:	RIMMEAS8HOST_GND | RIMMEAS8HOST_RIMMEAS8TARGET
ExtPwrRtnTarget:	RIMTARGET_HOST | RIMTARGET_NONE
GndTarget:	RIMTARGET_HOST | RIMTARGET_NONE
Set/Query Format:	CPD | CRD
Set Example:	RIM1:ANALOG:ROUTe “Meas1”, LOAD Routes Measurement 1 Pin to LOAD.
Query Example:	RIM1:ANALOG:ROUTe? “Meas1” LOAD
NOTE	Meas1, Meas2, Meas3 and Meas4 support up to 4 end points (i.e., RIM1:ANALOG:ROUTe “Meas1”, MEAS1TARGET, MEAS9TARGET,LOAD).

10.2.2 RIM Connector - Ethernet - Enable Connection

RIM<n>:BUS:ETH:ENABle var
RIM<n>:BUS:ETH:ENABle?

Set Command:	Enables/disables RIM Connector Ethernet connection
Query Command:	Returns current state.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	RIM1:BUS:ETH:ENABle ON Enables Ethernet connection for RIM Connector.
Query Example:	RIM1:BUS:ETH:ENABle? 1

10.2.3 RIM Connector - Ethernet - Signal Routing

RIM<n>:BUS:ETH:ROUTe <x>,var
RIM<n>:BUS:ETH:ROUTe? <x>

Set Command:	Defines RIM Connector Ethernet host.
Query Command:	Returns current setting
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	Specifies RIM ethernet bus
Parameter:	eth0
Default Value:	eth0
Set/Query Format:	quoted string
Variable (var):	Ethernet Host name
Parameter:	ETHA | ETHB
Default Value:	ETHA
Set/Query Format:	CPD | CRD
Set Example:	RIM1:BUS:ETH:ROUTe “eth0”,ETHB Routes RIM Ethernet signal to RIM Connector B side ethernet pins.
Query Example:	RIM1:BUS:ETH:ROUTe? “eth0” ETHB

10.2.4 RIM Connector - Route Direction of Logic Signals

RIM<n>:LOGic:DIRection <x>,var

RIM<n>:LOGic:DIRection? <x>

Set Command:	Defines direction (var) of the specified logic signal <x>.	
Query Command:	Returns current setting for specified signal.	
<n>:	Specifies RIM Connector to which command is applied.	
Parameter:		1
Default Value:		1
Set/Query Format:		Integer
<x>:	logic signal	
Parameter:		GPIO0 | GPIO1 | GPIO2 | GPIO3 | GPIO4 | GPIO5 | GPIO6 | GPIO7 | OC0 | OC1 | OC10 | OC11 | OC12 | OC13 | OC14 | OC15 | OC2 | OC3 | OC4 | OC5 | OC6 | OC7 | OC8 | OC9 | TTLIn0 | TTLIn1 | TTLIn2 | TTLIn3 | TTLIn4 | TTLIn5 | TTLIn6 | TTLIn7 | TTLOut0 | TTLOut1 | TTLOut2 | TTLOut3 | TTLOut4 | TTLOut5 | TTLOut6 | TTLOut7
Set/Query Format:		quoted string
Variable (var):	signal direction	
GPIO Parameter:		IN | OUT
OC Parameter:		IN | OUT
TTL In Parameter:		IN
TTL Out Parameter:		OUT
Default Value:		IN
Set/Query Format:		CPD | CRD
Set Example:	RIM1:LOGic:DIRection “GPIO2”, OUT Routes RIM Assembly GPIO2 signal as an output signal.	
Query Example:	RIM1:LOGic:DIRection? “GPIO2” OUT	

10.2.5 RIM Connector - Signal Type

RIM<n>:LOGic:LEVEL? <x>

Query Command:	Returns the type of specified logic signal.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	logic signal
Parameter:	GPIO0 | GPIO1 | GPIO2 | GPIO3 | GPIO4 | GPIO5 | GPIO6 | GPIO7 | OC0 | OC1 | OC10 | OC11 | OC12 | OC13 | OC14 | OC15 | OC2 | OC3 | OC4 | OC5 | OC6 | OC7 | OC8 | OC9 | TTLIn0 | TTLIn1 | TTLIn2 | TTLIn3 | TTLIn4 | TTLIn5 | TTLIn6 | TTLIn7 | TTLOut0 | TTLOut1 | TTLOut2 | TTLOut3 | TTLOut4 | TTLOut5 | TTLOut6 | TTLOut7
Set/Query Format:	quoted string
Query Example:	RIM1:LOGic:LEVEL? “OC1” OPENCOLLECTOR

10.2.6 RIM Connector - High Output Voltage Level

RIM<n>:LOGic:LEVel:HIGH <x>, var <units>
RIM<n>:LOGic:LEVel:HIGH? <x>

Set Command:	Sets GPIO logic high output voltage.
Query Command:	Returns GPIO high output voltage setting.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	GPIO output signal group
Parameter:	Gpio0_3 | Gpio4_5 | Gpio6_7
where:	Gpio0_3 = applies to GPIO0, 1, 2 and 3
	Gpio4_5 = applies to GPIO4 and 5
	Gpio6_7 = applies to GPIO 6 and 7
Set/Query Format:	quoted string
Variable (var):	Output Level
Range:	-14.5 to +14.5 Volts
Default value:	3.3 V
Set/Query Format:	decimal
<units>:	nV | µV | mV | V
Default Units:	V
Set Example:	RIM1:LOGic:LEVel:HIGH "Gpio0_3",2 Sets GPIO 0, 1, 2 and 3 to output 2 volts.
Query Example:	RIM1:LOGic:LEVel:HIGH? "Gpio0_3" 2

10.2.7 RIM Connector - Low Output Voltage Level

RIM<n>:LOGic:LEVel:LOW <x>, var <units>

RIM<n>:LOGic:LEVel:LOW? <x>

Set Command:	Sets GPIO logic low output voltage.	
Query Command:	Returns GPIO low output voltage setting.	
<n>:	Specifies RIM Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	GPIO output signal group	
	Parameter:	Gpio0_3 | Gpio4_5 | Gpio6_7
	where:	Gpio0_3 = applies to GPIO0, 1, 2 and 3
		Gpio4_5 = applies to GPIO4 and 5
		Gpio6_7 = applies to GPIO 6 and 7
	Set/Query Format:	quoted string
Variable (var):	Output Level	
	Range:	-14.5 to +14.5 Volts
	Default value:	0 V
	Set/Query Format:	decimal
<units>:	nV | µV | mV | V	
	Default Units:	V
Set Example:	RIM1:LOGic:LEVel:LOW "Gpio0_3",1 Sets GPIO 0, 1, 2 and 3 to output 1 volt.	
Query Example:	RIM1:LOGic:LEVel:LOW? "Gpio0_3" 1	

10.2.8 RIM Connector - Input Voltage Threshold

RIM<n>:LOGic:LEVel:INTHresh <x>, var <units>

RIM<n>:LOGic:LEVel:INTHresh? <x>

Set Command:	Sets GPIO input logic voltage threshold	
Query Command:	Returns defined setting.	
<n>:	Specifies RIM Connector to which command is applied.	
	Parameter:	1
	Default Value:	1
	Set/Query Format:	Integer
<x>:	GPIO input signal group	
	Parameter:	Gpio0_3 | Gpio4_7
	where:	Gpio0_3 = applies to GPIO0, 1, 2 and 3
		Gpio4_5 = applies to GPIO4, 5, 6 and 7
	Set/Query Format:	quoted string
Variable (var):	Output Level	
	Range:	-14.5 to +14.5 Volts
	Default value:	1.65 V
	Set/Query Format:	decimal
<units>:	nV | µV | mV | V	
	Default Units:	V
Set Example:	RIM1:LOGic:LEVel:INTHresh “Gpio0_3”, 1.5 Sets GPIO0_3 Input Threshold to 1.5 Volts.	
Query Example:	RIM1:LOGic:LEVel:INTHresh? “Gpio0_3” 1.5	
NOTE	Input voltage less than threshold is logic low. Input voltage greater than threshold is logic high.	

10.2.9 RIM Connector - Logic Signal - Set Value

RIM<n>:LOGic:VALue <x>, par
RIM<n>:LOGic:VALue? <x>

Set Command:	Sets signal value for specified logic signal <x>.
Query Command:	Returns defined value for specified logic signal <x>.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
<x>:	logic signal
Parameter:	GPIO0 | GPIO1 | GPIO2 | GPIO3 | GPIO4 | GPIO5 | GPIO6 | GPIO7 | OC0 | OC1 | OC10 | OC11 | OC12 | OC13 | OC14 | OC15 | OC2 | OC3 | OC4 | OC5 | OC6 | OC7 | OC8 | OC9 | TTLIn0 | TTLIn1 | TTLIn2 | TTLIn3 | TTLIn4 | TTLIn5 | TTLIn6 | TTLIn7 | TTLOut0 | TTLOut1 | TTLOut2 | TTLOut3 | TTLOut4 | TTLOut5 | TTLOut6 | TTLOut7
Set/Query Format:	quoted string
Variable (var):	state
Parameter:	0 | 1
Default Value:	0
Set/Query Format:	numeric
Set Example:	RIM1:LOGic:VALue “TTLOut1”, 1 Sets value of logic signal on RIM TTL Out 1 pin to 1.
Query Example:	RIM1:LOGic:VALue? “TTLOut1” 1

10.2.10 RIM Connector - Modem Clock - Enable

RIM<n>:MODEM:CLOCK:ENABle var
RIM<n>:MODEM:CLOCK:ENABle?

Set Command:	Enables/disables Modem Clock
Query Command:	Returns current state.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	RIM1:MODEM:CLOCK:ENABle ON Enables Modem Clock for RIM Connector <n>.
Query Example:	RIM1:MODEM:CLOCK:ENABle? 1

10.2.11 RIM Connector - Modem - Clock Rate

RIM<n>:MODEM:CLOCK:RATE var <units>

RIM<n>:MODEM:CLOCK:RATE?

Set Command:	Sets data rate for RIM Connector modem clock.
Query Command:	Returns defined value.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	data rate value
Range:	2400 to 200,000
Default value:	0
Set/Query Format:	decimal
<units>:	kbps
Default Units:	kbps
Set Example:	RIM1:MODEM:CLOCK:RATE 5000bps Sets Modem clock on RIM 1 Connector to 5000 bits per second.
Query Example:	RIM1:MODEM:CLOCK:RATE? 5000
NOTE	This command is only required when the RIM is used as the clock.

10.2.12 RIM Connector - Modem - CTS Flow Control

RIM<n>:MODEM:CONFIG:CTS?

Query Command:	Returns status of RIM Connector Clear to Send signal.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Return Data	0 | 1
where:	0 = inactive
	1 = active
Query Example:	RIM1:MODEM:CONFIG:CTS? 1

10.2.13 RIM Connector - Modem - DCD Flow Control

RIM<n>:MODEM:CONFIG:DCD?

Query Command:	Returns status of RIM Connector Data Carrier Detect signal.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Return Data	0 | 1
where:	0 = inactive
	1 = active
Query Example:	RIM1:MODEM:CONFIG:DCD? 1

10.2.14 RIM Connector - Modem - DSR Flow Control

RIM<n>:MODEM:CONFIG:DSR?

Query Command:	Returns status of RIM Connector Data Set Ready signal.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Return Data	0 | 1
where:	0 = inactive
	1 = active
Query Example:	RIM1:MODEM:CONFIG:DSR? 1

10.2.15 RIM Connector - Modem - DTR Flow Control

RIM<n>:MODEM:CONFIG:DTR?

Query Command:	Returns status of RIM Connector Data Terminal Ready signal.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Return Data	0 | 1
where:	0 = inactive
	1 = active
Query Example:	RIM1:MODEM:CONFIG:DTR? 1

10.2.16 RIM Connector - Modem - RTS Flow Control

RIM<n>:MODEM:CONFIG:RTS?

Query Command:	Returns status of RIM Connector Request to Send signal.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Return Data	0 | 1
where:	0 = inactive
	1 = active
Query Example:	RIM1:MODEM:CONFIG:RTS? 1

10.2.17 RIM Connector - Modem - Receive Bytes

RIM<n>:MODEM:RECEIVE:BYTES?

Query Command:	Returns number of bytes received.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Query Data:	NR1
Range:	0 to 8355840
Query Example:	RIM1:MODEM:RECEIVE:BYTES? 912014

10.2.18 RIM Connector - Modem - Receive Edge

RIM<n>:MODEM:RECEIVE:EDGE var
RIM<n>:MODEM:RECEIVE:EDGE?

Set Command:	Sets receive edge of RIM Connector modem.
Query Command:	Returns defined setting.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	edge setting
Set/Query Format:	CPD | CRD
Parameter:	RISING | FALLING
Default Value:	RISING
Set Example:	RIM1:MODEM:RECEIVE:EDGE FALLING Sets Modem receive edge to Falling.
NOTE	The Receive Edge setting must match the clock edge of incoming data as it transitions into the RIM Connector.

10.2.19 RIM Connector - Modem - Receive File

RIM<n>:MODEM:RECEIVE:FILE var

RIM<n>:MODEM:RECEIVE:FILE?

Set Command:	Sets the file path/name of the RIM Connector modem receive data file.
Query Command:	Returns setting.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	transmit file path/file name
Set Format:	ascii string
Parameter:	receive data path/file name
Default Value:	“/tmp/modemRx”
Set Example:	RIM1:MODEM:RECEIVE:FILE “/tmp/modemRx” Writes receive data to /tmp/modemRx directory/file.
Query Example:	RIM1:MODEM:RECEIVE:FILE? “/tmp/modemRx”
NOTE	Receive path must be valid file path or command will fail. The default file “modemRx” is overwritten every time this command is sent.

10.2.20 RIM Connector - Modem - Receive Enable

RIM<n>:MODEM:RECEIVE:RUN var

RIM<n>:MODEM:RECEIVE:RUN?

Set Command:	Enables/disables RIM Connector Modem receive process.
Query Command:	Returns current state.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	RIM1:MODEM:RECEIVE:RUN ON Starts modem receive process.
Query Example:	RIM1:MODEM:RECEIVE:RUN? 1

10.2.21 RIM Connector - Modem - Transmit Bytes

RIM<n>:MODEM:TRANSMIT:BYTES?

Query Command:	Returns number of bytes transmitted by RIM Connector modem.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Query Data:	NR1
Range:	0 to 8355840
Query Example:	RIM1:MODEM:TRANSMIT:BYTES? 912014

10.2.22 RIM Connector - Modem - Transmit Edge

RIM<n>:MODEM:TRANSMIT:EDGE var
RIM<n>:MODEM:TRANSMIT:EDGE?

Set Command:	Sets transmit edge of RIM Connector modem.
Query Command:	Returns defined setting.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	edge setting
Set/Query Format:	CPD | CRD
Parameter:	RISING | FALLING
Default Value:	RISING
Set Example:	RIM1:MODEM:TRANSMIT:EDGE FALLING Sets Modem transmit edge to Falling.
Query Example:	RIM1:MODEM:TRANSMIT:EDGE? FALLING
NOTE	The Transmit Edge setting must match the clock edge of outgoing data as it transitions out of the RIM Connector.

10.2.23 RIM Connector - Modem - Transmit File

RIM<n>:MODEM:TRANSMIT:FILE var

RIM<n>:MODEM:TRANSMIT:FILE?

Set Command:	Sets the file path/file name of the RIM Connector modem transmit data file.
Query Command:	Returns setting.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	transmit file path/file name
Set Format:	ascii string
Parameter:	transmit data path/file name
Default Value:	“/USER/modemTx”
Set Example:	RIM1:MODEM:TRANSMIT:FILE “/USER/modemTx” Writes transmit data to /USER/modemTx directory/file.
Query Example:	RIM1:MODEM:TRANSMIT:FILE? “/USER/modemTx”
NOTE	Transmit path must be valid file path or command will fail. The default file “modemTx” is overwritten every time this command is sent.

10.2.24 RIM Connector - Modem - Transmit Run

RIM<n>:MODEM:TRANSMIT:RUN var

RIM<n>:MODEM:TRANSMIT:RUN?

Set Command:	Enables/disables RIM Connector modem transmit process.
Query Command:	Returns current state.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	state
Parameter:	OFF | ON | 0 | 1
Default Value:	OFF
Set/Query Format:	Boolean
Set Example:	RIM1:MODEM:TRANSMIT:RUN ON Starts modem transmit process.
Query Example:	RIM1:MODEM:TRANSMIT:RUN? 1

10.2.25 RIM Connector - Trigger Delay

RIM<n>:WFTRIGGER:TDELay var <units>
RIM<n>:WFTRIGGER:TDELay? <units>

Set Command:	Defines Trigger delay for RIM Connector.
Query Command:	Returns defined variable.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	trigger delay
Range:	
Units:	ps | ns | µs | ms | s | min
Default Value:	0
Set/Query Format:	CPD | CRD
Set Example:	RIM1:WFTRIGGER:TDELay 10s Sets trigger delay of RIM Connector to 10 seconds.
Query Example:	RIM1:WFTRIGGER:TDELay? s 10

10.2.26 RIM Connector - Trigger State

RIM<n>:WFTRIGGER:STATus var
RIM<n>:WFTRIGGER:STATus?

Set Command:	Defines Trigger state for RIM Connector.
Query Command:	Returns defined variable.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer
Variable (var):	trigger state
Parameter:	UNAVAILABLE | TRIGGERARMED | TRIGGERIDLE
Default Value:	UNAVAILABLE
Set/Query Format:	CPD | CRD
Set Example:	RIM1:WFTRIGGER:STATus TRIGGERARMED Arms Trigger of RIM Connector.
Query Example:	RIM1:WFTRIGGER:STATus? TRIGGERARMED

10.2.27 RIM Connector - Version of Printed Circuit Board

RIM<n>:VERSION:BOARD?

Query Command:	Returns version of RIM Connector Printed Circuit Board
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer

10.2.28 RIM Connector - Version of FPGA

RIM<n>:VERSION:FPGA?

Query Command:	Returns version of RIM Connector FPGA.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer

10.2.29 RIM Connector - Serial Number

RIM<n>:VERSION:SERial?

Query Command:	Returns serial number of RIM Connector.
<n>:	Specifies RIM Connector to which command is applied.
Parameter:	1
Default Value:	1
Set/Query Format:	Integer

Chapter 11 - IQ Record-Playback Remote Commands

11.1 ENABLE RECORD-PLAYBACK FUNCTION

11.1.1 IQ Record-Playback - Enable Function

RP:ENABle var
RP:ENABle?

Set Command:	Enables/disables IQ Record - Playback function.	
Query Command:	Returns defined variable.	
Variable (var):	state	
Parameter:		OFF | ON | 0 | 1
Default Value:		OFF
Set/Query Format:		Boolean
Set Example:	RP:ENABle ON Enables IQ Record - Playback function.	
Query Example:	RP:ENABle? 1	
NOTE	When IQ Record - Playback function is enabled the Receiver and RF Generator parameters are updated to IQ Record - Playback default values.	

11.2 RECORD FUNCTION REMOTE COMMANDS

11.2.1 IQ Record - Receive Frequency

RP:RECord:FREQuency var
RP:RECord:FREQuency?

Set Command:	Defines frequency of receive signal to be recorded.
Query Command:	Returns defined variable.
Variable (var):	real value
Range:	1.0 MHz to 2.6 GHz
Default Value:	RF Receiver setting
Units:	Hz
Set/Query Format:	NR1
Set Example:	RP:RECord:FREQuency 210000000 Sets frequency to 2.1 GHz.
Query Example:	RP:RECord:FREQuency? 210000000
NOTE	This command over-rides RFReceiver<n>:FREQuency command when IQ Record-Playback is enabled (RP:ENABle ON).

11.2.2 IQ Record - Input Connector

RP:RECord:PORT var
RP:RECord:PORT?

Set Command:	Selects IQ Record input connector.
Query Command:	Returns defined variable.
Variable (var):	input port
Parameter:	ANT | TR
Default Value:	RF Receiver setting
Set/Query Format:	CPD | CRD
Set Example:	RP:RECord:PORT ANT Selects ANT Connector as source of recorded signal.
Query Example:	RP:RECord:PORT? ANT
NOTE	This command over-rides RFReceiver<n>:PORT command when IQ Record-Playback is enabled (RP:ENABle ON).

11.2.3 IQ Record - Record Incoming Signal

RP:RECord:STARt ON

Set Command:	Sending command initiates Receiver IQ Record function.
Set Example:	RP:RECord:STARt ON Enables IQ Record function.
NOTE	Progress of record function can be checked by sending RP:RECord:PROGress? command.

11.2.4 IQ Record - Reference Level

RP:RECord:RLEVel var
RP:RECord:RLEVel?

Set Command:	Defines reference level for Receiver IQ Record function.
Query Command:	Returns defined variable.
Variable (var):	reference value
ANT Parameter:	-70dBm | -50dBm | -40dBm | -20dBm | -10dBm | 0dBm | +10dBm
Default Value:	RF Receiver setting
T/R Parameter:	-10dBm | 0dBm | 20dBm | 30dBm | 40dBm | 50dBm
Default Value:	RF Receiver setting
Set/Query Format:	CPD | CRD
Set Example:	RP:RECord:RLEVel 0dBm Sets Receiver reference level to 0.0 dBm.
Query Example:	RP:RECord:RLEVel? 0
NOTE	This command over-rides RFReceiver<n>:REFerence:LEVel command when IQ Record-Playback is enabled (RP:ENABle ON).

11.2.5 IQ Record - Record Status

RP:RECord:PROGress?

Query Command:	Returns completion status of recording process as a percent.
Query Example:	RP:RECord:PROGress? 45 Indicates recording process is 45% complete.

11.2.6 IQ Record - Record Time

RP:RECord:RTIMe var
RP:RECord:RTIMe?

Set Command:	Defines the length of time RF Receiver records the incoming signal.
Query Command:	Returns defined variable.
Variable (var):	range value
Range:	1 ms to 100 s
Default Value:	1.0 s
units:	seconds
Set/Query Format:	CPD | CRD
Set Example:	RP:RECord:RTIMe 10 Sets Receiver to record incoming signal for 10 seconds.
Query Example:	RP:RECord:RTIMe? 10

11.2.7 IQ Record - Sample Rate

RP:RECord:SRATE var

RP:RECord:SRATE?

Set Command:	Defines sampling rate used by Receiver to record incoming signal.	
Query Command:	Returns defined variable.	
Variable (var):	data rate	
Range:		1 Hz to 80 MHz
Default Value:		10000
Set/Query Format:		NR1
Unit:		Hz
Set Example:	RP:RECord:SRATE 1000000 Sets sampling rate of to 1000000 Hz.	
Query Example:	RP:RECord:SRATE? 1000000	

11.3 PLAYBACK FUNCTION REMOTE COMMANDS

11.3.1 IQ Playback - Frequency

RP:PLAY:FREQuency var
RP:PLAY:FREQuency?

Set Command:	Defines frequency at which the RF Generator outputs the recorded IQ Signal.	
Query Command:	Returns defined variable.	
Variable (var):	frequency value	
Range:		1.0 MHz to 2.6 GHz
Default Value:		RF Generator Setting
Units:		Hz
Set/Query Format:		NR1
Set Example:	RP:PLAY:FREQuency 825625000 Sets RF Generator to generate the recorded IQ Signal at 825.625 MHz.	
Query Example:	RP:PLAY:FREQuency? 825625000	
NOTE	This command over-rides RFGenerator<n>:FREQuency command when IQ Record-Playback is enabled (RP:ENABle ON).	

11.3.2 IQ Playback - Level

RP:PLAY:LEVel var
RP:PLAY:LEVel?

Set Command:	Defines level at which the RF Generator outputs the recorded IQ Signal.	
Query Command:	Returns defined variable.	
Variable (var):	level value	
T/R Range:		-130.0 to -30.0 dBm
GEN Range:		-110.0 to +10.0 dBm
Units:		dBm
T/R Default Value:		RF Generator Setting
GEN Default Value:		RF Generator Setting
Set/Query Format:		Decimal
Set Example:	RP:PLAY:LEVel -45 Sets RF Generator to output the IQ Signal at -45 dBm.	
Query Example:	RP:PLAY:LEVel? -45	
NOTE	This command over-rides RFGenerator<n>:LEVel command when IQ Record-Playback is enabled (RP:ENABle ON).	

11.3.3 Playback - Playback Mode

RP:PLAY:MODe var
RP:PLAY:MODe?
RP:PLAY:MODe:LIST?

Set Command:	Defines the output mode of the IQ Signal.
Query Command:	Returns defined variable.
List Command:	Returns valid play back modes of operation.
Variable (var):	playback mode
Parameter:	CONTINUOUS | SINGLE: SW
Default Value:	CONTINUOUS
Set/Query Format:	CPD | CRD
Set Example:	RP:PLAY:MODe SINGLE: SW Sets IQ waveform to playback in a single burst.
Query Example:	RP:PLAY:MODe? SINGLE: SW

11.3.4 Playback - Output Connector

RP:PLAY:PORT var
RP:PLAY:PORT?

Set Command:	Selects output connector to which the recorded IQ signal is sent as a outgoing signal.
Query Command:	Returns defined variable.
Variable (var):	output port
Parameter:	GEN | TR
Default Value:	RF Generator Setting
Set/Query Format:	CPD | CRD
Set Example:	RP:PLAY:PORT GEN Routes the recorded IQ signal to the GEN connector.
Query Example:	RP:PLAY:PORT? GEN
NOTE	This command over-rides RFGenerator<n>:PORT command when IQ Record-Playback is enabled (RP:ENABle ON).

11.3.5 Playback - Playback State

RP:PLAY:STAte var

RP:PLAY:STAte?

Set Command:	Sets playback state of recorded IQ signal.
Query Command:	Returns defined variable or play back state.
Variable (var):	playback state
Set Parameter:	ARMED | STOP
Query Data:	ARMED | IDLE | LOADING | PLAYING | STOP | BUSY
Default Value:	n/a
Set/Query Format:	CPD | CRD
Set Example:	RP:PLAY:STAte ARMED Plays the recorded IQ signal.
Query Example:	RP:PLAY:STAte? ARMED

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