Electromagnetic Compatibility:
For continued EMC compliance, all external cables must be shielded and three meters or less in length.

Nomenclature Statement:
In this manual, 8800 / 8800S, Test Set or Unit refers to the 8800 / 8800S Digital Radio Test System.

DFARS/Restricted Rights Notices
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SAFETY FIRST: TO ALL OPERATIONS PERSONNEL

REFER ALL SERVICING OF UNIT TO QUALIFIED TECHNICAL PERSONNEL.  THIS UNIT CONTAINS NO OPERATOR SERVICEABLE PARTS.

WARNING: USING THIS EQUIPMENT IN A MANNER NOT SPECIFIED BY THE ACCOMPANYING DOCUMENTATION MAY IMPAIR THE SAFETY PROTECTION PROVIDED BY THE EQUIPMENT.

CASE, COVER OR PANEL REMOVAL

Opening the Case Assembly exposes the operator to electrical hazards that can result in electrical shock or equipment damage. Do not operate this Test Set with the Case Assembly open.

SAFETY IDENTIFICATION IN TECHNICAL MANUAL

This manual uses the following terms to draw attention to possible safety hazards that may exist when operating or servicing this equipment.

CAUTION:  THIS TERM IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN EQUIPMENT OR PROPERTY DAMAGE (E.G., FIRE).

WARNING:  THIS TERM IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN PERSONAL INJURY OR DEATH.

SAFETY SYMBOLS IN MANUALS AND ON UNITS

⚠️ CAUTION: Refer to accompanying documents.  (This symbol refers to specific CAUTIONS represented on the unit and clarified in the text.)

⚡️ AC OR DC TERMINAL: Terminal that may supply or be supplied with AC or DC voltage.

 niệm DC TERMINAL: Terminal that may supply or be supplied with DC voltage.

💡 AC TERMINAL: Terminal that may supply or be supplied with AC or alternating voltage.

🔥 HOT SURFACE: This surface may be hot to the touch.

EQUIPMENT GROUNDING PRECAUTION

Improper grounding of equipment can result in electrical shock.

USE OF PROBES

Check the specifications for the maximum voltage, current and power ratings of any connector on the Test Set before connecting it with a probe from a terminal device. Be sure the terminal device performs within these specifications before using it for measurement, to prevent electrical shock or damage to the equipment.

POWER CORDS

Power cords must not be frayed, broken nor expose bare wiring when operating this equipment.

USE RECOMMENDED FUSES ONLY

Use only fuses specifically recommended for the equipment at the specified current and voltage ratings.

INTENDED USE

The 8800 / 8800S is intended for indoor use only and should not be subjected to conditions which cause water or other liquids to collect on the Touch Screen Display.

INTERNAL BATTERY

This unit contains a Lithium Ion Battery, serviceable only by a qualified technician.

CAUTION: SIGNAL GENERATORS CAN BE A SOURCE OF ELECTROMAGNETIC INTERFERENCE (EMI) TO COMMUNICATION RECEIVERS. SOME TRANSMITTED SIGNALS CAN CAUSE DISRUPTION AND INTERFERENCE TO COMMUNICATION SERVICES OUT TO A DISTANCE OF SEVERAL MILES. USERS OF THIS EQUIPMENT SHOULD SCRUTINIZE ANY OPERATION THAT RESULTS IN RADIATION OF A SIGNAL (DIRECTLY OR INDIRECTLY) AND SHOULD TAKE NECESSARY PRECAUTIONS TO AVOID POTENTIAL COMMUNICATION INTERFERENCE PROBLEMS.
PREFACE

SCOPE
This Manual contains Instructions for operating the 8800 / 8800S through a remote interface. It is strongly recommended that the programmer be thoroughly familiar with the operational functions of the Unit and this manual before attempting to remotely configure the 8800 / 8800S.

ORGANIZATION
The Manual is composed of the following Chapters:

CHAPTER 1 - REMOTE OPERATION CONFIGURATION
Describes how to configure the 8800 / 8800S for remote operation.

CHAPTER 2 - REMOTE OPERATION COMMANDS
Identifies and explains the Remote Operation commands.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>General</td>
<td>1-1</td>
</tr>
<tr>
<td>1-3</td>
<td>Remote Operation Configuration</td>
<td>1-1</td>
</tr>
<tr>
<td>2-1</td>
<td>General</td>
<td>2-1</td>
</tr>
<tr>
<td>2-2</td>
<td>Remote Operation Command Table</td>
<td>2-3</td>
</tr>
<tr>
<td>2-3</td>
<td>Remote Operation Commands</td>
<td>2-33</td>
</tr>
<tr>
<td></td>
<td>AF Counter</td>
<td>2-33</td>
</tr>
<tr>
<td></td>
<td>AGC</td>
<td>2-36</td>
</tr>
<tr>
<td></td>
<td>Audio Level Meter</td>
<td>2-37</td>
</tr>
<tr>
<td></td>
<td>C4FSK</td>
<td>2-41</td>
</tr>
<tr>
<td></td>
<td>Calibration</td>
<td>2-59</td>
</tr>
<tr>
<td></td>
<td>DCS</td>
<td>2-60</td>
</tr>
<tr>
<td></td>
<td>Demod</td>
<td>2-61</td>
</tr>
<tr>
<td></td>
<td>Deviation Meter / Modulation Meter</td>
<td>2-63</td>
</tr>
<tr>
<td></td>
<td>Digital</td>
<td>2-66</td>
</tr>
<tr>
<td></td>
<td>Distortion Meter</td>
<td>2-79</td>
</tr>
<tr>
<td></td>
<td>DMM</td>
<td>2-82</td>
</tr>
<tr>
<td></td>
<td>External Audio Input</td>
<td>2-86</td>
</tr>
<tr>
<td></td>
<td>External Audio Output</td>
<td>2-87</td>
</tr>
<tr>
<td></td>
<td>External RF Power</td>
<td>2-88</td>
</tr>
<tr>
<td></td>
<td>Frequency Find</td>
<td>2-94</td>
</tr>
<tr>
<td></td>
<td>Frequency List</td>
<td>2-95</td>
</tr>
<tr>
<td></td>
<td>Function Generator</td>
<td>2-96</td>
</tr>
<tr>
<td></td>
<td>Normalize</td>
<td>2-97</td>
</tr>
<tr>
<td></td>
<td>Options</td>
<td>2-98</td>
</tr>
<tr>
<td></td>
<td>Oscilloscope</td>
<td>2-99</td>
</tr>
<tr>
<td></td>
<td>Receiver</td>
<td>2-102</td>
</tr>
<tr>
<td></td>
<td>RF Error Meter</td>
<td>2-103</td>
</tr>
<tr>
<td></td>
<td>RF Generator</td>
<td>2-105</td>
</tr>
<tr>
<td></td>
<td>RF Power Meter</td>
<td>2-108</td>
</tr>
<tr>
<td></td>
<td>RNS Meter</td>
<td>2-113</td>
</tr>
<tr>
<td></td>
<td>RSSI Meter</td>
<td>2-117</td>
</tr>
<tr>
<td></td>
<td>Screens</td>
<td>2-120</td>
</tr>
<tr>
<td></td>
<td>Scripting</td>
<td>2-122</td>
</tr>
<tr>
<td></td>
<td>Setup</td>
<td>2-126</td>
</tr>
<tr>
<td></td>
<td>Signaling</td>
<td>2-128</td>
</tr>
<tr>
<td></td>
<td>Sinad Meter</td>
<td>2-138</td>
</tr>
<tr>
<td></td>
<td>SNR Meter</td>
<td>2-141</td>
</tr>
<tr>
<td></td>
<td>Speaker</td>
<td>2-143</td>
</tr>
<tr>
<td></td>
<td>Spectrum Analyzer</td>
<td>2-144</td>
</tr>
<tr>
<td></td>
<td>Tracking Generator</td>
<td>2-148</td>
</tr>
<tr>
<td></td>
<td>Upconverter</td>
<td>2-150</td>
</tr>
<tr>
<td></td>
<td>VSWR Meter</td>
<td>2-155</td>
</tr>
</tbody>
</table>
1-1. GENERAL
The 8800 / 8800S can be controlled through a serial interface.

1-2. REMOTE OPERATION CONFIGURATION
The 8800 / 8800S can be configured for remote operation using an Ethernet connection.

This is an example configuration for a static address on the PC utilizing an Ethernet Crossover Cable.

1-2. REMOTE OPERATION CONFIGURATION (cont)

2. Select ‘Use the following IP address’ and set the IP Address to "10 10 10 1" and the Subnet Mask to "255 255 255 0." Select "OK."

3. Connect Ethernet Crossover Cable to the 8800 / 8800S ETHERNET Connector and the Ethernet Connector on the PC.
1-2. **REMOTE OPERATION CONFIGURATION** (cont)

4. Select the Utilities Function Tab to display the Utilities Dropdown selections. Select the “Software” icon to display the Software extended icons. Select the “System” icon to display the System Tile Window. Select the Remote icon.

5. Select the following field settings:
   - **Port**: Ethernet
   - **IP Address**: 10.10.10.193
   - **Subnet Mask**: 255.255.0.0
   - **Network Mode**: Static IP

6. Open the ‘Command Shell’ on the PC and ping the IP address of the PC (10 10 10 1) to test the connection. Ping the IP address of the 8800 / 8800S (10 10 10 193) to test the connection.
1-2. REMOTE OPERATION CONFIGURATION (cont)

7. Open remote program (PuTTY) and set the IP Address to “10 10 10 193” Select ‘Terminal.’

8. Set the fields as shown and select “Open.”
1-2. REMOTE OPERATION CONFIGURATION (cont)

9. The Remote Window is displayed on the PC. Remote commands can now be issued to the 8800 / 8800S.
CHAPTER 2 - REMOTE OPERATION COMMANDS

2-1. GENERAL

All commands and data are printable ASCII characters.

Commands can be entered in lowercase, uppercase or a combination of uppercase and lowercase letters.

All commands must be terminated in some manner. The commands that are written to the 8800 / 8800S must be terminated with a Carriage Return/Line Feed and EOI asserted on the last byte.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF Counter</td>
<td>2-3</td>
</tr>
<tr>
<td>AGC</td>
<td>2-6</td>
</tr>
<tr>
<td>Audio Level Meter</td>
<td>2-7</td>
</tr>
<tr>
<td>C4FSK</td>
<td>2-11</td>
</tr>
<tr>
<td>Calibration</td>
<td>2-29</td>
</tr>
<tr>
<td>DCS</td>
<td>2-30</td>
</tr>
<tr>
<td>Demod</td>
<td>2-31</td>
</tr>
<tr>
<td>Deviation Meter / Modulation Meter</td>
<td>2-33</td>
</tr>
<tr>
<td>Digital</td>
<td>2-48</td>
</tr>
<tr>
<td>Distortion Meter</td>
<td>2-49</td>
</tr>
<tr>
<td>DMM</td>
<td>2-52</td>
</tr>
<tr>
<td>External Audio Input</td>
<td>2-56</td>
</tr>
<tr>
<td>External Audio Output</td>
<td>2-57</td>
</tr>
<tr>
<td>External RF Power</td>
<td>2-58</td>
</tr>
<tr>
<td>Frequency Find</td>
<td>2-64</td>
</tr>
<tr>
<td>Frequency List</td>
<td>2-65</td>
</tr>
<tr>
<td>Function Generator</td>
<td>2-66</td>
</tr>
<tr>
<td>Normalize</td>
<td>2-67</td>
</tr>
<tr>
<td>Options</td>
<td>2-68</td>
</tr>
<tr>
<td>Oscilloscope</td>
<td>2-69</td>
</tr>
<tr>
<td>Receiver</td>
<td>2-72</td>
</tr>
<tr>
<td>RF Error Meter</td>
<td>2-73</td>
</tr>
<tr>
<td>RF Generator</td>
<td>2-75</td>
</tr>
<tr>
<td>RF Power Meter</td>
<td>2-76</td>
</tr>
<tr>
<td>RNS Meter</td>
<td>2-83</td>
</tr>
<tr>
<td>RSSI Meter</td>
<td>2-87</td>
</tr>
<tr>
<td>Screens</td>
<td>2-90</td>
</tr>
<tr>
<td>Scripting</td>
<td>2-92</td>
</tr>
<tr>
<td>Setup</td>
<td>2-96</td>
</tr>
<tr>
<td>Signaling</td>
<td>2-98</td>
</tr>
<tr>
<td>Sinad Meter</td>
<td>2-110</td>
</tr>
<tr>
<td>SNR Meter</td>
<td>2-113</td>
</tr>
<tr>
<td>Speaker</td>
<td>2-115</td>
</tr>
</tbody>
</table>
2-1. GENERAL (cont)

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum Analyzer</td>
<td>2-116</td>
</tr>
<tr>
<td>Tracking Generator</td>
<td>2-120</td>
</tr>
<tr>
<td>Upconverter</td>
<td>2-122</td>
</tr>
<tr>
<td>VSWR Meter</td>
<td>2-127</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS

AF Counter

:agc:alarm:high:limit <Arg0>
:agc:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return: \( \text{Arg0} \)
15.0 to 20000.0

:agc:alarm:high:state <Arg0>
:agc:alarm:high:state?
This command sets/returns the Alarm high limit state.
Numeric/Return: \( \text{Arg0} \)
0 OFF
1 ON

:agc:alarm:low:limit <Arg0>
:agc:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return: \( \text{Arg0} \)
15.0 to 20000.0

:agc:alarm:low:state <Arg0>
:agc:alarm:low:state?
This command sets/returns the Alarm low limit state.
Numeric/Return: \( \text{Arg0} \)
0 OFF
1 ON

:agc:average <Arg0>
:agc:average?
This command sets/returns the number of readings to average.
Numeric/Return: \( \text{Arg0} \)
1 to 99

:agc:filter <Arg0>
:agc:filter?
This command sets/returns the input filter type.
Numeric/Return: \( \text{Arg0} \)
0 None
1 300 Hz LPF
2 3 kHz LPF
3 5 kHz LPF
4 15 kHz LPF
5 CMESS BPF
6 CCITT BPF
7 300 Hz HPF
8 300 to 3000 Hz BPF
9 300 to 5000 Hz BPF
10 300 to 20000 Hz BPF
2-2. REMOTE OPERATION COMMANDS (cont)

AF Counter (cont)

:agc:range?
This command returns the AF Counter range information.
Numeric/Return:  
0  Auto
1  OFF
2  ON

:agc:range:auto
This command sets the AF Counter autorange state to Auto.

:agc:range:manual
This command sets the AF Counter autorange state to Manual.

:agc:range:state?
This command returns the AF Counter autorange state.
Numeric/Return:  
0  Auto
1  Manual
2  Manual - Waiting Update

:agc:reading:avg?
This command returns the AF Counter reading averaged value.
Numeric/Return: 0.0 to 20000.0 Hz

:agc:reading:cal?
This command sets/returns the AF Counter reading with no statistics.
Numeric/Return: 0.0 to 20000.0 Hz

:agc:reading:clear
This command clears the AF Counter reading.

:agc:reading:max?
This command returns the AF Counter reading maximum value.
Numeric/Return: 0.0 to 20000.0 Hz

:agc:reading:min?
This command returns the AF Counter reading minimum value.
Numeric/Return: 0.0 to 20000.0 Hz

:agc:resolution <Arg0>
This command sets the resolution for the reading.
Numeric/Return:  
Arg0
1  1 Hz
2  0.1 Hz
2-2. REMOTE OPERATION COMMANDS (cont)

AF Counter (cont)

:agc:source <Arg0>
:agc:source?
This command sets/returns the signal source to count.

Numeric/Return: \textbf{Arg0}

0 \hspace{1em} \text{EXT_AUD_IN_2_AFCOUNTER}
1 \hspace{1em} \text{DEMOD_2_AFCOUNTER}
2 \hspace{1em} \text{MODULATION_2_AFCOUNTER}
3 \hspace{1em} \text{FGEN_2_AFCOUNTER}

:agc:state <Arg0>
:agc:state?
This command sets/returns the AF Counter state.

Numeric/Return: \textbf{Arg0}

0 \hspace{1em} \text{OFF}
1 \hspace{1em} \text{ON}
2-2. REMOTE OPERATION COMMANDS (cont)

**AGC**

:agc:mode <Arg0>
:agc:mode?

This command sets/returns the AGC Mode.

Numeric/Return: \(\text{Arg0}\)

- 0 Manual
- 1 Auto

:agc:rfamp_mode <Arg0>
:agc:rfamp_mode?

This command sets/returns the Receiver input preamp state.

Numeric/Return: \(\text{Arg0}\)

- 0 Auto
- 1 OFF
- 2 ON

:agc:state <Arg0>
:agc:state?

This command sets/returns the Receiver AGC state.

Numeric/Return: \(\text{Arg0}\)

- 0 OFF
- 1 ON

:agc:tos <Arg0>
:agc:tos?

This command sets/returns the Top of Scale adjustment for Manual AGC Mode.

Numeric/Return: \(\text{Arg0}\)

-90.0 to 10.0 dBm
2-2. REMOTE OPERATION COMMANDS (cont)

Audio Level Meter

:alm:alarm:high:limit <Arg0>
:alm:alarm:high:limit?

This command sets/returns the Alarm high limit value.
Numeric/Return:  
  Arg0
  0.0 to 50.0

:alm:alarm:high:state <Arg0>
:alm:alarm:high:state?

This command sets/returns the Alarm high limit state.
Numeric/Return:  
  Arg0
  0  OFF
  1  ON

:alm:alarm:low:limit <Arg0>
:alm:alarm:low:limit?

This command sets/returns the Alarm low limit value.
Numeric/Return:  
  Arg0
  0.0 to 50.0

:alm:alarm:low:state <Arg0>
:alm:alarm:low:state?

This command sets/returns the Alarm low limit state.
Numeric/Return:  
  Arg0
  0  OFF
  1  ON

:alm:average <Arg0>
:alm:average?

This command sets/returns the average size.
Numeric/Return:  
  Arg0
  1 to 99

:alm:coupling <Arg0>
:alm:coupling?

This command sets/returns the signal coupling.
Numeric/Return:  
  Arg0
  0  AC
  1  DC
  2  GND
2-2. REMOTE OPERATION COMMANDS (cont)

Audio Level Meter (cont)

:alm:detector <Arg0>
:alm:detector?
This command sets/returns the detector type.
Numeric/Return: \[ Arg0 \]
0 RMS
1 PEAK PLUS
2 PEAK MINUS
3 PK2PK

:alm:dvm:overload?
This command returns the overload status of DVM Connector.
Numeric/Return: 0 No Overload
1 Overload

:alm:range:dbuv:auto
This command sets the Audio Level autorange state to Auto.
:alm:range:dbuv:manual
This command sets the Audio Level autorange state to Manual.
:alm:range:dbuv:range?
This command returns the Audio Level range information.
:alm:range:dbuv:state?
This command returns the Audio Level autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:alm:range:dbm:auto
This command sets the Audio Level autorange state to Auto.
:alm:range:dbm:manual
This command sets the Audio Level autorange state to Manual.
:alm:range:dbm:range?
This command returns the Audio Level range information.
:alm:range:dbm:state?
This command returns the Audio Level autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:alm:range:mv:auto
This command sets the Audio Level autorange state to Auto.
:alm:range:mv:manual
This command sets the Audio Level autorange state to Manual.
2-2. REMOTE OPERATION COMMANDS (cont)

Audio Level Meter (cont)

:alm:range:mv:range?
This command returns the Audio Level range information.

:alm:range:mv:state?
This command returns the Audio Level autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:alm:range:volt:auto
This command sets the Audio Level autorange state to Auto.

:alm:range:volt:manual
This command sets the Audio Level autorange state to Manual.

:alm:range:volt:range?
This command returns the Audio Level range information.

:alm:range:volt:state?
This command returns the Audio Level autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:alm:range:watts:auto
This command sets the Audio Level autorange state to Auto.

:alm:range:watts:manual
This command sets the Audio Level autorange state to Manual.

:alm:range:watts:range?
This command returns the Audio Level range information.

:alm:range:watts:state?
This command returns the Audio Level autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:alm:reading:avg?
This command returns the Audio Level Meter reading with averaged value.
Numeric/Return: 0.0 to 50.0

:alm:reading:clear
This command clears the meter readings.

:alm:reading:max?
This command returns the Audio Level Meter reading maximum value.
Numeric/Return: 0.0 to 50.0
2-2. REMOTE OPERATION COMMANDS (cont)

Audio Level Meter (cont)

:alm:reading:min?
This command returns the Audio Level Meter reading minimum value.
Numeric/Return: 0.0 to 50.0

:alm:reading:val?
This command returns the Audio Level Meter average value.
Numeric/Return: 0.0 to 50.0

:alm:scale <Arg0>
:alm:scale?
This command sets/returns the hardware input scaling for the DVM connector.
Numeric/Return: 
0 2 V max
1 40 V max

:alm:setrelative
This command sets the Audio Level Relative value and changes units to dBr.

:alm:source <Arg0>
:alm:source?
This command sets/returns the input signal selection.
Numeric/Return: 
0 AUD IN
1 DVM

:alm:state <Arg0>
:alm:state?
This command sets/returns the Audio Level Meter state.
Numeric/Return: 
0 Disable
1 Enable

:alm:units <Arg0>
:alm:units?
This command sets/returns the current units setting.
Numeric/Return: 
0 V
1 mV
2 dBµV
3 dBm
4 W
5 dBr

:alm:zero
:alm:zero?
This command activates/returns the DC offset compensation for the DVM input.
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK

:c4fsk:rx:average:ber <Arg0> <Arg1>
:c4fsk:rx:average:ber?
This command sets/returns the number of readings to average.
Numeric/Return:  
\[ \text{Arg0} \]
0  P25
1  DMR
2  dPMR
3  ARIBT98
4  NXDN

\[ \text{Arg1} \]
1 to 99

:c4fsk:rx:average:carrierfeed <Arg0>
:c4fsk:rx:average:carrierfeed?
This command sets/returns the number of readings to average.
Numeric/Return:  
\[ \text{Arg0} \]
1 to 99

:c4fsk:rx:average:carrierfeed:clear <Arg0>
:c4fsk:rx:average:carrierfeed:val?
This command clears the current Freq Error Minimum, Maximum and Average.
Numeric/Return:  
0  Average
1  Maximum
2  Minimum

:c4fsk:rx:average:dev <Arg0> <Arg1>
:c4fsk:rx:average:dev?
This command sets/returns the number of readings to average.
Numeric/Return:  
\[ \text{Arg0} \]
0  P25
1  DMR
2  dPMR
3  ARIBT98
4  NXDN

\[ \text{Arg1} \]
1 to 99
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:rx:average:freq <Arg0> <Arg1>
:c4fsk:rx:average:freq?

This command sets/returns the number of readings to average.

Numeric/Return: 

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>

Arg1

1 to 99

:c4fsk:rx:average:freq2 <Arg0> <Arg1>
:c4fsk:rx:average:freq2?

This command sets/returns the number of readings to average.

Numeric/Return: 

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>

Arg1

1 to 99

:c4fsk:rx:average:freq_err <Arg0> <Arg1>
:c4fsk:rx:average:freq_err?

This command sets/returns the number of readings to average.

Numeric/Return: 

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>

Arg1

1 to 99
2-2. REMOTE OPERATION COMMANDS (cont)

**C4FSK (cont)**

```plaintext
:c4fsk:rx:average:mod_fid <Arg0> <Arg1>
:c4fsk:rx:average:mod_fid?

This command sets/returns the number of readings to average.

Numeric/Return:

- **Arg0**
  - 0: P25
  - 1: DMR
  - 2: dPMR
  - 3: ARIBT98
  - 4: NXDN

- **Arg1**
  - 1 to 99

:c4fsk:rx:average:pwr <Arg0> <Arg1>
:c4fsk:rx:average:pwr?

This command sets/returns the number of readings to average.

Numeric/Return:

- **Arg0**
  - 0: P25
  - 1: DMR
  - 2: dPMR
  - 3: ARIBT98
  - 4: NXDN

- **Arg1**
  - 1 to 99

:c4fsk:rx:average:time <Arg0> <Arg1>
:c4fsk:rx:average:time?

This command sets/returns the number of readings to average.

Numeric/Return:

- **Arg0**
  - 0: P25
  - 1: DMR
  - 2: dPMR
  - 3: ARIBT98
  - 4: NXDN

- **Arg1**
  - 1 to 99

:c4fsk:rx:ber:clear <Arg0>

This command clears the current BER minimum, maximum and average settings.

Numeric/Return:

- **Arg0**
  - 0: P25
  - 1: DMR
  - 2: dPMR
  - 3: ARIBT98
  - 4: NXDN
```
2-2. REMOTE OPERATION COMMANDS (cont)

**C4FSK (cont)**

`:c4fsk:rx:berstate <Arg0>`
This command sets the ber state.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:ber:val?`
This command returns the current value.

Numeric/Return:  

| 0 | P25  |
| 1 | DMR  |
| 2 | dPMR |
| 3 | ARIBT98 |
| 4 | NXDN |

`:c4fsk:rx:chan_id?`
This command returns the channel ID (DMR Option).

`:c4fsk:rx:config`
Configures digital receive. (Must be run after setting P25 State to 1 before taking readings.)

`:c4fsk:rx:color_code?`
This command returns the color code (DMR Option).

`:c4fsk:rx:dev:clear <Arg0>`
This command clears the current Deviation minimum, maximum and average settings.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:debug:setburstrate`
Sends audio route to console.

`:c4fsk:rx:debug:skip`
This command sets the frequency.

`:c4fsk:rx:debug:skipervm`
This command sets the frequency.

`:c4fsk:rx:dev:clear <Arg0>`
This command clears the current Deviation minimum, maximum and average settings.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

`:c4fsk:rx:dev:val?`
This command returns the current value.
Numeric/Return:
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
0 Average
1 Maximum
2 Minimum

`:c4fsk:rx:dev2:clear <Arg0>`
This command clears the current Deviation 2 minimum, maximum and average settings.
Numeric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:dev2:val?`
This command returns the current value.
Numeric/Return:
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
0 Average
1 Maximum
2 Minimum

`:c4fsk:rx:dpmr:callid?`
This command returns the caller ID.
Numeric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x0 to 0xFFFFFFFF</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:dpmr:channelcode?`
This command returns the channel code.
Numeric/Return: 0 to 63

`:c4fsk:rx:dpmr:commsformat?`
This command returns the communication code.
Numeric/Return: 0 to 3

`:c4fsk:rx:dpmr:emergencypriority?`
This command returns the emergency priority.
Numeric/Return:
0 OFF
1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:rx:dpmr:unitid?
This command returns the caller ID.
Numeric/Return: 0x0 to 0xFFFFFFF

:c4fsk:rx:dump_rec_packets <Arg0> <Arg1>
Dump recorded packets.
Numeric/Return:

Arg0
0 Number Packet
1 All

Arg1
0 First Packet

:c4fsk:rx:freq:clear <Arg0>
This command clears the current Frequency minimum, maximum and average settings.
Numeric/Return:

Arg0
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN

:c4fsk:rx:freq:val?
This command returns the current value.
Numeric/Return:

Arg0
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
0 Average
1 Maximum
2 Minimum

:c4fsk:rx:freq2:clear <Arg0>
This command clears the current Frequency 2 minimum, maximum and average settings.
Numeric/Return:

Arg0
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
C4FSK (cont)

:c4fsrc:rx:freq2:val?
This command returns the current value.
Numeric/Return:
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
0 Average
1 Maximum
2 Minimum

:c4fsrc:rx:freq_err:clear <Arg0>
This command clears the current Frequency Error minimum, maximum and average settings.
Numeric/Return:
Arg0
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN

:c4fsrc:rx:freq_err:val?
This command returns the current value.
Numeric/Return:
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
0 Average
1 Maximum
2 Minimum

:c4fsrc:rx:magerr?
This command returns the Magnitude Error value (DMR Option).
Numeric/Return:
0 Average
1 Maximum
2 Minimum

:c4fsrc:rx:magerr:clear
This command clears the current Magnitude Error minimum, maximum and average settings. (DMR Option).

:c4fsrc:rx:mod_fid:clear <Arg0>
This command clears the current Mod Fidelity minimum, maximum and average settings.
Numeric/Return:
Arg0
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

`:c4fsk:rx:mod_fid:val?`
This command returns the current value.

Numeric/Return: 0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
0 Average
1 Maximum
2 Minimum

`:c4fsk:rx:nac:val?`
This command returns the current value of Network Access Code.

`:c4fsk:rx:nxdn:calltype?`
This command returns the Call Type (NXDN Option).

Numeric/Return: 0 Group Call
1 Individual Call

`:c4fsk:rx:nxdn:cipher?`
This command returns the NXDN Cipher Type (NXDN Option).

Numeric/Return: 0 None
1 Scrambled
2 DES
3 AES

`:c4fsk:rx:nxdn:duplex?`
This command returns the NXDN Duplex (NXDN Option).

Numeric/Return: 0 Half
1 Full

`:c4fsk:rx:nxdn:emergency?`
This command returns the NXDN Emergency (NXDN Option).

Numeric/Return: 0 OFF
1 ON

`:c4fsk:rx:nxdn:groupdestid?`
This command returns the NXDN Group/Destination ID (NXDN Option).

Numeric/Return: 0 65535

`:c4fsk:rx:nxdn:keyid?`
This command returns the NXDN Key ID (NXDN Option).

Numeric/Return: 0 to 63

`:c4fsk:rx:nxdn:priority?`
This command returns the NXDN Priority (NXDN Option).

Numeric/Return: 0 OFF
1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:rx:nxdnrate <Arg0>
:c4fsk:rx:nxdnrate?
This command sets/returns the rate data is transmitted (NXDN Option).
Numeric/Return:  
0 4600
1 9600

:c4fsk:rx:nxdn:sourceid?
This command returns the NXDN Source ID (NXDN Option).
Numeric/Return:  0 65535

:c4fsk:rx:p25:algorithmid?
This command returns the P25 Algorithm ID (P25 Option).
Numeric/Return:  0 to 255

:c4fsk:rx:p25:destid?
This command returns the P25 Destination ID (P25 Option).
Numeric/Return:  0 to 65535

:c4fsk:rx:p25:emergency?
This command returns the P25 Emergency (P25 Option).
Numeric/Return:  0 OFF
1 ON

:c4fsk:rx:p25:keyid?
This command returns the P25 Key ID (P25 Option).
Numeric/Return:  0 to 65535

:c4fsk:rx:p25:linkcontrol?
This command returns the P25 Link Control (P25 Option).
Numeric/Return:  0 Group Call
1 Individual Call

:c4fsk:rx:p25:mfid?
This command returns the P25 Manufacturer ID (P25 Option).
Numeric/Return:  0 to 255

:c4fsk:rx:p25:serviceoptions?
This command returns the P25 Service Options (P25 Option).
Numeric/Return:  0 to 255

:c4fsk:rx:p25:sourceid?
This command returns the P25 Source ID (P25 Option).
Numeric/Return:  0 to 65535
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:rx:p25:tgid?
This command returns the P25 Talk Group ID (P25 Option).
Numeric/Return: 0 to 65535

:c4fsk:rx:pattern <Arg0> <Arg1>
:c4fsk:rx:pattern?
This command sets/returns the decode pattern.
Numeric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arg1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1011 (P25)</td>
</tr>
<tr>
<td>1</td>
<td>Cal (P25)</td>
</tr>
<tr>
<td>2</td>
<td>0.153 (P25)</td>
</tr>
<tr>
<td>0</td>
<td>0.153 (DPMR)</td>
</tr>
<tr>
<td>0</td>
<td>1031 (ARIBT98)</td>
</tr>
<tr>
<td>1</td>
<td>Cal (ARIBT98)</td>
</tr>
<tr>
<td>2</td>
<td>PN9 (ARIBT98)</td>
</tr>
<tr>
<td>3</td>
<td>PN15 (ARIBT98)</td>
</tr>
<tr>
<td>0</td>
<td>1031 (DMR / NXDN)</td>
</tr>
<tr>
<td>1</td>
<td>Cal (DMR / NXDN)</td>
</tr>
<tr>
<td>2</td>
<td>0.153 (DMR / NXDN)</td>
</tr>
</tbody>
</table>

:c4fsk:rx:play_capable?
This command returns the given protocol supports playback.

:c4fsk:rx:ptcrate <Arg0>
:c4fsk:rx:ptcrate?
This command sets/returns the rate.
Numeric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8000</td>
</tr>
<tr>
<td>1</td>
<td>16000</td>
</tr>
</tbody>
</table>

:c4fsk:rx:pwr:clear <Arg0>
This command clears the current Power minimum, maximum and average settings.
Numeric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:rx:pwr:val? <Arg0>,<Arg1>
This command returns the current value.
Numeric/Return:

Arg0
0  P25
1  DMR
2  dPMR
3  ARIBT98
4  NXDN

Arg1
0  Average
1  Maximum
2  Minimum

:c4fsk:rx:pwr2:clear <Arg0>
This command clears the current Power minimum, maximum and average settings.
Numeric/Return:

Arg0
0  P25
1  DMR
2  dPMR
3  ARIBT98
4  NXDN

:c4fsk:rx:pwr2:val? <Arg0>,<Arg1>
This command returns the current value.
Numeric/Return:

Arg0
0  P25
1  DMR
2  dPMR
3  ARIBT98
4  NXDN

Arg1
0  Average
1  Maximum
2  Minimum

:c4fsk:rx:ran?
This command returns the radio access number (NXDN Option).

:c4fsk:rx:record_capable?
This command returns the given protocol supports record.

:c4fsk:rx:record_threshold <Arg0> <Arg1>
:c4fsk:rx:record_threshold?
This command sets/returns the minimum signal power threshold for record.
Numeric/Return:

Arg0
Protocol

Arg1
Power threshold in dBm
REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:rx:recplay_reset
Resets to idle.
:c4fsk:rx:recplay_status?
This command returns the record/play status.
:c4fsk:rx:reset_acq <Arg0>
This command resets the variables.
Numeric/Return:  
  0  P25  
  1  DMR  
  2  dPMR  
  3  ARIBT98  
  4  NXDN
:c4fsk:rx:reset_comp
This command debugs the sections of code.
:c4fsk:rx:reset_fifo
This command resets the variables.
:c4fsk:rx:setagc
This command debugs the sections of code.
:c4fsk:rx:setpwrthresh
This command debugs the sections of code.
:c4fsk:rx:start_playback
This command starts the playback.
:c4fsk:rx:stop_playback
This command stops the playback.
:c4fsk:rx:start_record <Arg0>
This command starts the record.
Numeric/Return:  
  Arg0  
  Number of seconds
:c4fsk:rx:stop_record
This command stops the record.
:c4fsk:rx:state <Arg0> <Arg1>
:c4fsk:rx:state?
This command sets/returns the digital receive state.
Numeric/Return:  
  0  P25  
  1  DMR  
  2  dPMR  
  3  ARIBT98  
  4  NXDN  
  0  OFF  
  1  ON
2-2. REMOTE OPERATION COMMANDS (cont)

**C4FSK (cont)**

`:c4fsk:symclkerr?`
This command returns the symbol clock error.

`:c4fsk:symclkerr_units <Arg0>`
`:c4fsk:symclkerr_units?`
This command sets/returns the digital receive state.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>PPM</td>
</tr>
<tr>
<td>1</td>
<td>Hz</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:time:clear <Arg0>`
This command clears the current Time minimum, maximum and average settings.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25</td>
</tr>
<tr>
<td>1</td>
<td>DMR</td>
</tr>
<tr>
<td>2</td>
<td>dPMR</td>
</tr>
<tr>
<td>3</td>
<td>ARIBT98</td>
</tr>
<tr>
<td>4</td>
<td>NXDN</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:time:val?`
This command returns the current value.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Average</td>
</tr>
<tr>
<td>1</td>
<td>Maximum</td>
</tr>
<tr>
<td>2</td>
<td>Minimum</td>
</tr>
</tbody>
</table>

`:c4fsk:rx:unitid?`
This command returns the unit ID (DMR Option).

`:c4fsk:rx:valid?`
This command returns the decode validity (LMR Option).

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Invalid</td>
</tr>
<tr>
<td>1</td>
<td>Valid</td>
</tr>
</tbody>
</table>

`:c4fsk:tx:chanid <Arg0>`
This command sets the channel ID (DMR Option).

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00000000 to 16777215</td>
</tr>
</tbody>
</table>

`:c4fsk:tx:colorcode <Arg0>`
This command sets the color code (DMR Option).

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 to 15</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

`:c4fsk:tx:dpmr:callid <Arg0>`
`:c4fsk:tx:dpmr:callid?`
This command sets/returns the caller ID.
Numeric/Return: 
Arg0
7 digit string with 0 to 0 or *

`:c4fsk:tx:dpmr:channelcode <Arg0>`
`:c4fsk:tx:dpmr:channelcode?`
This command sets/returns the channel code.
Numeric/Return: 
Arg0
0 to 63

`:c4fsk:tx:dpmr:commsformat <Arg0>`
`:c4fsk:tx:dpmr:commsformat?`
This command sets/returns the communication format.
Numeric/Return: 
Arg0
0 to 3

`:c4fsk:tx:dpmr:emergencypriority <Arg0>`
`:c4fsk:tx:dpmr:emergencypriority?`
This command sets/returns the emergency priority.
Numeric/Return: 
Arg0
0 OFF
1 ON

`:c4fsk:tx:dpmr:unitid <Arg0>`
`:c4fsk:tx:dpmr:unitid?`
This command sets/returns the unit ID.
Numeric/Return: 
Arg0
7 digit string with 0 to 0 or *

`:c4fsk:tx:err <Arg0> <Arg1>`
This command sets the number of false errors on transmitted signal.
Numeric/Return: 
Arg0
0 P25
1 DMR
2 dPMR
3 ARIBT98
4 NXDN
Arg1
0 to 20
2-2. REMOTE OPERATION COMMANDS (cont)

**C4FSK (cont)**

`:c4fsk:tx:iffreq <Arg0> <Arg1>`
`:c4fsk:tx:iffreq?`

This command sets/returns the frequency state.

**Numeric/Return:**

**Arg0**

0  P25  
1  DMR  
2  dPMR  
3  ARIBT98  
4  NXDN  

**Arg1**

0  OFF  
1  ON  

`:c4fsk:tx:iflevel <Arg0> <Arg1>`
`:c4fsk:tx:iflevel?`

This command sets/returns the level state.

**Numeric/Return:**

**Arg0**

0  P25  
1  DMR  
2  dPMR  
3  ARIBT98  
4  NXDN  

**Arg1**

0  OFF  
1  ON  

`:c4fsk:tx:nac <Arg0>`

This command sets the digital receive Network Access Code (P25 Option only).

**Numeric/Return:**

**Arg0**

000 to FFF  

`:c4fsk:tx:nxdn:emergency <Arg0>`
`:c4fsk:tx:nxdn:emergency?`

This command sets/returns the emergency (NXDN Option).

**Numeric/Return:**

**Arg0**

0  OFF  
1  ON  

`:c4fsk:tx:nxdn:priority <Arg0>`
`:c4fsk:tx:nxdn:priority?`

This command sets/returns the priority (NXDN Option).

**Numeric/Return:**

**Arg0**

0  OFF  
1  ON
2-2. REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:tx:nxdnran <Arg0>
:c4fsk:tx:nxdnran?
This command sets/returns the Radio Access Number (NXDN Option).
Numeric/Return:    Arg0
                  0 to 63
:c4fsk:tx:nxdnrate <Arg0>
:c4fsk:tx:nxdnrate?
This command sets/returns the rate data is transmitted (NXDN Option).
Numeric/Return:    Arg0
                  0   4800
                  1   9600
:c4fsk:tx:nxdn:tgid <Arg0>
:c4fsk:tx:nxdn:tgid?
This command sets/returns the Talk Group ID (NXDN Option).
Numeric/Return:    Arg0
                  0 to 65535
:c4fsk:tx:nxdn:unitid <Arg0>
:c4fsk:tx:nxdn:unitid?
This command sets/returns the Unit ID (NXDN Option).
Numeric/Return:    Arg0
                  0 to 65535
:c4fsk:tx:p25:emergency <Arg0>
:c4fsk:tx:p25:emergency?
This command sets/returns the emergency (P25 Option).
Numeric/Return:    Arg0
                  0    OFF
                  1    ON
:c4fsk:tx:p25:priority <Arg0>
:c4fsk:tx:p25:priority?
This command sets/returns the priority (P25 Option).
Numeric/Return:    Arg0
                  0    OFF
                  1    ON
:c4fsk:tx:p25:tgid <Arg0>
:c4fsk:tx:p25:tgid?
This command sets/returns the Talk Group ID (P25 Option).
Numeric/Return:    Arg0
                  0 to 65535
2-2.  REMOTE OPERATION COMMANDS (cont)

C4FSK (cont)

:c4fsk:tx:p25:unitid <Arg0>
:c4fsk:tx:p25:unitid?
This command sets/returns the Unit ID (P25 Option).
Numeric/Return:  
  Arg0
  0 to 65535
:c4fsk:tx:option?
This command returns the digital transmit option enable status.
Numeric/Return:  
  0  P25
  1  DMR
  2  dPMR
  3  ARIBT98
  4  NXDN
  0  Disabled
  1  Enabled
:c4fsk:tx:pattern <Arg0> <Arg1>
:c4fsk:tx:pattern?
This command sets/returns the digital transmit decode pattern.
Numeric/Return:  
  Arg0
  0  P25
  1  DMR
  2  dPMR
  3  ARIBT98
  4  NXDN
  Arg1
  0  1011 (P25)
  1  Cal (P25)
  2  0.153 (P25)
  0  0.153 (dPMR)
  0  1031 (ARIBT98)
  1  Cal (ARIBT98)
  2  PN9 (ARIBT98)
  3  PN15 (ARIBT98)
  0  1031 (NXDN)
  1  Cal (NXDN)
  2  0.153 (NXDN)
  0  1031 (DMR)
  1  Cal (DMR)
  2  0.153 (DMR)
  3  BR (DMR)
C4FSK (cont)

:c4fsk:tx:ptcrate <Arg0>
:c4fsk:tx:ptcrate?
This command sets/returns the PTC rate.
Numeric/Return: \( \text{Arg0} \)
\[
\begin{array}{ll}
0 & 4800 \\
1 & 9600 \\
\end{array}
\]

:c4fsk:tx:state
:c4fsk:tx:state?
This command sets/returns the digital transmit state.
Numeric/Return: \( \text{Arg0} \)
\[
\begin{array}{ll}
0 & \text{P25} \\
1 & \text{DMR} \\
2 & \text{dPMR} \\
3 & \text{ARIBT98} \\
4 & \text{NXDN} \\
\end{array}
\]
\[
\begin{array}{ll}
\text{Arg1} & \\
0 & \text{ON} \\
1 & \text{OFF} \\
\end{array}
\]

:c4fsk:tx:unitid <Arg0>
This command sets the Unit ID (DMR Option).
Numeric/Return: \( \text{Arg0} \)
\[
\begin{array}{ll}
0 & \text{to 15} \\
\end{array}
\]
2-2. REMOTE OPERATION COMMANDS (cont)

**Calibration**

:calibration:continue <Arg0>
This command continues the individual Calibration.

Numeric/Return: Arg0
0  GEN
1  REC
2  Audio In

:calibration:save <Arg0>
This command saves the individual Calibration.

Numeric/Return: Arg0
0  GEN
1  REC
2  Audio In

:calibration:start <Arg0>
This command starts the individual Calibration.

Numeric/Return: Arg0
0  GEN
1  REC
2  Audio In

:calibration:state?
This command returns the individual Calibration state.

Numeric/Return: 0  GEN
1  REC
2  Audio In
0  Not Running
1  Running
2  Waiting for Continue

:calibration:stop <Arg0>
This command stops the individual Calibration.

Numeric/Return: Arg0
0  GEN
1  REC
2  Audio In
**2-2. REMOTE OPERATION COMMANDS (cont)**

**DCS**

:dcs:decode:getcode?  
This command returns the DCS Decode number code.  

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>0</th>
<th>29</th>
<th>023</th>
<th>57</th>
<th>464</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>30</td>
<td>025</td>
<td>58</td>
<td>465</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>31</td>
<td>026</td>
<td>59</td>
<td>466</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>32</td>
<td>031</td>
<td>60</td>
<td>503</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>33</td>
<td>032</td>
<td>61</td>
<td>506</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>34</td>
<td>043</td>
<td>62</td>
<td>516</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>35</td>
<td>047</td>
<td>63</td>
<td>532</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>36</td>
<td>051</td>
<td>64</td>
<td>546</td>
</tr>
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<td></td>
<td>8</td>
<td>37</td>
<td>054</td>
<td>65</td>
<td>565</td>
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<td></td>
<td>9</td>
<td>38</td>
<td>065</td>
<td>66</td>
<td>606</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>39</td>
<td>071</td>
<td>67</td>
<td>612</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>40</td>
<td>072</td>
<td>68</td>
<td>624</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>41</td>
<td>073</td>
<td>69</td>
<td>631</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>42</td>
<td>074</td>
<td>70</td>
<td>631</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>43</td>
<td>075</td>
<td>71</td>
<td>632</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>44</td>
<td>076</td>
<td>72</td>
<td>654</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>45</td>
<td>077</td>
<td>73</td>
<td>662</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>46</td>
<td>078</td>
<td>74</td>
<td>664</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>47</td>
<td>079</td>
<td>75</td>
<td>703</td>
</tr>
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<td></td>
<td>19</td>
<td>48</td>
<td>080</td>
<td>76</td>
<td>712</td>
</tr>
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<td></td>
<td>20</td>
<td>49</td>
<td>081</td>
<td>77</td>
<td>723</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>50</td>
<td>082</td>
<td>78</td>
<td>731</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>51</td>
<td>083</td>
<td>79</td>
<td>732</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>52</td>
<td>084</td>
<td>80</td>
<td>734</td>
</tr>
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<td></td>
<td>24</td>
<td>53</td>
<td>085</td>
<td>81</td>
<td>743</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>54</td>
<td>086</td>
<td>82</td>
<td>754</td>
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<td></td>
<td>26</td>
<td>55</td>
<td>087</td>
<td>83</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>56</td>
<td>088</td>
<td>84</td>
<td>N/S</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

:dcs:decode:invert <Arg0>  
This command sets the DCS Decode Inverted state.  

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

:dcs:state <Arg0>  
:dcs:state?  
This command sets/returns the DCS Decode state.  

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Demod

```
:demod:afbw <Arg0>
:demod:afbw?
```

This command sets/returns the Demod AF bandwidth setting.

<table>
<thead>
<tr>
<th>Numeric/Return</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>LOWPASS_300Hz</td>
</tr>
<tr>
<td>2</td>
<td>LOWPASS_3kHz</td>
</tr>
<tr>
<td>3</td>
<td>LOWPASS_5kHz</td>
</tr>
<tr>
<td>4</td>
<td>LOWPASS_15kHz</td>
</tr>
<tr>
<td>5</td>
<td>BANDPASS_CMESS</td>
</tr>
<tr>
<td>6</td>
<td>BANDPASS_CCITT</td>
</tr>
<tr>
<td>7</td>
<td>HIGHPASS_300Hz</td>
</tr>
<tr>
<td>8</td>
<td>BANDPASS_300_3000Hz</td>
</tr>
<tr>
<td>9</td>
<td>BANDPASS_300_5000Hz</td>
</tr>
<tr>
<td>10</td>
<td>BANDPASS_300_20000Hz</td>
</tr>
<tr>
<td>16</td>
<td>HIGHPASS_20Hz</td>
</tr>
<tr>
<td>26</td>
<td>BANDPASS_20_3000Hz</td>
</tr>
<tr>
<td>27</td>
<td>BANDPASS_20_5000Hz</td>
</tr>
<tr>
<td>28</td>
<td>BANDPASS_20_15000Hz</td>
</tr>
</tbody>
</table>

```
:demod:dcpwr <Arg0>
:demod:dcpwr?
```

This command sets/returns the DC Power state to the ADC.

<table>
<thead>
<tr>
<th>Numeric/Return</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

```
:demod:state <Arg0>
:demod:state?
```

This command sets/returns the Analog Demod state.

<table>
<thead>
<tr>
<th>Numeric/Return</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Demod (cont)

:demod:type <Arg0>
:demod:type?

This command sets/returns the Demod Modulation setting.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>FM_DEMOD_DEV_5</td>
</tr>
<tr>
<td>1</td>
<td>FM_DEMOD_DEV_6P25</td>
</tr>
<tr>
<td>2</td>
<td>FM_DEMOD_DEV_8P33</td>
</tr>
<tr>
<td>3</td>
<td>FM_DEMOD_DEV_10</td>
</tr>
<tr>
<td>4</td>
<td>FM_DEMOD_DEV_12P5</td>
</tr>
<tr>
<td>5</td>
<td>FM_DEMOD_DEV_25</td>
</tr>
<tr>
<td>6</td>
<td>FM_DEMOD_DEV_30</td>
</tr>
<tr>
<td>7</td>
<td>FM_DEMOD_DEV_100</td>
</tr>
<tr>
<td>8</td>
<td>FM_DEMOD_DEV_300</td>
</tr>
<tr>
<td>9</td>
<td>AM_DEMOD_DEV_5</td>
</tr>
<tr>
<td>10</td>
<td>AM_DEMOD_DEV_6P25</td>
</tr>
<tr>
<td>11</td>
<td>AM_DEMOD_DEV_8P33</td>
</tr>
<tr>
<td>12</td>
<td>AM_DEMOD_DEV_10</td>
</tr>
<tr>
<td>13</td>
<td>AM_DEMOD_DEV_12P5</td>
</tr>
<tr>
<td>14</td>
<td>AM_DEMOD_DEV_25</td>
</tr>
<tr>
<td>15</td>
<td>AM_DEMOD_DEV_30</td>
</tr>
<tr>
<td>25</td>
<td>SIGSTR_DEMOD_DEV_30K</td>
</tr>
<tr>
<td>26</td>
<td>SIGSTR_DEMOD_DEV_300K</td>
</tr>
<tr>
<td>27</td>
<td>SIGSTR_DEMOD_DEV_3M</td>
</tr>
<tr>
<td>28</td>
<td>SIGSTR_DEMOD_DEV_5M</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION commands (cont)

DeviAion Meter / Modulation Meter

:devmod:alarm:high:limit <Arg0>
:devmod:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return: Arg0
-100.0% to 100% (AM)
-100.0 to 100.0 kHz (FM)

:devmod:alarm:high:state
:devmod:alarm:high:state?
This command sets/returns the Alarm high limit state.

:devmod:alarm:low:limit <Arg0>
:devmod:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return: Arg0
-100.0% to 100% (AM)
-100.0 to 100.0 kHz (FM)

:devmod:alarm:low:state
:devmod:alarm:low:state?
This command sets/returns the Alarm low limit state.

:devmod:average <Arg0>
:devmod:average?
This command sets/returns the number of readings to average.
Numeric/Return: Arg0
1 to 99

:devmod:range:am:auto
This command sets the Modulation Meter autorange state to Auto.

:devmod:range:am:manual
This command sets the Modulation Meter autorange state to Manual.

:devmod:range:am:range?
This command returns the Modulation Meter range information.

:devmod:range:am:state?
This command returns the Modulation Meter autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:devmod:range:fm:auto
This command sets the Modulation Meter autorange state to Auto.

:devmod:range:fm:manual
This command sets the Modulation Meter autorange state to Manual.
2-2. REMOTE OPERATION COMMANDS (cont)

**Deviation Meter / Modulation Meter (cont)**

`:devmod:range:fm:range?`
This command returns the Modulation Meter range information.

`:devmod:dbr <Arg0>`  
`:devmod:dbr?`
This command sets/returns the dbr readings state.

**Numeric/Return:**  
Arg0  
0  dbr OFF  
1  dbr ON

`:devmod:dbr:relative`
This command sets the dbr relative value to the current reading.

`:devmod:range:fm:state?`
This command returns the Modulation Meter autorange state.

**Numeric/Return:**  
0  Auto  
1  Manual  
2  Manual - Waiting Update

`:devmod:reading:avg?`
This command returns the Modulation Meter reading new average Peak2Peak value.

**Numeric/Return:**  
0.0% to 100% (AM)  
0.0 to 100.0 kHz (FM)

`:devmod:reading:clear`
This command clears the Meter reading.

`:devmod:reading:max?`
This command returns the Modulation Meter reading maximum value.

**Numeric/Return:**  
0.0% to 100% (AM)  
0.0 to 100.0 kHz (FM)

`:devmod:reading:min?`
This command returns the Modulation Meter reading minimum value

**Numeric/Return:**  
0.0% to 100% (AM)  
0.0 to 100.0 kHz (FM)

`:devmod:reading:peak2peak?`
This command returns the Modulation Meter reading Peak2Peak value.

**Numeric/Return:**  
0.0% to 100% (AM)  
0.0 to 100.0 kHz (FM)

`:devmod:reading:pk_state`
Enables/disables reading Peak Hold function.
2-2.  REMOTE OPERATION COMMANDS (cont)

Deviation Meter / Modulation Meter (cont)

:devmod:reading:type <Arg0>
:devmod:reading:type?

This command sets/returns the readings sent to CF Meter.
Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>PEAK_READING_PLUS</td>
</tr>
<tr>
<td>1</td>
<td>PEAK_READING_MINUS</td>
</tr>
<tr>
<td>2</td>
<td>PK_PK_READING</td>
</tr>
</tbody>
</table>

:devmod:reading:val?

This command returns the Modulation Meter reading current average Peak2Peak value.
Numeric/Return:  

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0%</td>
<td>to 100% (AM)</td>
</tr>
<tr>
<td>0.0</td>
<td>to 100.0 kHz (FM)</td>
</tr>
</tbody>
</table>

:devmod:type <Arg0>
:devmod:type?

This command sets/returns the Meter Type.
Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>AM</td>
</tr>
<tr>
<td>1</td>
<td>FM</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only)

:digital:rx:average:ber <Arg0> <Arg1>
:digital:rx:average:ber?
This command sets/returns the number of BER readings to average.
Numetric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

Arg1
1 to 99

:digital:rx:average:carrierfeed <Arg0> <Arg1>
:digital:rx:average:carrierfeed?
This command sets/returns the number of Carrier Feed readings to average.
Numetric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

Arg1
1 to 99

:digital:rx:color_code?
Returns the current decoded color code.

:digital:rx:average:dev <Arg0> <Arg1>
:digital:rx:average:dev?
This command sets/returns the number of Deviation readings to average.
Numetric/Return:

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
</tbody>
</table>

Arg1
1 to 99
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:average:evm <Arg0> <Arg1>
:digital:rx:average:evm?

This command sets/returns the number of averages for EVM.
Numeric/Return: 

Arg0
11 - TETRA BS

Arg1
1 to 99

:digital:rx:average:freq <Arg0> <Arg1>
:digital:rx:average:freq?

This command sets/returns the number of Frequency readings to average.
Numeric/Return:

Arg0
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK

Arg1
1 to 99

:digital:rx:average:freq_err <Arg0> <Arg1>
:digital:rx:average:freq_err?

This command sets/returns the number of Frequency Error readings to average.
Numeric/Return:

Arg0
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK
11 TETRA BS

Arg1
1 to 99

:digital:rx:average:mod_fid <Arg0> <Arg1>
:digital:rx:average:mod_fid?

This command sets/returns the number of Mod Fidelity readings to average.
Numeric/Return:

Arg0
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK
11 TETRA BS

Arg1
1 to 99
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:average:pwr <Arg0> <Arg1>
:digital:rx:average:pwr?

This command sets/returns the number of Power readings to average.

Numeric/Return:  
| Arg0  | 0 | P25-C4FM  
| 7     | FM30K  
| 8     | P25-HCPM  
| 9     | P25-HDQPSK  
| 11    | TETRA BS  
| Arg1  | 1 to 99  

:digital:rx:average:time <Arg0> <Arg1>
:digital:rx:average:time?

This command sets/returns the number of Time readings to average.

Numeric/Return:  
| Arg0  | 0 | P25-C4FM  
| 7     | FM30K  
| 8     | P25-HCPM  
| 9     | P25-HDQPSK  
| Arg1  | 1 to 99  

:digital:rx:ber:clear <Arg0>

This command clears the current BER Minimum, Maximum and Average.

Numeric/Return:  
| Arg0  | 0 | P25-C4FM  
| 7     | FM30K  
| 8     | P25-HCPM  
| 9     | P25-HDQPSK  
| 11    | TETRA BS  

:digital:rx:ber:val?

This command returns the current BER value.

Numeric/Return:  
| 0     | Average  
| 1     | Maximum  
| 2     | Minimum  
| Value |
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:berstate <Arg0>
This command sets the BER state and returns the Random Access Number (PTC only).
Numeric/Return:  
Arg0  
0 Absolute  
1 Relative  
RAN

:digital:rx:carrierfeed:clear <Arg0>
This command clears the current Carrier Feed Minimum, Maximum and Average.
Numeric/Return:  
Arg0  
0 P25-C4FM  
7 FM30K  
8 P25-HCPM  
9 P25-HDQPSK  
11 TETRA BS

:digital:rx:carrierfeed:val?
This command returns the current Carrier Feed value.
Numeric/Return:  
0 P25-C4FM  
7 FM30K  
8 P25-HCPM  
9 P25-HDQPSK  
11 TETRA BS  
0 Average  
1 Maximum  
2 Minimum

:digital:rx:color_code?
This command returns the current decoded color code.

:digital:rx:config <Arg0>
This command configures the digital. This command must be run before taking readings when the :digital:rx:state is set to 1.
Numeric/Return:  
Arg0  
0 P25-C4FM  
7 FM30K  
8 P25-HCPM  
9 P25-HDQPSK  
11 TETRA BS
Digital (P25 Phase 2 only) (cont)

:digital:rx:countryCode?
This command returns current decoded country code.
Returns: MCC

:digital:rx:dev:clear <Arg0>
This command clears the current Deviation Minimum, Maximum and Average.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
</tbody>
</table>

:digital:rx:dev:val?
This command returns the current Deviation value.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>0</td>
<td>Average</td>
</tr>
<tr>
<td>1</td>
<td>Maximum</td>
</tr>
<tr>
<td>2</td>
<td>Minimum</td>
</tr>
</tbody>
</table>

:digital:rx:evm:clear <Arg0>
This command clears the current EVM minimum, maximum, and average.
Numeric:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

:digital:rx:evm:val? <Arg0> <Arg1>
This command returns the current EVM value.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arg1</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Average</td>
</tr>
<tr>
<td>1</td>
<td>Maximum</td>
</tr>
<tr>
<td>2</td>
<td>Minimum</td>
</tr>
</tbody>
</table>

:digital:rx:fmfreqerrunit <Arg0>
:digital:rx:fmfreqerrunit?
This command sets/returns the FM Frequency Error Rate units.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Hz</td>
</tr>
<tr>
<td>1</td>
<td>PPM</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:fmfreqerrtype <Arg0>
:digital:rx:fmfreqerrtype?
This command sets/returns the FM Frequency Error Rate type.
Numeric/Return: \textbf{Arg0}
0 Absolute
1 Relative

:digital:rx:freq:clear <Arg0>
This command clears the current Frequency Minimum, Maximum and Average.
Numeric/Return: \textbf{Arg0}
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK

:digital:rx:freq:val?
This command returns the current Frequency value.
Numeric/Return: \textbf{Arg0}
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK
0 Average
1 Maximum
2 Minimum

Value

:digital:rx:freq_err:clear <Arg0>
This command clears the current Frequency Error Minimum, Maximum and Average.
Numeric/Return: \textbf{Arg0}
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK
11 TETRA BS

:digital:rx:freq_err:val?
This command returns the current Frequency Error value.
Numeric/Return: \textbf{Arg0}
0 P25-C4FM
7 FM30K
8 P25-HCPM
9 P25-HDQPSK
11 TETRA BS
0 Average
1 Maximum
2 Minimum

Value
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:mod_fid:clear <Arg0>
This command clears the current Mod Fidelity Minimum, Maximum and Average.
Numeric/Return: 
  Arg0
  0  P25-C4FM
  7  FM30K
  8  P25-HCPM
  9  P25-HDQPSK
  11 TETRA BS

:digital:rx:mod_fid:val?
This command returns the current Mod Fidelity value.
Numeric/Return: 
  0  P25-C4FM
  7  FM30K
  8  P25-HCPM
  9  P25-HDQPSK
  11 TETRA BS
  0  Average
  1  Maximum
  2  Minimum

Value

:digital:rx:nac:val?
This command returns the current NAC value.
Numeric/Return: 
  0  P25-C4FM
  7  FM30K
  8  P25-HCPM
  9  P25-HDQPSK

Value

:digital:rx:networkCode?
This command returns current decoded network code.
Returns: MNC

:digital:rx:pattern <Arg0> <Arg1>
:digital:rx:pattern?
This command sets/returns the decode pattern.
Numeric/Return: 
  Arg0
  0  P25-C4FM
  7  FM30K
  8  P25-HCPM
  9  P25-HDQPSK
  11 TETRA BS

  Arg1
  0  1011
  1  Cal
  2  0.153
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:pwr:clear <Arg0>
This command clears the current Power Minimum, Maximum and Average.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

:digital:rx:pwr:val?
This command returns the current Power value.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
<tr>
<td>0</td>
<td>Average</td>
</tr>
<tr>
<td>1</td>
<td>Maximum</td>
</tr>
<tr>
<td>2</td>
<td>Minimum</td>
</tr>
</tbody>
</table>

:digital:rx:reset_acq  <Arg0>
This command resets the variables.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

:digital:rx:setagc <Arg0>
This command sets the AGC state.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

:digital:rx:setagcmode <Arg0>
This command sets the AGC mode.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Manual</td>
</tr>
<tr>
<td>1</td>
<td>Auto</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:rx:state <Arg0> <Arg1>
:digital:rx:state?

This command sets/returns the digital state.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
<tr>
<td>11</td>
<td>TETRA BS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arg1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>

:digital:rx:tetraT1:mode <Arg0>
:digital:rx:tetraT1:mode?

Sets Tetra operation mode.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>TETRAT1_BS</td>
</tr>
<tr>
<td>1</td>
<td>TETRAT1_MS</td>
</tr>
<tr>
<td>2</td>
<td>TETRAT1_DM</td>
</tr>
</tbody>
</table>

:digital:rx:time:clear <Arg0>

This command clears the current Time Minimum, Maximum and Average.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>P25-C4FM</td>
</tr>
<tr>
<td>7</td>
<td>FM30K</td>
</tr>
<tr>
<td>8</td>
<td>P25-HCPM</td>
</tr>
<tr>
<td>9</td>
<td>P25-HDQPSK</td>
</tr>
</tbody>
</table>

:digital:rx:time:val?

This command returns the current Time value.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Average</td>
</tr>
<tr>
<td>1</td>
<td>Maximum</td>
</tr>
<tr>
<td>2</td>
<td>Minimum</td>
</tr>
</tbody>
</table>
Digital (P25 Phase 2 only) (cont)

:digital:rx:valid?
This command returns the decode validity.
Numeric/Return: 0 Invalid
1 Valid

:digital:symclkerr?
This command returns the Symbol Clock Error.
:digital:symclkerr_units <Arg0>
:digital:symclkerr_units?
This command sets/returns the Symbol Clock Error units.
Numeric/Return: Arg0
0 PPM
1 Hz

:digital:tx:hcpm:chan <Arg0>
This command sets the channel.
Numeric/Return: Arg0
0 Free Run
1 Sync Mode

:digital:tx:hcpm:mode <Arg0>
This command sets the mode.
Numeric/Return: Arg0
0 Free Run
1 Sync Mode

:digital:tx:iffreq <Arg0>
This command sets the IF frequency
Numeric: Arg0
8 to 12

:digital:tx:iflevel <Arg0>
:digital:tx:iflevel?
This command sets/returns the IF level.
Numeric/Return: Arg0
-50.0 to 0.0
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:tx:nac <Arg0> <Arg1>
This command sets the NAC.
Numeric/Return:  
Arg0
0  P25-C4FM
7  FM30K
8  P25-HCPM
9  P25-HDQPSK
Arg1
0x000 to 0xFFF

:digital:tx:option?
This command returns the option enable status.
Numeric/Return:  
0  P25-C4FM
7  FM30K
8  P25-HCPM
9  P25-HDQPSK
11 TETRA BS
0  Disabled
1  Enabled

:digital:tx:state <Arg0> <Arg1>
:digital:tx:state?
This command sets/returns the state.
Numeric/Return:  
Arg0
0  P25-C4FM
7  FM30K
8  P25-HCPM
9  P25-HDQPSK
11 TETRA BS
Arg1
0  OFF
1  ON

:digital:tx:tetraT1:BCCIdentity <Arg0>
:digital:tx:tetraT1:BCCIdentity?
Sets BCC identity value.
Numeric/Return:  
Arg0
0 to 63
2-2. REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:tx:tetraT1:MCCIdentity <Arg0>
:digital: tx:tetraT1:MCCIdentity?
This command sets MCC identity value.
Numeric/Return: Arg0
0 to 999

:digital:tx:tetraT1:MNCIdentity <Arg0>
:digital:tx:tetraT1:MNCIdentity?
This command sets MNC identity values.
Numeric/Return: Arg0
0 to 16383

:digital:tx:tetraT1:mode <Arg0>
:digital:tx:tetraT1:mode?
This command sets operation mode.
Numeric/Return: Arg0
0 BS
1 MS
2 DM

:digital:tx:tetraT1:paramsMode <Arg0>
:digital:tx:tetraT1:paramsMode?
This command sets parameter mode.
Numeric/Return: Arg0
0 auto
1 manual

:digital:tx:tetraT1:syncAutoOffset <Arg0>
:digital:tx:tetraT1:syncAutoOffset?
This command syncs auto offset.
Numeric/Return: Arg0
float 0 to 9999.99 symbols

:digital:tx:tetraT1:syncMode <Arg0>
:digital:tx:tetraT1:syncMode?
This command sets sync mode.
Numeric/Return: Arg0
0 free run
1 sync from RX
2 external sync mode
2-2.  REMOTE OPERATION COMMANDS (cont)

Digital (P25 Phase 2 only) (cont)

:digital:tx:tetraT1:syncPulseEdge <Arg0>
:digital:tx:tetraT1:syncPulseEdge?
This command syncs pulse edge.
Numeric/Return:  Arg0
0 falling
1 rising

:digital:tx:tetraT1:syncPulseOffset <Arg0>
:digital:tx:tetraT1:syncPulseOffset?
This command syncs pulse offset.
Numeric/Return:  Arg0
float 0 to 1020.000 ms
2-2. REMOTE OPERATION COMMANDS (cont)

Distortion Meter

:distortion:demod:alarm:high:limit <Arg0>
:distortion:demod:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return: \text{Arg0}
0.0\% to 100\%

:distortion:demod:alarm:high:state
:distortion:demod:alarm:high:state?
This command sets/returns the Alarm high limit state.

:distortion:demod:alarm:low:limit <Arg0>
:distortion:demod:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return: \text{Arg0}
0.0\% to 100\%

:distortion:demod:alarm:low:state
:distortion:demod:alarm:low:state?
This command sets/returns the Alarm low limit state.

:distortion:demod:average <Arg0>
:distortion:demod:average?
This command sets/returns the number of readings to average.
Numeric/Return: \text{Arg0}
1 to 99

:distortion:demod:reading:avg?
This command returns the Distortion Meter reading with averaged value.
Numeric/Return: 0.0\% to 100\%

:distortion:demod:reading:clear
Clear Distortion Meter reading.

:distortion:demod:reading:max?
This command returns the Distortion Meter reading maximum value.
Numeric/Return: 0.0\% to 100\%

:distortion:demod:reading:min?
This command returns the Distortion Meter reading minimum value.
Numeric/Return: 0.0\% to 100\%

:distortion:demod:reading:val?
This command returns the Distortion Meter average value.
Numeric/Return: 0.0\% to 100\%
2-2. **REMOTE OPERATION COMMANDS** (cont)

**Distortion Meter (cont)**

`:distortion:demod:state`
`:distortion:demod:state?`
This command activates/returns the Distortion Meter on demod input state.

`:distortion:ext_aud_in:alarm:high:limit <Arg0>`
`:distortion:ext_aud_in:alarm:high:limit?`
This command sets/returns the Alarm high limit value.

Numeric/Return: `Arg0`
0.0% to 100%

`:distortion:ext_aud_in:alarm:high:state`
`:distortion:ext_aud_in:alarm:high:state?`
This command sets/returns the Alarm high limit state.

`:distortion:ext_aud_in:alarm:low:limit <Arg0>`
`:distortion:ext_aud_in:alarm:low:limit?`
This command sets/returns the Alarm low limit value.

Numeric/Return: `Arg0`
0.0% to 100%

`:distortion:ext_aud_in:alarm:low:state`
`:distortion:ext_aud_in:alarm:low:state?`
This command sets/returns the Alarm low limit state.

`:distortion:ext_aud_in:average <Arg0>`
`:distortion:ext_aud_in:average?`
This command sets/returns the number of readings to average.

Numeric/Return: `Arg0`
1 to 99

`:distortion:ext_aud_in:filter <Arg0>`
`:distortion:ext_aud_in:filter?`
This command sets/returns the audio filter status.

Numeric/Return: `Arg0`
0 No Filter
1 15 kHz LP
2 300 Hz to 3 kHz BP

`:distortion:ext_aud_in:reading:avg?`
This command returns the Distortion Meter reading with averaged value.

Numeric/Return: 0.0% to 100%

`:distortion:ext_aud_in:reading:clear`
This command clear the Distortion Meter reading.
2-2. REMOTE OPERATION COMMANDS (cont)

Distortion Meter (cont)

:distortion:ext_aud_in:reading:max?
This command returns the Distortion Meter reading maximum value.
Numeric/Return: 0.0% to 100%

:distortion:ext_aud_in:reading:min?
This command returns the Distortion Meter reading minimum value.
Numeric/Return: 0.0% to 100%

:distortion:ext_aud_in:reading:val?
This command returns the Distortion Meter average value.
Numeric/Return: 0.0% to 100%

:distortion:state
:distortion:state?
This command activates/returns the Distortion Meter on ext audio input state.

:distortion:notch <Arg0>
:distortion:notch?
This command sets/returns the notch frequency.
Numeric/Return: Arg0
1000 to 5000 Hz

:distortion:range?
This command returns the Distortion Meter range information.

:distortion:range:auto
This command sets the Distortion Meter autorange state to Auto.

:distortion:range:manual
This command sets the Distortion Meter autorange state to Manual.

:distortion:range:state?
This command returns the Distortion Meter autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update
2-2. REMOTE OPERATION COMMANDS (cont)

**DMM**

:enbl <Arg0>
This command enables/disables the DMM.
Numeric/Return:  
Arg0  
0 OFF  
1 ON  

:lower:limit:state <Arg0>
:lower:limit:state?
This command sets/returns the upper limit state.
Numeric/Return:  
Arg0  
0 OFF  
1 ON  

:lower:limit:value <Arg0>
:lower:limit:value?
This command sets/returns the upper limit value.
Numeric/Return:  
Arg0  
-2000 to 2000

:amps:ac:aver <Arg0>
:amps:ac:aver?
This command sets/returns the averaging.
Numeric/Return:  
Arg0  
1 to 100

:amps:ac:enab:peak <Arg0>
:amps:ac:enab:peak?
This command sets/returns the peak hold.
Numeric/Return:  
Arg0  
0 OFF  
1 ON  

:amps:ac:stat?
This command returns the reading.
Numeric/Return:  
-2000 to 2000

:amps:ac:tos <Arg0>
:amps:ac:tos?
This command sets/returns the scale.
Numeric/Return:  
Arg0  
0 to 6
2-2. REMOTE OPERATION COMMANDS (cont)

**DMM (cont)**

:dtm:enab:peak <Arg0>
:dtm:enab:peak?
This command sets/returns the peak hold.
Numeric/Return:   
0   OFF
1   ON

:dtm:aver <Arg0>
:dtm:aver?
This command sets/returns the averaging.
Numeric/Return:   
1 to 100

:dtm:stat?
This command returns the reading.
Numeric/Return:   
-2000 to 2000

:dtm:tos <Arg0> <Arg0>
:dtm:tos?
This command sets/returns the scale.
Numeric/Return:   
0 to 6

:dtm:clear:peak
This command clears the peak hold.

:dtm:aver <Arg0>
:dtm:aver?
This command sets/returns the averaging.
Numeric/Return:   
1 to 100

:dtm:enab:peak <Arg0>
:dtm:enab:peak?
This command sets/returns the peak hold.
Numeric/Return:   
0   OFF
1   ON

:dtm:stat?
This command returns the reading.
Numeric/Return:   
-2000 to 2000
2-2. REMOTE OPERATION COMMANDS (cont)

DMM (cont)

:dmm:meter:ohms:tos <Arg0>
:dmm:meter:ohms:tos?
This command sets/returns the scale.
Numeric/Return:  
Arg0
0 to 6

:dmm:meter:peak?
This command returns the peak reading.
Numeric/Return:  0 to 20000000
:dmm:meter:type <Arg0>
:dmm:meter:type?
This command sets/returns the measurement type.
Numeric/Return:  
Arg0
0 ACV
1 CV
2 DCA
3 ACA
4 OHMS

:dmm:meter:volts:ac:aver <Arg0>
:dmm:meter:volts:ac:aver?
This command sets/returns the averaging.
Numeric/Return:  
Arg0
1 to 100

:dmm:meter:volts:ac:enab:peak <Arg0>
:dmm:meter:volts:ac:enab:peak?
This command sets/returns the peak hold.
Numeric/Return:  
Arg0
0 OFF
1 ON

:dmm:meter:volts:ac:stat?
This command returns the reading.
Numeric/Return:  -2000 to 2000
:dmm:meter:volts:ac:tos <Arg0>
:dmm:meter:volts:ac:tos?
This command sets/returns the scale.
Numeric/Return:  
Arg0
0 to 5
2-2. REMOTE OPERATION COMMANDS (cont)

DMM (cont)

:dmm:_meter:volts:dc:aver <Arg0>
:dmm:_meter:volts:dc:aver?
This command sets/returns the averaging.
Numeric/Return: \( \text{Arg0} \)
1 to 100

:dmm:_meter:volts:dc:enab:peak <Arg0>
:dmm:_meter:volts:dc:enab:peak?
This command sets/returns the peak hold.
Numeric/Return: \( \text{Arg0} \)
0 OFF
1 ON

:dmm:_meter:volts:dc:stat?
This command returns the reading.
Numeric/Return: -2000 to 2000

:dmm:_meter:volts:dc:tos <Arg0>
:dmm:_meter:volts:dc:tos?
This command sets/returns the scale.
Numeric/Return: \( \text{Arg0} \)
0 to 5

:dmm:shunt:msg:state <Arg0>
This command sets the 20 A Range display dialog state.
Numeric/Return: \( \text{Arg0} \)
0 HIDE
1 SHOW

:dmm:upper:limit:state <Arg0>
:dmm:upper:limit:state?
This command sets/returns the upper limit state.
Numeric/Return: \( \text{Arg0} \)
0 OFF
1 ON

:dmm:upper:limit:value <Arg0>
:dmm:upper:limit:value?
This command sets/returns the upper limit value.
Numeric/Return: \( \text{Arg0} \)
-2000 to 2000
### External Audio Input

**:extaudin:filter <Arg0>**
**:extaudin:filter?**

This command sets/returns the external Audio Input filter.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>NONE</td>
</tr>
<tr>
<td>1</td>
<td>LOWPASS_300HZ</td>
</tr>
<tr>
<td>2</td>
<td>LOWPASS_3kHZ</td>
</tr>
<tr>
<td>3</td>
<td>LOWPASS_5kHZ</td>
</tr>
<tr>
<td>4</td>
<td>LOWPASS_15kHZ</td>
</tr>
<tr>
<td>5</td>
<td>BANDPASS_CMESS</td>
</tr>
<tr>
<td>6</td>
<td>BANDPASS_CCITT</td>
</tr>
<tr>
<td>7</td>
<td>HIGHPASS_300HZ</td>
</tr>
<tr>
<td>8</td>
<td>BANDPASS_300_3000HZ</td>
</tr>
<tr>
<td>9</td>
<td>BANDPASS_300_5000HZ</td>
</tr>
<tr>
<td>10</td>
<td>BANDPASS_300_20000HZ</td>
</tr>
<tr>
<td>26</td>
<td>HIGHPASS_20HZ</td>
</tr>
<tr>
<td>27</td>
<td>BANDPASS_20_3000HZ</td>
</tr>
<tr>
<td>28</td>
<td>BANDPASS_20_5000HZ</td>
</tr>
<tr>
<td>29</td>
<td>BANDPASS_20_15000HZ</td>
</tr>
</tbody>
</table>

**:extaudin:gain <Arg0>**

This command sets the external Audio Input gain.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0001 to 1.0</td>
<td></td>
</tr>
</tbody>
</table>

**:extaudin:load <Arg0>**

This command sets the output scaling.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Open</td>
</tr>
<tr>
<td>1</td>
<td>150 Ω</td>
</tr>
<tr>
<td>2</td>
<td>600 Ω</td>
</tr>
<tr>
<td>3</td>
<td>1 kΩ</td>
</tr>
<tr>
<td>4</td>
<td>Divide-by-10</td>
</tr>
</tbody>
</table>

**:extaudin:mute**

This command mutes the Audio Input.

**:extaudin:state <Arg0>**
**:extaudin:state?**

This command sets/returns the external Audio Input state.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

External Audio Output

:extaudout:source <Arg0>
:extaudout:source?
This command sets/returns the external Audio Output source.

Numeric/Return: Arg0

0   EXT_AUD_IN_2_EXT_AUD_OUT
1   DEMOD_2_EXT_AUD_OUT
2   MODULATION_2_EXT_AUD_OUT
3   FGEN_2_EXT_AUD_OUT

:extaudout:state <Arg0>
:extaudout:state?
This command sets/returns the external Audio Output state.

Numeric/Return: Arg0

0   OFF
1   ON
2-2. REMOTE OPERATION COMMANDS (cont)

**External RF Power**

:extrfpwr:CCDF:limit <Arg0>
:extrfpwr:CCDF:limit?
This command sets/returns the CCDF limit.
Numeric/Return: \( \text{Arg0} \)
0 to 400 (W)

:extrfpwr:dutycycle:avg <Arg0>
:extrfpwr:dutycycle:avg?
This command sets/returns the number of averages for duty cycle.
Numeric/Return: \( \text{Arg0} \)
1 to 99

:extrfpwr:dutycycle:lower:limit:state
:extrfpwr:dutycycle:lower:limit:state?
This command sets/returns the duty cycle lower limit state.

:extrfpwr:dutycycle:lower:limit:value <Arg0>
:extrfpwr:dutycycle:lower:limit:value?
This command sets/returns the duty cycle lower limit value.
Numeric/Return: \( \text{Arg0} \)
0 to 100

:extrfpwr:dutycycle:reading:val?
This command returns the duty cycle reading.

:extrfpwr:dutycycle:upper:limit:state
:extrfpwr:dutycycle:upper:limit:state?
This command sets/returns the duty cycle upper limit state.

:extrfpwr:dutycycle:upper:limit:value <Arg0>
:extrfpwr:dutycycle:upper:limit:value?
This command sets/returns the duty cycle upper limit value.
Numeric/Return: \( \text{Arg0} \)
0 to 100

:extrfpwr:filter <Arg0>
:extrfpwr:filter?
This command sets/returns the video filter.
Numeric/Return: \( \text{Arg0} \)
0 4500
1 400000
2-2. REMOTE OPERATION COMMANDS (cont)

External RF Power (cont)

:extrfpwr:freqresp:100 <Arg0>
:extrfpwr:freqresp:100?
This command sets/returns the 100 MHz frequency response value.
Numeric/Return: Arg0
44.7 to 45.3 dBm

:extrfpwr:freqresp:300 <Arg0>
:extrfpwr:freqresp:300?
This command sets/returns the 300 MHz frequency response value.
Numeric/Return: Arg0
44.7 to 45.3 dBm

:extrfpwr:freqresp:500 <Arg0>
:extrfpwr:freqresp:500?
This command sets/returns the 500 MHz frequency response value.
Numeric/Return: Arg0
44.7 to 45.3 dBm

:extrfpwr:freqresp:700 <Arg0>
:extrfpwr:freqresp:700?
This command sets/returns the 700 MHz frequency response value.
Numeric/Return: Arg0
44.7 to 45.3 dBm

:extrfpwr:freqresp:900 <Arg0>
:extrfpwr:freqresp:900?
This command sets/returns the 900 MHz frequency response value.
Numeric/Return: Arg0
44.7 to 45.3 dBm

:extrfpwr:freqresp:cal:save
This command saves the calibration values.

:extrfpwr:freqresp:cal:start
This command starts the calibration.

:extrfpwr:fwd:avg <Arg0>
:extrfpwr:fwd:avg?
This command sets/returns the number of averages for forward power.
Numeric/Return: Arg0
1 to 99
2-2. REMOTE OPERATION COMMANDS (cont)

External RF Power (cont)

:extrfpwr:fwd:avg:dutycycle <Arg0>
:extrfpwr:fwd:avg:dutycycle?
This command sets/returns the length of duty cycle for forward power averages.

Numeric/Return:  
Arg0
1 to 99

:extrfpwr:fwd:lower:limit:state
:extrfpwr:fwd:lower:limit:state?
This command sets/returns the forward lower limit state.

:extrfpwr:fwd:lower:limit:value <Arg0>
:extrfpwr:fwd:lower:limit:value?
This command sets/returns the forward lower limit value.

Numeric/Return:  
Arg0
0 to 400

:extrfpwr:fwd:reading:val?
This command returns the forward power reading.

:extrfpwr:fwd:units <Arg0>
:extrfpwr:fwd:units?
This command sets/returns the forward power units.

Numeric/Return:  
Arg0
6  dBm
7  uW
8  mW
9  W

:extrfpwr:fwd:upper:limit:state
:extrfpwr:fwd:upper:limit:state?
This command sets/returns the forward upper limit state.

:extrfpwr:fwd:upper:limit:value <Arg0>
:extrfpwr:fwd:upper:limit:value?
This command sets/returns the forward upper limit value.

Numeric/Return:  
Arg0
0 to 400

:extrfpwr:match:avg <Arg0>
:extrfpwr:match:avg?
This command sets/returns the number of averages for match.

Numeric/Return:  
Arg0
1 to 99
2-2. REMOTE OPERATION COMMANDS (cont)

External RF Power (cont)

:extrfpwr:match:lower:limit:state
:extrfpwr:match:lower:limit:state?
This command sets/returns the match lower limit state.

:extrfpwr:match:lower:limit:value <Arg0>
:extrfpwr:match:lower:limit:value?
This command sets/returns the match lower limit value.

Numeric/Return: Arg0
0 to 100

:extrfpwr:match:reading:val?
This command returns the match reading.

:extrfpwr:match:units <Arg0>
:extrfpwr:match:units?
This command sets/returns the match units.

Numeric/Return: Arg0
2 RHO
3 VSWR
5 RTL

:extrfpwr:match:upper:limit:state
:extrfpwr:match:upper:limit:state?
This command sets/returns the match upper limit state.

:extrfpwr:match:upper:limit:value <Arg0>
:extrfpwr:match:upper:limit:value?
This command sets/returns the match upper limit value.

Numeric/Return: Arg0
0 to 100

:extrfpwr:meas:type <Arg0>
:extrfpwr:meas:type?
This command sets/returns the measurement type.

Numeric/Return: Arg0
0 avg
1 peak
2 burst
3 crest
4 ccdf

:extrfpwr:offset <Arg0>
:extrfpwr:offset?
This command sets/returns the offset in dB.

Numeric/Return: Arg0
0 to 100 (dB)
Remote Operation Commands (cont)

External RF Power (cont)

:extrfpwr:refl:avg <Arg0>
:extrfpwr:refl:avg?

This command sets/returns the number of averages for reflected power.

Numeric/Return: \( \text{Arg0} \)
1 to 99

:extrfpwr:refl:lower:limit:state
:extrfpwr:refl:lower:limit:state?

This command sets/returns the reflected lower limit state.

:extrfpwr:refl:lower:limit:value <Arg0>
:extrfpwr:refl:lower:limit:value?

This command sets/returns the reflected lower limit value.

Numeric/Return: \( \text{Arg0} \)
0 to 400

:extrfpwr:refl:reading:val?

This command returns the reflected power reading.

:extrfpwr:refl:units
:extrfpwr:refl:units? <Arg0>

This command sets/returns the reflected power units.

Numeric/Return: \( \text{Arg0} \)
6 dBm
7 uW
8 mW
9 W

:extrfpwr:refl:upper:limit:state <Arg0>
:extrfpwr:refl:upper:limit:state?

This command sets/returns the reflected upper limit state.

Numeric/Return: \( \text{Arg0} \)
0 OFF
1 ON

:extrfpwr:refl:upper:limit:value <Arg0>
:extrfpwr:refl:upper:limit:value?

This command sets/returns the reflected upper limit value.

Numeric/Return: \( \text{Arg0} \)
0 to 400
2-2. REMOTE OPERATION COMMANDS (cont)

External RF Power (cont)

:extrfpwr:state <Arg0>
This command sets the meter state.
Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

:extrfpwr:zero
This command zeros the power sensor.
2-2. REMOTE OPERATION COMMANDS (cont)

**Frequency Find**

`:freqfind:peak?`
This command returns the next tune frequency.

`:freqfind:start <Arg0>
`:freqfind:start?`
This command sets/returns the tune start frequency.

Numeric/Return:  Arg0  
2 to 1000 MHz

`:freqfind:stop <Arg0>
`:freqfind:stop?`
This command sets/returns the tune stop frequency.

Numeric/Return:  Arg0  
2 to 1000 MHz

`:freqfind:threshold <Arg0>
`:freqfind:threshold?`
This command sets/returns the tune threshold.

Numeric/Return:  Arg0  
-110.0 to 40.0 dBm

`:freqfind:boundary <Arg0>
`:freqfind:boundary?`
This command sets/returns the channel bandwidth step for frequency search.

Numeric/Return:  Arg0  
0.001 to 5.000 MHz
2-2. REMOTE OPERATION COMMANDS (cont)

**Frequency List**

`:freqlist:index <Arg0>`
`:freqlist:index?`

This command sets/returns the frequency list index.
Numeric/Return: \( \text{Arg0} \)
1 to 30

`:freqlist:indexname <Arg0>`
`:freqlist:indexname?`

This command sets/returns the frequency list index name.
Numeric/Return: \( \text{Arg0} \)
Frequency List Index Name

`:freqlist:list <Arg0>`
`:freqlist:list?`

This command sets/returns the frequency list.
Numeric/Return: \( \text{Arg0} \)
List File Name (without extension)
2-2. REMOTE OPERATION COMMANDS (cont)

Function Generator

:fgen:enable <Arg0>
:fgen:enable?
This command sets/returns the Function Generator state.
Numeric/Return:  
> Arg0
0 OFF
1 ON

:fgen:freq <Arg0> <Arg1>
This command sets the individual Function Generator frequency.
Numeric/Return:  
> Arg0
1 Fgen1
2 Fgen2
> Arg1
0 to 24000 Hz

:fgen:level <Arg0> <Arg1>
:fgen:enable?
This command sets/returns the individual Function Generator output.
Numeric/Return:  
> Arg0
1 Fgen1
2 Fgen2
> Arg1
0 to 1.7 Vrms

:fgen:load <Arg0>
This command sets the output scaling.
Numeric/Return:  
> Arg0
0 600 Ω
1 150 Ω
2 Open Circuit

:fgen:state <Arg0>
:fgen:state?
This command sets/returns the individual Function Generator state.
Numeric/Return:  
> Arg0
1 Fgen1
2 Fgen2
> Arg1
0 OFF
1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

Normalize

normalize:pre:state
This command activates the pre-normalize state.

normalize:pre:status?
This command returns the pre-normalize status.
Numeric/Return: 0 Stopped
                1 Running

normalize:recall
This command issues a command to the database to recall TABLE_CURRENT_NORMALIZE.

normalize:run:state
This command activates the normalize state.

normalize:run:status?
This command returns the normalize status.
Numeric/Return: 0 Stopped
                1 Running
Options

/options:flash?
This command returns the unique ID number.
/options:isactive?
This command returns the status of installed Options.
Numeric/Return:

<table>
<thead>
<tr>
<th>Numeric</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>35000001</td>
<td>Spectrum Analyzer</td>
</tr>
<tr>
<td>35000010</td>
<td>Oscilloscope</td>
</tr>
<tr>
<td>35000060</td>
<td>Scripting</td>
</tr>
<tr>
<td>35000070</td>
<td>Tracking Generator</td>
</tr>
<tr>
<td>35000100</td>
<td>P25</td>
</tr>
<tr>
<td>35000200</td>
<td>DMR</td>
</tr>
<tr>
<td>35000300</td>
<td>dPMR</td>
</tr>
<tr>
<td>35000400</td>
<td>NXDN</td>
</tr>
<tr>
<td>35000500</td>
<td>ARIBT98</td>
</tr>
</tbody>
</table>

0 Not Installed
1 Installed
/options:man?
This command returns the manufacturer's name.
/options:model?
This command returns the model number.
/options:serial?
This command returns the 10 Digit serial number.
2-2. REMOTE OPERATION COMMANDS (cont)

Oscilloscope

:scope:coupling <Arg0>
:scope:coupling?
This command sets/returns the Oscilloscope input coupling.
Numeric/Return:  
Arg0  
0 AC  
1 DC  
2 GND

:scope:dvm:divby20 <Arg0>
:scope:dvm:divby20?
This command sets/returns the input scaling for DVM Connector.
Numeric/Return:  
Arg0  
0 2 V max  
1 40 V max

:scope:dvm:overload?
This command returns the DVM overload status.
Numeric/Return:  
0 No Overload  
1 Overload

:scope:offset:vertical <Arg0>
:scope:offset:vertical?
This command sets/returns the Oscilloscope input vertical offset.
Numeric/Return:  
Arg0  
-100.0 to 100.0

:scope:horizontal:scale <Arg0>
:scope:horizontal:scale?
This command sets/returns the Oscilloscope input horizontal scale.
Numeric/Return:  
Arg0  
0 20 μs/Div  
1 50 μs/Div  
2 0.1 ms/Div  
3 0.2 ms/Div  
4 0.5 ms/Div  
5 1 ms/Div  
6 2 ms/Div  
7 4 ms/Div  
8 6 ms/Div  
9 10 ms/Div  
10 20 ms/Div  
11 50 ms/Div  
12 0.1 sec/Div
2-2. REMOTE OPERATION COMMANDS (cont)

Oscilloscope (cont)

:scope:scale:vertical <Arg0>
:scope:scale:vertical?
This command sets/returns the Oscilloscope input vertical scale.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10 mV/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>0.1 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td></td>
<td>5%/Div (DEMOD AM)</td>
</tr>
<tr>
<td>1</td>
<td>20 mV/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>0.2 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td></td>
<td>10%/Div (DEMOD AM)</td>
</tr>
<tr>
<td>2</td>
<td>50 mV/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>0.5 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td></td>
<td>20%/Div (DEMOD AM)</td>
</tr>
<tr>
<td>3</td>
<td>0.1 V/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>1 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td></td>
<td>50%/Div (DEMOD AM)</td>
</tr>
<tr>
<td>4</td>
<td>0.2 V/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>2 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td>5</td>
<td>0.5 V/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>5 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td>6</td>
<td>1 V/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>10 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td>7</td>
<td>2 V/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>20 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td>8</td>
<td>5 V/Div (DVM / AUDIO IN)</td>
</tr>
<tr>
<td></td>
<td>50 kHz/Div (DEMOD FM)</td>
</tr>
<tr>
<td>9</td>
<td>10 V/Div (DVM / AUDIO IN)</td>
</tr>
</tbody>
</table>

:scope:source <Arg0>
:scope:source?
This command sets/returns the Oscilloscope input source.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>DVM</td>
</tr>
<tr>
<td>1</td>
<td>DEMOD</td>
</tr>
<tr>
<td>2</td>
<td>AUD IN</td>
</tr>
</tbody>
</table>

:scope:state <Arg0>
:scope:state?
This command sets/returns the Oscilloscope input state.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>Enable</td>
</tr>
</tbody>
</table>

:scope:trace:length?
This command returns the maximum Oscilloscope trace elements.

:scope:trace:val?
This command returns the Oscilloscope trace value.
2-2. REMOTE OPERATION COMMANDS (cont)

Oscilloscope (cont)

:s:scope:trigger:edge <Arg0>
:s:scope:trigger:edge?
This command sets/returns the Oscilloscope input trigger edge.
Numeric/Return:  Arg0
  0  FALL
  1  RISE

:s:scope:trigger:level
:s:scope:trigger:level?
This command sets/returns the Oscilloscope input trigger level.

:s:scope:trigger:mode <Arg0>
:s:scope:trigger:mode?
This command sets/returns the Oscilloscope input trigger mode.
Numeric/Return:  Arg0
  0  Normal
  1  Auto

:s:scope:trigger:type <Arg0> <Arg1> <Arg2>
:s:scope:trigger:type?
This command sets/returns the Oscilloscope input trigger.
Numeric/Return:  Arg0
  0  Normal
  1  Auto
  Arg1
  0  Fall
  1  Rise
  Arg2
  Level
2-2. REMOTE OPERATION COMMANDS (cont)

**Receiver**

:rec:atten?
This command returns the Receiver attenuator setting.
Numeric/Return:  0, 10, 20 or 30 dB

:rec:dcpwr <Arg0>
This command sets the Receiver DC Power state.
Numeric/Return:  
0 OFF
1 ON

:rec:extpad <Arg0>  
:rec:extpad?
This command sets/returns the compensation of Receiver TOS for the external pad.
Numeric/Return:  
Arg0  
-50.0 to 50.0 dB

:rec:freq <Arg0>  
:rec:freq?
This command sets/returns the Receiver frequency.
Numeric/Return:  
Arg0  
2.000000 to 1000.000000 MHz

:rec:port <Arg0>  
:rec:port?
This command sets/returns the Receiver Input Connector.
Numeric/Return:  
Arg0  
0 T/R
1 ANT

:rec:port:protection <Arg0>
This command resets the ANT Connector protection circuit.
Numeric/Return:  
Arg0  
0 OFF
1 Reset
2 ON
2-2. REMOTE OPERATION COMMANDS (cont)

**RF Error Meter**

:rferr:alarm:high:limit <Arg0>
:rferr:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return: Arg0
-200.0 to 200.0 kHz

:rferr:alarm:high:state <Arg0>
:rferr:alarm:high:state?
This command sets/returns the Alarm high limit state.
Numeric/Return: Arg0
0 OFF
1 ON

:rferr:alarm:low:limit <Arg0>
:rferr:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return: Arg0
-200.0 to 200.0 kHz

:rferr:alarm:low:state <Arg0>
:rferr:alarm:low:state?
This command sets/returns the Alarm low limit state.
Numeric/Return: Arg0
0 OFF
1 ON

:rferr:average <Arg0>
:rferr:average?
This command sets/returns the number of readings to average.
Numeric/Return: Arg0
1 to 99

:rferr:interval <Arg0>
:rferr:interval?
This command sets/returns the RF Counter update interval.
Numeric/Return: Arg0
0.0 to 53.0 sec

:rferr:range?
This command returns the RF Error Meter range information.

:rferr:range:auto
This command sets the RF Error Meter autorange state to Auto.

:rferr:range:manual
This command sets the RF Error Meter autorange state to Manual.
2-2. REMOTE OPERATION COMMANDS (cont)

RF Error Meter (cont)

::rferr::range::state?
This command returns the RF Error Meter autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

::rferr::reading::avg?
This command returns the RF Error Counter reading averaged value.
Numeric/Return: -500.0 to 500.0 kHz

::rferr::reading::clear
This command clears the RF Error Counter reading.

::rferr::reading::max <Arg0>
::rferr::reading::max?
This command sets/returns the RF Error Counter reading maximum value.
Numeric/Return: Arg0
-500.0 to 500.0 kHz

::rferr::reading::min <Arg0>
::rferr::reading::min?
This command sets/returns the RF Error Counter reading minimum value.
Numeric/Return: Arg0
-500.0 to 500.0 kHz

::rferr::reading::val <Arg0>
::rferr::reading::val?
This command sets/returns the RF Error Counter reading with no statistics.
Numeric/Return: Arg0
-500.0 to 500.0 kHz

::rferr::relative <Arg0>
::rferr::relative?
This command sets/returns the RF Error status to absolute or relative counting using the Receiver RF.
Numeric/Return: Arg0
0 Absolute
1 Relative

::rferr::state <Arg0>
::rferr::state?
This command sets/returns the RF Error Counter state.
Numeric/Return: Arg0
0 OFF
1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

**RF Generator**

:gen:ant:protection?
This command returns the ANT Connector protection state.
Numeric/Return:  
0 OFF
1 ON (Overload)

:gen:ant:protection:reset
This command resets the ANT Connector protection state.

:gen:atten?
This command returns the RF Generator attenuator setting.
Numeric/Return:  0 to 63 dB

:gen:dcpwr <Arg0>
This command sets the RF Generator DC Power state.
Numeric/Return:  
Arg0
0 OFF
1 ON

:gen:extpad <Arg0>
:gen:extpad?
This command sets/returns the compensation of RF Generator output level for external pad.
Numeric/Return:  
Arg0
-50.0 to 50.0 dB

:gen:freq <Arg0>
:gen:freq?
This command sets/returns the RF Generator frequency.
Numeric/Return:  
Arg0
2.000000 to 1000.000000 MHz

:gen:holdatten:dBm?
This command returns the Attenuator Hold level in dBm.

:gen:holdatten:state <Arg0>
:gen:holdatten:state?
This command sets/returns the Attenuator Hold state.
Numeric/Return:  
Arg0
0 OFF
1 ON

:gen:holdatten:uv?
This command returns the Attenuator Hold level in µV.
2-2. REMOTE OPERATION COMMANDS (cont)

RF Generator (cont)

:gen:lvl:dbm <Arg0>
:gen:lvl:dbm?
This command sets/returns the RF Generator level in dBm on selected output connector.
Numeric/Return:  
Arg0  
SWR  -65 to -5 dBm  
T/R  -120 to -50 dBm  
ANT  -90 to -30 dBm

:gen:lvl:dbuv <Arg0>
:gen:lvl:dbuv?
This command sets/returns the RF Generator level in dBµV on selected output connector.
Numeric/Return:  
Arg0  
SWR  41 to 102 dBµV  
T/R  -18.7 to 57 dBµV  
ANT  17 to 77 dBµV

:gen:lvl:unit <Arg0>
This command sets the RF Generator level units to µV or dBm.
Numeric/Return:  
Arg0  
0  dBm  
1  µV

:gen:lvl:uv <Arg0>
:gen:lvl:uv?
This command sets/returns the RF Generator level to µV on selected output connector.
Numeric/Return:  
Arg0  
SWR  125.74 to 125743.34 µV  
T/R  0.22361 to 707.11 µV  
ANT  7.071 to 7071.07 µV

:gen:port <Arg0>
:gen:port?
This command sets/returns the RF Generator Output Connector.
Numeric/Return:  
Arg0  
0  T/R  
1  ANT  
2  SWR

:gen:port:protection <Arg0>
This command resets the SWR Connector protection circuit.
Numeric/Return:  
Arg0  
0  OFF  
1  RESET  
2  ON
2-2. REMOTE OPERATION COMMANDS (cont)

RF Generator (cont)

:gen:swr:protection?
This command returns the SWR Connector protection state.
Numeric/Return:  
0 OFF
1 ON (Overload)

:gen:swr:protection:reset
This command resets the SWR Connector protection state.

:gen:tr:protection?
This command returns the T/R Connector protection state.
Numeric/Return:  
0 OFF
1 ON (Overload)

:gen:tr:protection:reset
This command resets the T/R Connector protection state.
2-2. REMOTE OPERATION COMMANDS (cont)

RF Power Meter

:rfpow:alarm:high:limit <Arg0>
:rfpow:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return:  Arg0  
0.0 to 43.0 dBm  
0.0 to 100.0 W

:rfpow:alarm:high:state
:rfpow:alarm:high:state?
This command sets/returns the Alarm high limit state.

:rfpow:alarm:low:limit <Arg0>
:rfpow:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return:  Arg0  
0.0 to 43.0 dBm  
0.0 to 100.0 W

:rfpow:alarm:low:state
:rfpow:alarm:low:state?
This command sets/returns the Alarm low limit state.

:rfpow:average <Arg0>
:rfpow:average?
This command sets/returns the number of readings to average.
Numeric/Return:  Arg0  
1 to 99

:rfpow:cal:freq:resp?
This command returns the frequency in MHz at supplied index.

:rfpow:cal:lin:high:calpt
This command takes the current high power reading and supplied cal value at the supplied index.

:rfpow:cal:lin:high:dac?
This command returns the DAC value at supplied index.

:rfpow:cal:lin:high:pow?
This command returns the dBm value at supplied index.

:rfpow:cal:lin:high:size
This command clears the previous high range cal curve and resizes as required.

:rfpow:cal:lin:high:size?
This command returns the high power cal curve size.

This command takes the current low power reading and supplied cal value at the supplied index.
2-2. REMOTE OPERATION COMMANDS (cont)

**RF Power Meter (cont)**

`:rfpow:cal:lin:low:dac?`
This command returns the dac value at supplied index.

`:rfpow:cal:lin:low:pow?`
This command returns the dBm value at supplied index.

`:rfpow:cal:lin:low:size`
This command clears the previous low range cal curve and resizes as required.

`:rfpow:cal:lin:low:size?`
This command returns the low power cal curve size.

`:rfpow:cal:recalc`
This command recalculates the Calibration.

`:rfpow:cal:recall`
This command recalls the Calibration Data.

`:rfpow:cal:resp:calpt`
This command takes the correction frequency and index to fill the cal table.

`:rfpow:cal:resp:calpt?`
This command returns the cal factor value at supplied index.

`:rfpow:cal:resp:size`
This command clears the previous response cal curve and resizes as required.

`:rfpow:cal:resp:size?`
This command returns the response cal curve size.

`:rfpow:cal:save`
This command saves the Calibration Data.

`:rfpow:cal:state <Arg0>
`:rfpow:cal:state?`
This command sets/returns the Calibration State.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal PT Operation</td>
</tr>
<tr>
<td>1</td>
<td>Range Cal</td>
</tr>
<tr>
<td>2</td>
<td>Response Cal</td>
</tr>
</tbody>
</table>

`:rfpow:extatten <Arg0>
`:rfpow:extatten?`
This command sets/returns the compensation factor for external attenuation.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-50.0 to +50.0 dB</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

RF Power Meter (cont)

:rfpow:range <Arg0>
This command sets the reading range operation.
Numeric/Return:    
                  | Arg0  |
                  | 0     | Low Range |
                  | 1     | High Range |
                  | 2     | Auto Range |

:rfpow:range:dbm:range?
This command returns the RF Power Meter range information.
:rfpow:range:dbm:auto
This command sets the RF Power Meter autorange state to Auto.
:rfpow:range:dbm:manual
This command sets the RF Power Meter autorange state to Manual.
:rfpow:range:dbm:state?
This command returns the RF Power Meter autorange state.
Numeric/Return:    
                  | 0     | Auto |
                  | 1     | Manual |
                  | 2     | Manual - Waiting Update |

:rfpow:range:watt:range?
This command returns the RF Power Meter range information.
:rfpow:range:watt:auto
This command sets the RF Power Meter autorange state to Auto.
:rfpow:range:watt:manual
This command sets the RF Power Meter autorange state to Manual.
:rfpow:range:watt:state?
This command returns the RF Power Meter autorange state.
Numeric/Return:    
                  | 0     | Auto |
                  | 1     | Manual |
                  | 2     | Manual - Waiting Update |

:rfpow:reading:avg?
This command returns the RF Power Meter average reading.
:rfpow:reading:clear
This command clears the current minimum, maximum and average settings.
:rfpow:reading:dbm:avg?
This command returns the RF Power Meter average reading.
Numeric/Return:    
                  | 1.0 to 43.0 dBm |
2-2. REMOTE OPERATION COMMANDS (cont)

**RF Power Meter (cont)**

:rfpow:reading:dbm:max?
This command returns the RF Power Meter reading maximum value.
Numeric/Return: 1.0 to 43.0 dBm

:rfpow:reading:dbm:min?
This command returns the RF Power Meter reading minimum value.
Numeric/Return: 1.0 to 43.0 dBm

:rfpow:reading:dbm:val?
This command returns the RF Power Meter average reading.
Numeric/Return: 1.0 to 43.0 dBm

:rfpow:reading:max?
This command returns the RF Power Meter reading maximum value.
Numeric/Return: 1.0 to 43.0 dBm

:rfpow:reading:min?
This command returns the RF Power Meter reading minimum value.
Numeric/Return: 1.0 to 43.0 dBm

:rfpow:reading:val?
This command returns the RF Power Meter average reading.
Numeric/Return: 1.0 to 43.0 dBm

:rfpow:reading:watt:avg?
This command returns the RF Power Meter average reading.
Numeric/Return: 0.00125 to 100 W

:rfpow:reading:watt:max?
This command returns the RF Power Meter reading maximum value.
Numeric/Return: 0.00125 to 100 W

:rfpow:reading:watt:min?
This command returns the RF Power Meter reading minimum value.
Numeric/Return: 0.00125 to 100 W

:rfpow:reading:watt:val?
This command returns the RF Power Meter average reading.
Numeric/Return: 0.00125 to 100 W

:rfpow:state
:rfpow:state?
This command enables/returns the RF Power Meter operation state.
2-2. REMOTE OPERATION COMMANDS (cont)

RF Power Meter (cont)

:rfpow:units <Arg0>
This command sets the units for reading.
Numeric/Return:   Arg0
                  0   dBm
                  1   Watts

:rfpow:zero
This command starts the zero operation required before measurements.
2-2. REMOTE OPERATION COMMANDS (cont)

**RNS Meter**

`:extrnsrfpwr:burst:period <Arg0>`
`:extrnsrfpwr:burst:period?`

This command sets/returns the burst period for burst user.

Numeric/Return: \( \text{Arg0} \)

Burst Period in sec (burst width to 1 sec)

`:extrnsrfpwr:burst:width <Arg0>`
`:extrnsrfpwr:burst:width?`

This command sets/returns the burst width for burst user type.

Numeric/Return: \( \text{Arg0} \)

Burst Width in seconds (1e-9 sec to period)

`:extrnsrfpwr:CCDF:limit <Arg0>`
`:extrnsrfpwr:CCDF:limit?`

This command sets/returns the CCDF limit.

Numeric/Return: \( \text{Arg0} \)

0 to 400 W

`:extrnsrfpwr:filter <Arg0>`
`:extrnsrfpwr:filter?`

This command sets/returns the filter.

Numeric/Return: \( \text{Arg0} \)

\[
\begin{array}{ll}
0 & 4500 \\
1 & 400000 \\
\end{array}
\]

`:extrnsrfpwr:fwd:avg <Arg0>`
`:extrnsrfpwr:fwd:avg?`

This command sets/returns the forward average.

Numeric/Return: \( \text{Arg0} \)

1 to 99

`:extrnsrfpwr:fwd:units <Arg0>`
`:extrnsrfpwr:fwd:units?`

This command sets/returns the forward units.

Numeric/Return: \( \text{Arg0} \)

<table>
<thead>
<tr>
<th>Arg</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>dBm</td>
</tr>
<tr>
<td>7</td>
<td>µW</td>
</tr>
<tr>
<td>8</td>
<td>mW</td>
</tr>
<tr>
<td>9</td>
<td>W</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

RNS Meter (cont)

:extrnsrfpwrfwd:lower:limit:state <Arg0>
:extrnsrfpwrfwd:lower:limit:state?
This command sets/returns the forward lower limit state.
Numeric/Return:  Arg0
0   OFF
1   ON
:extrnsrfpwrfwd:lower:limit:value <Arg0>
:extrnsrfpwrfwd:lower:limit:value?
This command sets/returns the forward lower limit value.
Numeric/Return:  Arg0
0 to 400
:extrnsrfpwrfwd:reading:val?
This command returns the forward reading.
Numeric/Return:  0 to 400
:extrnsrfpwrfwd:upper:limit:state <Arg0>
:extrnsrfpwrfwd:upper:limit:state?
This command sets/returns the forward upper limit state.
Numeric/Return:  Arg0
0   OFF
1   ON
:extrnsrfpwrfwd:upper:limit:value <Arg0>
:extrnsrfpwrfwd:upper:limit:value?
This command sets/returns the forward upper limit value.
Numeric/Return:  Arg0
0 to 400
:extrnsrfpwrfwdabs <Arg0>
:extrnsrfpwrfwdabs?
This command sets/returns the forward measurement.
Numeric/Return:  Arg0
0   Forward
1   Absorbed
2-2. REMOTE OPERATION COMMANDS (cont)

RNS Meter (cont)

:extrnsrfpwr:meas:type <Arg0>
:extrnsrfpwr:meas:type?
This command sets/returns the measurement type.
Numeric/Return: Arg0
0 Average
1 Peak
2 Burst
3 Crest
4 CCDF

:extrnsrfpwr:offset <Arg0>
:extrnsrfpwr:offset?
This command sets/returns the offset.
Numeric/Return: Arg0
0 to 100 dB

:extrnsrfpwr:port <Arg0>
:extrnsrfpwr:port?
This command sets/returns the port.
Numeric/Return: Arg0
0 Source
1 Load

:extrnsrfpwr:refl:avg <Arg0>
:extrnsrfpwr:refl:avg?
This command sets/returns the reflected average.
Numeric/Return: Arg0
1 to 99

:extrnsrfpwr:refl:units <Arg0>
:extrnsrfpwr:refl:units?
This command sets/returns the reflected units.
Numeric/Return: Arg0
6 dBm
7 µW
8 mW
9 W

:extrnsrfpwr:refl:lower:limit:state <Arg0>
:extrnsrfpwr:refl:lower:limit:state?
This command sets/returns the reflected lower limit state.
Numeric/Return: Arg0
0 OFF
1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

RNS Meter (cont)

:extrnsrfpwr:refl:lower:limit:value <Arg0>
:extrnsrfpwr:refl:lower:limit:value?
This command sets/returns the reflected lower limit value.
Numeric/Return: \[ \text{Arg0} \]
0 to 400

:extrnsrfpwr:refl:reading:val? <Arg0>
This command returns the reflected reading.
Numeric/Return: 0 to 400

:extrnsrfpwr:refl:upper:limit:state <Arg0>
:extrnsrfpwr:refl:upper:limit:state?
This command sets/returns the reflected upper limit state.
Numeric/Return: \[ \text{Arg0} \]
0 OFF
1 ON

:extrnsrfpwr:refl:upper:limit:value <Arg0>
:extrnsrfpwr:refl:upper:limit:value?
This command sets/returns the reflected upper limit value.
Numeric/Return: \[ \text{Arg0} \]
0 to 400

:extrnsrfpwr:relstate <Arg0>
:extrnsrfpwr:relstate?
This command sets/returns the relative state.
Numeric/Return: \[ \text{Arg0} \]
0 OFF
1 ON

:extrnsrfpwr:relunits <Arg0>
:extrnsrfpwr:relunits?
This command sets/returns the relative units.
Numeric/Return: \[ \text{Arg0} \]
0 %
1 dB

:extrnsrfpwr:state <Arg0>
This command sets the meter state.
Numeric/Return: \[ \text{Arg0} \]
0 OFF
1 ON

:extrnsrfpwr:zero
This command starts the zero operation.
2-2. REMOTE OPERATION COMMANDS (cont)

**RSSI Meter**

:rssi:alarm:high:limit <Arg0>
:rssi:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return: \( \text{Arg0} \)
0 to 20 W

:rssi:alarm:high:state
:rssi:alarm:high:state?
This command sets/returns the Alarm high limit state.

:rssi:alarm:low:limit <Arg0>
:rssi:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return: \( \text{Arg0} \)
0 to 20 W

:rssi:alarm:low:state
:rssi:alarm:low:state?
This command sets/returns the Alarm low limit state.

:rssi:average <Arg0>
:rssi:average?
This command sets/returns the number of readings to average.
Numeric/Return: \( \text{Arg0} \)
1 to 99

:rssi:range:dbm:auto
This command sets the Audio Level autorange state to Auto.

:rssi:range:dbm:manual
This command sets the Audio Level autorange state to Manual.

:rssi:range:dbm:range?
This command returns the Audio Level range information.

:rssi:range:dbm:state?
This command returns the Audio Level autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update

:rssi:range:watts:auto
This command sets the Audio Level autorange state to Auto.

:rssi:range:watts:manual
This command sets the Audio Level autorange state to Manual.

:rssi:range:watts:range?
This command returns the Audio Level range information.
2-2.  REMOTE OPERATION COMMANDS (cont)

RSSI Meter (cont)

:rssi:range:watts:state?
This command returns the Audio Level autorange state.
Numeric/Return:  0  Auto
                 1  Manual
                 2  Manual - Waiting Update

:rssi:reading:avg?
This command returns the RSSI reading averaged value.
Numeric/Return:  -110 to 53 dBm

:rssi:reading:dbm:avg?
This command returns the RSSI reading averaged value.

:rssi:reading:dbm:max?
This command returns the RSSI reading maximum value.

:rssi:reading:dbm:min?
This command returns the RSSI reading minimum value.

:rssi:reading:dbm:val?
This command returns the RSSI reading with no statistics.

:rssi:reading:clear
This command clears the RSSI reading.

:rssi:reading:max?
This command returns the RSSI reading maximum value.
Numeric/Return:  -110 to 53 dBm

:rssi:reading:min?
This command returns the RSSI reading minimum value.
Numeric/Return:  -110 to 53 dBm

:rssi:reading:units <Arg0>
This command sets the displayed units.
Numeric/Return:  
                 Arg0
                 0  dBm
                 1  Watts
                 2  µWatts

:rssi:reading:val?
This command returns the RSSI reading with no statistics.
Numeric/Return:  -110 to 53 dBm

:rssi:reading:watt:avg?
This command returns the RSSI reading averaged value.
Numeric/Return:  0 to 100 W
2-2. REMOTE OPERATION COMMANDS (cont)

RSSI Meter (cont)

:rxssi:reading:watt:max?
This command returns the RSSI reading maximum value.
Numeric/Return: 0 to 100 W

:rxssi:reading:watt:min?
This command returns the RSSI reading minimum value.
Numeric/Return: 0 to 100 W

:rxssi:reading:watt:val?
This command returns the RSSI reading with no statistics.
Numeric/Return: 0 to 100 W

:rxssi:state
:rxssi:state?
This command activates returns the RSSI Meter state.
2-2. REMOTE OPERATION COMMANDS (cont)

**Screens**

:screen:af_counter_meter
This command selects the AF Counter Meter Screen.

:screen:analyzer
This command selects the Analyzer Screen.

:screen:annunciator
This command selects the Annunciator Screen.

:screen:audio
This command selects the Audio Function Generator Test Screen.

:screen:audio_level_meter
This command selects the Audio Level Meter Screen.

:screen:date_time_config
This command selects the Date/Time Screen.

:screen:diagnostic_tests
This command selects the Diagnostic Screen.

:screen:distortion_meter
This command selects the Distortion Meter Screen.

:screen:duplex_test
This command selects the Duplex Test Screen.

:screen:hwconfig
This command selects the HW Config Screen.

:screen:options
This command selects the Options Screen.

:screen:receiver_test
This command selects the Receiver Test Screen.

:screen:remote_config
This command selects the Remote Screen.

:screen:scope
This command selects the Oscilloscope Screen.

:screen:self_test
This command selects the Self Test Screen.

:screen:sinad_meter
This command selects the Sinad Meter Screen.

:screen:swr_test
This command selects the ANT-Cable Test Screen.
2-2. REMOTE OPERATION COMMANDS (cont)

Screens (cont)

:screen:trackgen
This command selects the Tracking Generator Screen.

:screen:transmitter_test
This command selects the Transmitter Test Screen.

:screen:unitcopy
This command selects the Unit Copy Screen.

:screen:usbmanager
This command selects the USB Manager Screen.

:screen:version
This command selects the Version Screen.
2-2. REMOTE OPERATION COMMANDS (cont)

**Scripting**

:scripting:checkkey?
This command returns the Key Code or -1 if no key is pressed.

:scripting:dialog:close
This command closes an open Dialog Box.

:scripting:dialog:create
This command creates a Dialog Box.

:scripting:event:enable <Arg0> <Arg1>
This command sets the event for the Soft Key to a Lua Command.

  | Numeric/Return: | Arg0 |
  |                | 1 to 5 |
  | Lua Command    |        |
  | Arg1           | 1 to 5 |
  | Lua Command    |        |

:scripting:event:idle
This command waits for a Key Event.

:scripting:event:idle:dcib
This command waits for a Key Event without closing the Dialog Box.

:scripting:exit
This command signals the end of a running script.

:scripting:getkey?
This command returns the Key Code

:scripting:rs232:close
This command closes the RS-232 connection.

:scripting:rs232:open
This command opens the RS-232 connection.

:scripting:rs232:pacewrite <Arg0> <Arg1>
This command writes to the RS-232 Connector, pausing between each character.

  | Numeric/Return: | Arg0 |
  |                | <string> |
  | Arg1           | Time    |
2-2. REMOTE OPERATION COMMANDS (cont)

Scripting (cont)

:scripting:rs232:config <Arg0> <Arg1> <Arg2> <Arg3> <Arg4> <Arg5> <Arg6> <Arg7>

This command configures the RS-232 Connector.

Numeric/Return:  Arg0  (Baud Rate)
1200
2400
4800
9600
19200
38400
57600
115200
230400

Arg1  (Byte Size)
5
6
7
8

Arg2  (Parity)
0 (no parity),
1 (even parity),
2 (odd parity),
3 (space parity)

Arg3  (Stop Bits)
1
2

Arg4  (Flow)
0 (Off),
1 (On)

Arg5  (Crtsets))
0 (flow off),
1 (flow on)

Arg6  (Timeout)
Integer

Arg7  (Term)
Terminating character in hex format
2-2. REMOTE OPERATION COMMANDS (cont)

**Scripting (cont)**

**:scripting:rs232:read**
This command reads in from RS-232 until the term character is reached or timeout occurs.

**:scripting:rs232:readsize**
This command reads the Number of Characters in the RS-232 Buffer.

**:scripting:rs232:stringwrite <Arg0>**
This command writes a string to the RS-232 Connector.

 Numeric/Return:  
  Arg0  
  <string>

**:scripting:rs232:wait <Arg0> <Arg1> <Arg2>**
This command waits until the given string is read.

 Numeric/Return:  
  Arg0  
  <string>  
  Arg1  
  <timeout>  
  Arg2  
  <log enable>

**:scripting:rs232:write <Arg0>**
This command writes a string of hex values delimited by commas to the RS-232 Connector.

 Numeric/Return:  
  Arg0  
  <string>

**:scripting:screen:print <Arg0> <Arg1> <Arg2>**
This command prints the given string to the given x,y coordinates on the Dialog Box.

 Numeric/Return:  
  Arg0  
  X Coordinate  
  Arg1  
  Y Coordinate  
  Arg2  
  "String"

**:scripting:screen:print:invert**
This command prints the given string to the given x,y coordinates on the Dialog Box with Inverted Colors.
2-2. REMOTE OPERATION COMMANDS (cont)

Scripting (cont)

:scripting:screen:rectangle <Arg0> <Arg1> <Arg2> <Arg3> <Arg4>
This command prints a Rectangle to the Scripting Dialog.

Numeric/Return: 
Arg0
X1 Coordinate
Arg1
Y1 Coordinate
Arg2
X2 Coordinate
Arg3
Y2 Coordinate
Arg4
0 Black
1 White

:scripting:sleep
This command sets the Sleep time in ms. For time >1 minute, the Sleep time is truncated to 1 minute.

:scripting:softkey:clear
This command clears all the Soft Key Labels.

:scripting:softkey:label <Arg0> <Arg1>
This command sets the Soft Key Label.

Numeric/Return: 
Arg0
1 to 5
Arg1
Label Name
2-2. REMOTE OPERATION COMMANDS (cont)

**Setup**

:setup:configuration <Arg0>
:setup:configuration?

This command sets/returns the configuration.

Numeric/Return: 

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>LMR</td>
</tr>
<tr>
<td>1</td>
<td>PTC</td>
</tr>
<tr>
<td>2</td>
<td>P25 Phase 2</td>
</tr>
</tbody>
</table>

:setup:date:cal:new <Arg0> <Arg1> <Arg2>

This command writes the next Calibration Date into RTC.

Numeric/Return: 

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td></td>
</tr>
<tr>
<td>Arg1</td>
<td>Month</td>
</tr>
<tr>
<td>Arg2</td>
<td>Year</td>
</tr>
</tbody>
</table>

:setup:date:cal_due?

This command returns the next Calibration Date.

:setup:date:current?

This command returns the current date.

:setup:ftp:filepath
:setup:ftp:filepath?

This command sets/returns the path to files on FTP server.

:setup:ppcram:free?

This command returns the PowerPC free RAM value.

:setup:ppcram:total?

This command returns the PowerPC total RAM value.

:setup:ppcflash:free?

This command returns the PowerPC free Flash value.

:setup:ppcflash:total?

This command returns the PowerPC total Flash value.

:setup:ptt:35xx

This command sets the PTT ON/OFF.

:setup:ptt:hw?

This command returns the PTT hardware.

Numeric/Return: 

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Viavi Mic</td>
</tr>
<tr>
<td>1</td>
<td>H-250 Mic</td>
</tr>
<tr>
<td>2</td>
<td>Headset Mic</td>
</tr>
<tr>
<td>3</td>
<td>Viavi Breakout Box</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Setup (cont)

:setup:rem:in14?
This command returns the Remote input on Pin 14.

:setup:rem:in28?
This command returns the Remote input on Pin 28.

:setup:rem:in40?
This command returns the Remote input on Pin 40.

:setup:rem:inall
This command returns the Remote input on all 4 input pins.

:setup:rem:out15
This command sets the Remote output on Pin 15.

:setup:rem:out29
This command sets the Remote output on Pin 29.

:setup:rem:out30
This command sets the Remote output on Pin 30.

:setup:rem:out41
This command sets the Remote output on Pin 41.

:setup:temp:battery?
This command returns the battery temperature in degrees.

:setup:temp:internal?
This command returns the FPGA temperature in degrees.

:setup:temp:remote?
This command returns the I²C temperature in degrees.

:setup:time:active?
This command returns the total time unit has been powered on.

:setup:time:current?
This command returns the Time.

:setup:version:cpld:rf?
This command returns the CPLD RF version number.

:setup:version:fpga?
This command returns the FPGA version number.

:setup:version:powerpc?
This command returns the PPC Application Code version number.

:setup:version:rf_hdw?
This command returns the RF hardware version number (FPGA).
2-2. REMOTE OPERATION COMMANDS (cont)

**Signaling**

:signaling:dcs:disable
This command disables the DCS Encode (immediate stop).

:signaling:dcs:getcode?
This command returns the DCS Encode Code.

:signaling:dcs:getpolarity?
This command returns the DCS Encode Polarity.

:signaling:dcs:setcode <Arg0>
This command sets the DCS Encode Code (i.e., Enter 19 for DCS Code 023).
Numeric/Return:  \( \text{Arg0} \)
(DCS Code in Decimal)

:signaling:dcs:setpolarity <Arg0>
This command sets the DCS Encode Polarity.
Numeric/Return:  \( \text{Arg0} \)
0  Non-Inverted
1  Inverted

:signaling:dcs:start
This command starts the DCS Encode.

:signaling:dcs:state <Arg0>
:signaling:dcs:state?
This command sets/returns the DCS Encode State.
Numeric/Return:  \( \text{Arg0} \)
0  OFF
1  ON

:signaling:dcs:turnoff
This command disables the DCS Encode (200 ms delay).

:signaling:dtmf:decode:idle <Arg0>
:signaling:dtmf:decode:idle?
This command sets/returns the DTMF Decode Idle.
Numeric/Return:  \( \text{Arg0} \)
0.0 to 100.0 sec

:signaling:dtmf:decode:lastmessage?
This command returns the last complete DTMF message decoded.

:signaling:dtmf:decode:message?
This command returns the current DTMF Message being decoded.
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:dtmf:decode:state <Arg0>
:signaling:dtmf:decode:state?
This command sets/returns the DTMF Decode State.
Numeric/Return:  Arg0
0   OFF
1   ON

:signaling:dtmf:encode:idle <Arg0>
:signaling:dtmf:encode:idle?
This command sets/returns the DTMF Encode Idle.
Numeric/Return:  Arg0
0.0 to 100.0 sec

:signaling:dtmf:encode:mark <Arg0>
:signaling:dtmf:encode:mark?
This command sets/returns the DTMF Encode Mark.
Numeric/Return:  Arg0
0 to 1000 ms

:signaling:dtmf:encode:message <Arg0>
:signaling:dtmf:encode:message?
This command sets/returns the DTMF Encode Message.
Numeric/Return:  Arg0
Up to 20 valid DTMF Tones

:signaling:dtmf:encode:oneshot
This command transmits DTMF Encode Message Only Once. (Valid only when DTMF Encode Space is set to OFF.)

:signaling:dtmf:encode:space <Arg0>
:signaling:dtmf:encode:space?
This command sets/returns the DTMF Encode Space.
Numeric/Return:  Arg0
0 to 1000 ms

:signaling:dtmf:encode:state <Arg0>
:signaling:dtmf:encode:state?
This command sets/returns the DTMF Encode State.
Numeric/Return:  Arg0
0   OFF
1   ON
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

`:signaling:toneremote:decode:idle <Arg0>`
`:signaling:toneremote:decode:idle?`
This command sets/returns the tone remote idle time in seconds.
Numeric return:  \( \text{Arg0} \)
0.0 to 100.0
`:signaling:toneremote:decode:lastmessage?`
This command returns the last decoded tone remote message.
`:signaling:toneremote:decode:message?`
This command returns the currently decoded tone remote message as ASCII string data.
`:signaling:toneremote:decode:state <Arg0>`
`:signaling:toneremote:decode:state?`
This command sets/returns the tone remote decode state.
Numeric return:  \( \text{Arg0} \)
0  Off
1  On
`:signaling:toneremote:encode:af:dblevel <Arg0> <Arg1>`
`:signaling:toneremote:encode:af:dblevel?`
This command sets/returns the Tone Remote Encode AF dB Level.
Numeric/Return:  \( \text{Arg0} \)
Tone 1, 2 or 3
\( \text{Arg1} \)
-20 to 20 dB
`:signaling:toneremote:encode:af:dur <Arg0> <Arg1>`
This command sets/returns the Tone Remote Encode AF Duration.
Numeric/Return:  \( \text{Arg0} \)
Tone 1, 2 or 3
\( \text{Arg1} \)
20 to 500 ms
### 2-2. REMOTE OPERATION COMMANDS (cont)

#### Signaling (cont)

:signaling:toneremote:encode:af:freq <Arg0> <Arg1>
:signaling:toneremote:encode:af:freq?

This command sets/returns the Tone Remote Encode AF Frequency.

**Numeric/Return:**
- **Arg0**
  - Tone 1, 2 or 3
- **Arg1**
  - 0 to 20 kHz

:signaling:toneremote:encode:aflevel <Arg0>
:signaling:toneremote:encode:aflevel?

This command sets/returns the Tone Remote Encode AF Level.

**Numeric/Return:**
- **Arg0**
  - 0 to 1.57 Vrms

:signaling:toneremote:encode:amlevel <Arg0>
:signaling:toneremote:encode:amlevel?

This command sets/returns the Tone Remote Encode AM Level.

**Numeric/Return:**
- **Arg0**
  - 0% to 100%

:signaling:toneremote:encode:fmlevel <Arg0>
:signaling:toneremote:encode:fmlevel?

This command sets/returns the Tone Remote Encode FM Level.

**Numeric/Return:**
- **Arg0**
  - 0 to 100 kHz

:signaling:toneremote:encode:mod:dblevel <Arg0> <Arg1>
:signaling:toneremote:encode:mod:dblevel?

This command sets/returns the Tone Remote Encode Mod dB Level.

**Numeric/Return:**
- **Arg0**
  - Tone 1, 2 or 3
- **Arg1**
  - -20 to 20 dB

:signaling:toneremote:encode:mod:dur <Arg0> <Arg1>
:signaling:toneremote:encode:mod:dur?

This command sets/returns the Tone Remote Encode Mod Duration.

**Numeric/Return:**
- **Arg0**
  - Tone 1, 2 or 3
- **Arg1**
  - 20 to 500 ms
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:toneremote:encode:mod:freq <Arg0> <Arg1>
:signaling:toneremote:encode:mod:freq?
This command sets/returns the Tone Remote Encode Mod Frequency.
Numeric/Return:  
  Arg0
  Tone 1, 2 or 3
  Arg1
  0 to 20 kHz

:signaling:toneremote:encode:run <Arg0>
This command starts the Tone Remote Encode.
Numeric/Return:  
  Arg0
  0  FGEN
  1  MOD

:signaling:toneremote:encode:state?
This command returns the Tone Remote Encode state (if Tone Remote is running).
Numeric/Return:  
  0  OFF
  1  ON

:signaling:tonesequential:encode:af:code <Arg0>
:signaling:tonesequential:encode:af:code?
This command sets/returns the Tone Sequential Encode AF Code.
Numeric/Return:  
  Arg0
  Code

:signaling:tonesequential:encode:af:freqshift <Arg0>
:signaling:tonesequential:encode:af:freqshift?
This command sets/returns the Tone Sequential Encode AF Frequency Shift.
Numeric/Return:  
  Arg0
  -100% to 100%
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:tonesegment:encode:af:protocol <Arg0>

This command sets/returns the Tone Sequential Encode AF Protocol.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ZVEI1</td>
</tr>
<tr>
<td>1</td>
<td>ZVEI2</td>
</tr>
<tr>
<td>2</td>
<td>ZVEI3</td>
</tr>
<tr>
<td>3</td>
<td>PZVEI</td>
</tr>
<tr>
<td>4</td>
<td>DZVEI</td>
</tr>
<tr>
<td>5</td>
<td>PZVEI</td>
</tr>
<tr>
<td>6</td>
<td>CCIR1</td>
</tr>
<tr>
<td>7</td>
<td>CCIR2</td>
</tr>
<tr>
<td>8</td>
<td>PCCIR</td>
</tr>
<tr>
<td>9</td>
<td>EEA</td>
</tr>
<tr>
<td>10</td>
<td>EUROSIG</td>
</tr>
<tr>
<td>11</td>
<td>NATEL</td>
</tr>
<tr>
<td>12</td>
<td>EIA</td>
</tr>
<tr>
<td>13</td>
<td>MODAT</td>
</tr>
<tr>
<td>14</td>
<td>USER1</td>
</tr>
<tr>
<td>15</td>
<td>USER2</td>
</tr>
</tbody>
</table>

:signaling:tonesegment:encode:af:user:dur <Arg0> <Arg1> <Arg2>

This command sets/returns the Tone Sequential Encode AF User Duration.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>User 1 or 2</td>
<td>Arg0</td>
</tr>
<tr>
<td>Tone 0 to 15</td>
<td>Arg1</td>
</tr>
<tr>
<td>0 to 1000 ms</td>
<td>Arg2</td>
</tr>
</tbody>
</table>

:signaling:tonesegment:encode:af:user:freq <Arg0> <Arg1>

This command sets/returns the Tone Sequential Encode AF User Frequency.

<table>
<thead>
<tr>
<th>Numeric/Return:</th>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>User 1 or 2</td>
<td>Arg0</td>
</tr>
<tr>
<td>Tone 0 to 15</td>
<td>Arg1</td>
</tr>
<tr>
<td>0 to 20 kHz</td>
<td>Arg2</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

**:signaling:tonesequational:encode:af:user:pause <Arg0> <Arg1>**
**:signaling:tonesequational:encode:af:user:pause?**

This command sets/returns the Tone Sequential Encode AF User Pause.

Numeric/Return: 
Arg0
\nUser 1 or 2
Arg1
\nTone 0 to 15
Arg2
\n0 to 1000 ms

**:signaling:tonesequational:encode:aflevel <Arg0>**
**:signaling:tonesequational:encode:aflevel?**

This command sets/returns the Tone Sequential Encode AF Level.

Numeric/Return: Arg0
\n0 to 1.57 Vrms

**:signaling:tonesequational:encode:amlevel <Arg0>**
**:signaling:tonesequational:encode:amlevel?**

This command sets/returns the Tone Sequential Encode AM Level.

Numeric/Return: Arg0
\n0% to 100%

**:signaling:tonesequational:encode:fmlevel <Arg0>**
**:signaling:tonesequational:encode:fmlevel?**

This command sets/returns the Tone Sequential Encode AM Level.

Numeric/Return: Arg0
\n0 to 100 kHz

**:signaling:tonesequational:encode:mod:code <Arg0>**
**:signaling:tonesequational:encode:mod:code?**

This command sets/returns the Tone Sequential Encode Mod Code.

Numeric/Return: Arg0
\nCode

**:signaling:tonesequational:encode:mod:freqshift <Arg0>**
**:signaling:tonesequational:encode:mod:freqshift?**

This command sets/returns the Tone Sequential Encode Mod Frequency Shift.

Numeric/Return: Arg0
\n-100% to 100%
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:tonesequential:encode:mod:protocol <Arg0>
:signaling:tonesequential:encode:mod:protocol?

This command sets/returns the Tone Sequential Encode Mod Protocol.

Numeric/Return:  Arg0

0  ZVEI1
1  ZVEI2
2  ZVEI3
3  PZVEI
4  DZVEI
5  PDZVEI
6  CCIR1
7  CCIR2
8  PCCIR
9  EEA
10  EUROSIG
11  NATEL
12  EIA
13  MODAT
14  USER1
15  USER2

:signaling:tonesequential:encode:mod:user:dur <Arg0> <Arg1>
:signaling:tonesequential:encode:mod:user:dur?

This command sets/returns the Tone Sequential Encode Mod User Duration.

Numeric/Return:  Arg0

User 1 or 2

Arg1

Tone 0 to 15

Arg2

0 to 1000 ms

:signaling:tonesequential:encode:mod:user:freq <Arg0> <Arg1>
:signaling:tonesequential:encode:mod:user:freq?

This command sets/returns the Tone Sequential Encode Mod User Frequency.

Numeric/Return:  Arg0

User 1 or 2

Arg1

Tone 0 to 15

Arg2

0 to 20 kHz
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:tonesequential:encode:mod:user:pause <Arg0> <Arg1>
:signaling:tonesequential:encode:mod:user:pause?

This command sets/returns the Tone Sequential Encode Mod User Pause.

Numeric/Return:  
  Arg0
  User 1 or 2
  Arg1
  Tone 0 to 15
  Arg2
  0 to 1000 ms

:signaling:tonesequential:encode:run <Arg0>

This command sets the Tone Sequential Encode.

Numeric/Return:  
  Arg0
  0 Fgen
  1 Mod

:signaling:tonesequential:decode:idle <Arg0>
:signaling:tonesequential:decode:idle?

This command sets/returns the tone sequential idle time in seconds.

Numeric return:  
  Arg0
  0.0 to 100.0

:signaling:tonesequential:decode:lastmessage?

This command returns the last decoded tone sequential message.

:signaling:tonesequential:decode:message?

This command returns the currently decoded tone sequential message as ASCII string data.

:signaling:tonesequential:decode:state
:signaling:tonesequential:decode:state?

This command sets/returns the tone sequential decode state.

Numeric return:  
  Arg0
  0 Off
  1 On

:signaling:tonesequential:encode:state?

This command returns the Tone Sequential Encode State if running.

Numeric/Return:  
  0 OFF
  1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:twotoneseq:encode:af:adur <Arg0>
:signaling:twotoneseq:encode:af:adur?
This command sets/returns the 2 Tone Sequence Encode AF A Duration.
Numeric/Return:  Arg0
  20 to 5000 ms

:signaling:twotoneseq:encode:af:afreq?
This command sets/returns the 2 Tone Sequence Encode AF A Frequency.
Numeric/Return:  Arg0
  0 to 20 kHz

:signaling:twotoneseq:decode:idle
:signaling:twotoneseq:decode:idle?
This command sets/returns the two tone sequential idle time in seconds.
Numeric return:  Arg0
  0.0 to 100.0

:signaling:twotoneseq:decode:lastmessage?
This command returns the last decoded two tone sequential message.

:signaling:twotoneseq:decode:message?
This command returns the currently decoded two tone sequential message as ASCII string data.

:signaling:twotoneseq:decode:idle
:signaling:twotoneseq:decode:idle?
This command sets/returns the two tone sequential idle time in seconds.
Numeric return:  Arg0
  0.0 to 100.0

:signaling:twotoneseq:decode:lastmessage?
This command returns the last decoded two tone sequential message.

:signaling:twotoneseq:decode:message?
This command returns the currently decoded two tone sequential message as ASCII string data.

:signaling:twotoneseq:decode:state
:signaling:twotoneseq:decode:state?
This command sets/returns the two tone sequential decode state.
Numeric return:  Arg0
  0  Off
  1  On
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:twotoneseq:encode:af:bdur <Arg0>
:signaling:twotoneseq:encode:af:bdur?
This command sets/returns the 2 Tone Sequence Encode AF B Duration.
Numeric/Return: \textit{Arg0}  
  20 to 5000 ms

:signaling:twotoneseq:encode:af:bfreq <Arg0>
:signaling:twotoneseq:encode:af:bfreq?
This command sets/returns the 2 Tone Sequence Encode AF B Frequency.
Numeric/Return: \textit{Arg0}  
  0 to 20 kHz

:signaling:twotoneseq:encode:af:space <Arg0>
:signaling:twotoneseq:encode:af:space?
This command sets/returns the 2 Tone Sequence Encode AF Space.
Numeric/Return: \textit{Arg0}  
  0 to 5000 ms

:signaling:twotoneseq:encode:aflevel <Arg0>
:signaling:twotoneseq:encode:aflevel?
This command sets/returns the 2 Tone Sequence Encode AF Level.
Numeric/Return: \textit{Arg0}  
  0 to 1.57 Vrms

:signaling:twotoneseq:encode:amlevel <Arg0>
:signaling:twotoneseq:encode:amlevel?
This command sets/returns the 2 Tone Sequence Encode AM Level.
Numeric/Return: \textit{Arg0}  
  0% to 100%

:signaling:twotoneseq:encode:fmlevel <Arg0>
:signaling:twotoneseq:encode:fmlevel?
This command sets/returns the 2 Tone Sequence Encode FM Level.
Numeric/Return: \textit{Arg0}  
  0 to 100 kHz

:signaling:twotoneseq:encode:mod:adur <Arg0>
:signaling:twotoneseq:encode:mod:adur?
This command sets/returns the 2 Tone Sequence Encode Mod A Duration.
Numeric/Return: \textit{Arg0}  
  20 to 5000 ms
2-2. REMOTE OPERATION COMMANDS (cont)

Signaling (cont)

:signaling:twotoneseq:encode:mod:afreq <Arg0>
:signaling:twotoneseq:encode:mod:afreq?
This command sets/returns the 2 Tone Sequence Encode Mod A Frequency.
Numeric/Return: \text{Arg0}
0 to 20 kHz

:signaling:twotoneseq:encode:mod:bdur <Arg0>
:signaling:twotoneseq:encode:mod:bdur?
This command sets/returns the 2 Tone Sequence Encode Mod B Duration.
Numeric/Return: \text{Arg0}
20 to 5000 ms

:signaling:twotoneseq:encode:mod:bfreq <Arg0>
:signaling:twotoneseq:encode:mod:bfreq?
This command sets/returns the 2 Tone Sequence Encode Mod B Frequency.
Numeric/Return: \text{Arg0}
0 to 20 kHz

:signaling:twotoneseq:encode:mod:space <Arg0>
:signaling:twotoneseq:encode:mod:space?
This command sets/returns the 2 Tone Sequence Encode Mod Space.
Numeric/Return: \text{Arg0}
0 to 5000 ms

:signaling:twotoneseq:encode:run <Arg0>
This command starts the 2 Tone Sequence Encode.
Numeric/Return: \text{Arg0}
0 FGEN
1 MOD

:signaling:twotoneseq:encode:state?
This command returns the Two Tone Sequence Encode state (if Two Tone Sequence is running).
Numeric/Return: 0 OFF
1 ON
2-2. REMOTE OPERATION COMMANDS (cont)

**Sinad Meter**

:*sinad:demod:alarm:high:limit <Arg0>*
:*sinad:demod:alarm:high:limit?*

This command sets/returns the Alarm high limit value.

**Numeric/Return:** \( \text{Arg0} \)
\[0.0 \text{ to } 60.0\ \text{dB}\]

:*sinad:demod:alarm:high:state*
:*sinad:demod:alarm:high:state?*

This command sets/returns the Alarm high limit state.

:*sinad:demod:alarm:low:limit <Arg0>*
:*sinad:demod:alarm:low:limit?*

This command sets/returns the Alarm low limit value.

**Numeric/Return:** \( \text{Arg0} \)
\[0.0 \text{ to } 60.0\ \text{dB}\]

:*sinad:demod:alarm:low:state*
:*sinad:demod:alarm:low:state?*

This command sets/returns the Alarm low limit state.

:*sinad:demod:average <Arg0>*
:*sinad:demod:average?*

This command sets/returns the number of readings to average.

**Numeric/Return:** \( \text{Arg0} \)
\[1 \text{ to } 99\]

:*sinad:demod:reading:avg?*

This command returns the Sinad Meter reading with averaged value.

**Numeric/Return:** \[0.0 \text{ to } 60.0\ \text{dB}\]

:*sinad:demod:reading:clear*

This command clears the Sinad Meter reading.

:*sinad:demod:reading:max?*

This command returns the Sinad Meter reading maximum value.

**Numeric/Return:** \[0.0 \text{ to } 60.0\ \text{dB}\]

:*sinad:demod:reading:min?*

This command returns the Sinad Meter reading minimum value.

**Numeric/Return:** \[0.0 \text{ to } 60.0\ \text{dB}\]

:*sinad:demod:reading:val?*

This command returns the Sinad Meter average value.

**Numeric/Return:** \[0.0 \text{ to } 60.0\ \text{dB}\]
2-2. REMOTE OPERATION COMMANDS (cont)

Sinad Meter (cont)

:sinad:demod:state
:sinad:demod:state?
This command activates/returns the Sinad Meter on demod input state.

:sinad:ext_aud_in:alarm:high:limit <Arg0>
:sinad:ext_aud_in:alarm:high:limit?
This command sets/returns the Alarm high limit value.
Numeric/Return:  Arg0
0.0 to 60.0 dB

:sinad:ext_aud_in:alarm:high:state
:sinad:ext_aud_in:alarm:high:state?
This command sets/returns the Alarm high limit state.

:sinad:ext_aud_in:alarm:low:limit <Arg0>
:sinad:ext_aud_in:alarm:low:limit?
This command sets/returns the Alarm low limit value.
Numeric/Return:  Arg0
0.0 to 60.0 dB

:sinad:ext_aud_in:alarm:low:state
:sinad:ext_aud_in:alarm:low:state?
This command sets/returns the Alarm low limit state.

:sinad:ext_aud_in:average <Arg0>
:sinad:ext_aud_in:average?
This command sets/returns the number of readings to average.
Numeric/Return:  Arg0
1 to 99

:sinad:ext_aud_in:filter <Arg0>
:sinad:ext_aud_in:filter?
This command sets/returns the audio filter status.
Numeric/Return:  Arg0
0  No Filter
1  15 kHz LP
2  300 Hz to 3 kHz BP

:sinad:ext_aud_in:reading:avg?
This command returns the Sinad Meter reading with averaged value.
Numeric/Return:  0.0 to 60.0 dB

:sinad:ext_aud_in:reading:clear
This command clears the Sinad Meter reading.
2-2. REMOTE OPERATION COMMANDS (cont)

Sinad Meter (cont)

:sinad:ext_aud_in:reading:max?
This command returns the Sinad Meter reading maximum value.
Numeric/Return: 0.0 to 60.0 dB

:sinad:ext_aud_in:reading:min?
This command returns the Sinad Meter reading minimum value.
Numeric/Return: 0.0 to 60.0 dB

:sinad:ext_aud_in:reading:val?
This command returns the Sinad Meter average value.
Numeric/Return: 0.0 to 60.0 dB

:sinad:ext_aud_in:state
:sinad:ext_aud_in:state?
This command activates/returns the Sinad Meter on ext audio input state.

:sinad:range?
This command returns the Sinad Meter range information.

:sinad:range:auto
This command sets the Sinad Meter autorange state to Auto.

:sinad:range:manual
This command sets the Sinad Meter autorange state to Manual.

:sinad:range:state?
This command returns the Sinad Meter autorange state.
Numeric/Return: 0 Auto
1 Manual
2 Manual - Waiting Update
2-2. REMOTE OPERATION COMMANDS (cont)

**SNR Meter**

:snr:enable <Arg0>
:snr:enable?

This command sets/returns the forward measurement.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
</table>
| 0    | OFF  
| 1    | ON   |

:snr:lower:limit:state <Arg0>
:snr:lower:limit:state?

This command sets/returns the lower limit state.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
</table>
| 0    | OFF  
| 1    | ON   |

:snr:lower:limit:value <Arg0>
:snr:lower:limit:value?

This command sets/returns the forward lower limit value.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

:snr:meter:aver <Arg0>
:snr:meter:aver?

This command sets/returns the averaging.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

:snr:meter:range <Arg0>
:snr:meter:range?

This command sets/returns the scale.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

:snr:meter:stat?

This command returns the measurement.

Numeric/Return:  

|      | 0 to 100 dB |

:snr:meter:type <Arg0>
:snr:meter:type?

This command sets/returns the measurement type.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
</table>
| 0    | Audio SNR  
| 1    | Demod SNR |
2-2. REMOTE OPERATION COMMANDS (cont)

SNR Meter (cont)

:snr:upper:limit:state <Arg0>  
:snr:upper:limit:state?

This command sets/returns the forward upper limit state.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
</table>
| 0    | OFF  
| 1    | ON   

:snr:upper:limit:value <Arg0>  
:snr:upper:limit:value?

This command sets/returns the forward upper limit value.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>-100 to 100</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Speaker

:speaker:internal:state <Arg0>
:speaker:internal:state?
This command sets/returns the internal speaker output state.
Numeric/Return:  
| Arg0 | 
|------|---|
| 0    | OFF |
| 1    | ON  |

:speaker:level:squelch:level <Arg0>
:speaker:level:squelch:level?
This command sets/returns the speaker level squelch level.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>-150 to 50</td>
</tr>
</tbody>
</table>

:speaker:source <Arg0>
:speaker:source?
This command sets/returns the speaker input signal source.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

:speaker:state <Arg0>
:speaker:state?
This command sets/returns the speaker output state.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

:speaker:volume <Arg0>
:speaker:volume?
This command sets/returns the speaker volume.
Numeric/Return:  
<table>
<thead>
<tr>
<th>Arg0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 100</td>
</tr>
</tbody>
</table>
2-2. REMOTE OPERATION COMMANDS (cont)

Spectrum Analyzer

:analyzer:avg <Arg0>
:analyzer:avg?
This command sets/returns the Spectrum Analyzer average.
Numeric/Return:  \textbf{Arg0}
1 to 99

:analyzer:current:avg?
This command returns the number of traces for current Spectrum Analyzer trace reading.
Numeric/Return:  0 to 99

:analyzer:freq <Arg0>
:analyzer:freq?
This command sets/returns the Spectrum Analyzer center frequency.
Numeric/Return:  \textbf{Arg0}
2 to 1000 MHz

:analyzer:marker:freq <Arg0>
:analyzer:marker:freq?
This command sets/returns the Spectrum Analyzer marker center frequency.
Numeric/Return:  \textbf{Arg0}
2 to 1000 MHz

:analyzer:obw:bw?
This command returns the Spectrum Analyzer obw bandwidth frequency.

:analyzer:obw:mode <Arg0>
:analyzer:obw:mode?
This command sets/returns the Spectrum Analyzer obw mode.
Numeric/Return:  \textbf{Arg0}
0  Live
1  Peak Hold
2  Hold

:analyzer:obw:percent <Arg0>
:analyzer:obw:percent?
This command sets/returns the Spectrum Analyzer obw percentile.
Numeric/Return:  \textbf{Arg0}
0 to 100 MHz

:analyzer:obw:power <Arg0>
This command returns the Spectrum Analyzer obw power.
2-2. REMOTE OPERATION COMMANDS (cont)

Spectrum Analyzer (cont)

:analyzer:obw:state <Arg0>
:analyzer:obw:state?
This command activates/returns the Spectrum Analyzer obw processing state.
Numeric/Return: Arg0
0 OFF
1 ON

:analyzer:psd <Arg0>
:analyzer:psd?
This command sets/returns the Spectrum Analyzer power spectral density.
Numeric/Return: Arg0
0 Spectrum
1 Power Spectral Density

:analyzer:peakhold <Arg0>
:analyzer:peakhold?
This command activates/returns the Spectrum Analyzer peak hold status.
Numeric/Return: Arg0
0 OFF
1 ON

:analyzer:pwrbwspan <Arg0>
:analyzer:pwrbwspan?
This command sets/returns the Spectrum Analyzer power bandwidth span.
Numeric/Return: Arg0
1000 Hz
2000 Hz
5000 Hz
10000 Hz
20000 Hz
50000 Hz
100000 Hz
200000 Hz
500000 Hz
1000000 Hz
2000000 Hz
5000000 Hz

:analyzer:reading:bwpwr?
This command returns the Spectrum Analyzer bandwidth power.

:analyzer:reading:rbwe?
This command returns the Spectrum Analyzer resolution bandwidth equivalent.
2-2. REMOTE OPERATION COMMANDS (cont)

Spectrum Analyzer (cont)

:analyzer:sleep <Arg0>
:analyzer:sleep?
This command sets/returns the Spectrum Analyzer sleep time.
Numeric/Return:  \text{Arg0} \\
10000 to 500000 \mu s

:analyzer:span <Arg0>
:analyzer:span?
This command sets/returns the Spectrum Analyzer span.
Numeric/Return:  \text{Arg0} \\
10000 Hz \hspace{1em} 20000 Hz \hspace{1em} 50000 Hz \hspace{1em} 100000 Hz \hspace{1em} 200000 Hz \hspace{1em} 500000 Hz \hspace{1em} 1000000 Hz \hspace{1em} 2000000 Hz \hspace{1em} 5000000 Hz

:analyzer:state
:analyzer:state?
This command activates/returns the Spectrum Analyzer signal processing state.

:analyzer:trace:amplitude?
This command returns the Spectrum Analyzer trace amplitude.

:analyzer:trace:frequency?
This command returns the Spectrum Analyzer trace frequency.

:analyzer:trace:length <Arg0>
:analyzer:trace:length?
This command sets/returns the Spectrum Analyzer graph width.
Numeric/Return:  \text{Arg0} \\
0  768 \hspace{1em} 1  256 \hspace{1em} 2  180 \hspace{1em} 3  128 \hspace{1em} 4  90

:analyzer:trace:points?
This command returns the Spectrum Analyzer graph points.
2-2. REMOTE OPERATION COMMANDS (cont)

Spectrum Analyzer (cont)

:analyzer:window <Arg0>
:analyzer:window?

This command sets/returns the Spectrum Analyzer window size.

Numeric/Return: \[ \text{Arg0} \]

<table>
<thead>
<tr>
<th>Arg0</th>
<th>Window Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>HANNING</td>
</tr>
<tr>
<td>1</td>
<td>FLATTOP</td>
</tr>
<tr>
<td>2</td>
<td>RECTANGULAR</td>
</tr>
<tr>
<td>3</td>
<td>BLACKMAN</td>
</tr>
</tbody>
</table>
Tracking Generator

:trackgen:freq <Arg0>
:trackgen:freq?
This command sets/returns the Tracking Generator frequency.
Numeric/Return:  \textit{Arg0}
2 to 1000 MHz

:trackgen:peakhold
:trackgen:peakhold?
This command sets/returns the Peak Hold status.

:trackgen:reset:peak
This command resets the Peak Hold data.

:trackgen:scale <Arg0>
:trackgen:scale?
This command sets/returns the Tracking Generator scale.
Numeric/Return:  \textit{Arg0}
0 $2 \text{ dB/Div}$
1 $5 \text{ dB/Div}$
2 $10 \text{ dB/Div}$
3 $15 \text{ dB/Div}$
4 $20 \text{ dB/Div}$

:trackgen:setref
This command sets the Tracking Generator reference.

:trackgen:setreflvl <Arg0>
:trackgen:setreflvl?
This command sets/returns the Tracking Generator reference level.
Numeric/Return:  \textit{Arg0}
-70 dBm
-60 dBm
-50 dBm
-40 dBm
-30 dBm
-20 dBm
-10 dBm
+0 dBm
+10 dBm

:trackgen:start <Arg0>
:trackgen:start?
This command sets/returns the Tracking Generator start frequency.
Numeric/Return:  \textit{Arg0}
2 to 1000 MHz
2-2. REMOTE OPERATION COMMANDS (cont)

Tracking Generator (cont)

:trackgen:state
:trackgen:state?
This command activates/returns the Tracking Generator signal processing state.

:trackgen:stop <Arg0>
:trackgen:stop?
This command sets/returns the Tracking Generator stop frequency.
Numeric/Return: \begin{array}{ll}
\text{Arg0} & \text{2 to 1000 MHz}
\end{array}

:trackgen:trace?
This command returns the trace data.
Numeric/Return: \begin{array}{ll}
0 & \text{Live Trace} \\
1 & \text{Ref Trace} \\
2 & \text{Diff Trace} \\
3 & \text{Peakhold Trace}
\end{array}

:trackgen:type <Arg0>
:trackgen:type?
This command sets/returns the Tracking Generator type.
Numeric/Return: \begin{array}{ll}
\text{Arg0} & \begin{array}{l}
0 & \text{Live} \\
1 & \text{Diff}
\end{array}
\end{array}

:trackgen:user:span <Arg0>
:trackgen:user:span?
This command sets/returns the Tracking Generator User span.
Numeric/Return: \begin{array}{ll}
\text{Arg0} & \begin{array}{l}
0.01\text{ to 998.0}
\end{array}
\end{array}

:trackgen:dtf:trace?
This command returns the DTF trace data.
2-2. REMOTE OPERATION COMMANDS (cont)

Upconverter

:upconverter:carrier_state <Arg0>
:upconverter:carrier_state?
This command sets/returns the Carrier State. Acts as a PTT. Needs to be ON for normal Generator operation.
Numeric/Return:    Arg0
                  0     OFF
                  1     ON

:upconverter:dcs:am <Arg0>
This command sets the Modulator DCS AM level.
Numeric/Return:    Arg0
                  0% to 100%

:upconverter:dcs:fm <Arg0>
This command sets the Modulator DCS FM level.
Numeric/Return:    Arg0
                  0.0 to 100.0 kHz

:upconverter:dcs:state <Arg0>
This command sets the Modulator DCS Signaling State.

:upconverter:dtmf:am:high <Arg0>
This command sets the Modulator DTMF AM high level.
Numeric/Return:    Arg0
                  0% to 100%

:upconverter:dtmf:am:low <Arg0>
This command sets the Modulator DTMF AM low level.
Numeric/Return:    Arg0
                  0% to 100%

:upconverter:dtmf:fm:high <Arg0>
This command sets the Modulator DTMF FM high level.
Numeric/Return:    Arg0
                  0.0 to 100.0 kHz

:upconverter:dtmf:fm:low <Arg0>
This command sets the Modulator DTMF FM low level.
Numeric/Return:    Arg0
                  0.0 to 100.0 kHz
2-2. REMOTE OPERATION COMMANDS (cont)

Upconverter (cont)

:upconverter:ext_aud_in:gain <Arg0>
This command sets the Modulator External Audio Input Raw Scaling.
Numeric/Return:  Arg0
                  0.0 to 1.0

:upconverter:ext_aud_in:state
This command sets the Modulator External Audio Input State.

:upconverter:fgen1:am <Arg0>
This command sets the Modulator fgen #1 AM level.
Numeric/Return:  Arg0
                  0% to 100%

:upconverter:fgen1:fm <Arg0>
This command sets the Modulator fgen #1 FM level.
Numeric/Return:  Arg0
                  0.0 to 100.0 kHz

:upconverter:fgen1:freq <Arg0>
This command sets the Modulator fgen #1 frequency.
Numeric/Return:  Arg0
                  0 to 24000 Hz

:upconverter:fgen1:gain <Arg0>
This command sets the Modulator fgen #1 Raw Scaling.
Numeric/Return:  Arg0
                  0.0 to 1.0

:upconverter:fgen1:state
This command sets the Modulator fgen #1 state.

:upconverter:fgen2:am <Arg0>
This command sets the Modulator fgen #2 AM level.
Numeric/Return:  Arg0
                  0% to 100%

:upconverter:fgen2:fm <Arg0>
This command sets the Modulator fgen #2 FM level.
Numeric/Return:  Arg0
                  0.0 to 100.0 kHz
2-2. REMOTE OPERATION COMMANDS (cont)

Upconverter (cont)

:upconverter:fgen2:freq <Arg0>
This command sets the Modulator fgen #2 frequency.
Numeric/Return:    Arg0
                   0 to 20000 Hz

:upconverter:fgen2:gain <Arg0>
This command sets the Modulator fgen #2 Raw Scaling.
Numeric/Return:    Arg0
                   0.0 to 1.0

:upconverter:fgen2:state
This command sets the Modulator fgen #2 state.

:upconverter:mic:am <Arg0>
This command sets the Modulator Microphone AM level.
Numeric/Return:    Arg0
                   0% to 100%

:upconverter:mic:fm <Arg0>
This command sets the Modulator Microphone FM level.
Numeric/Return:    Arg0
                   0.0 to 100.0 kHz

:upconverter:mic:gain <Arg0>
This command sets the Modulator Microphone Gain.
Numeric/Return:    Arg0
                   0.0 to 1.0

:upconverter:mic:select?
This command returns the Microphone connected.

:upconverter:mic:state
This command sets the Modulator Microphone State.
2-2. REMOTE OPERATION COMMANDS (cont)

Upconverter (cont)

::upconverter:mod:group <Arg0> <Arg1>
::upconverter:mod:group?

This command sets/returns the Modulation Group and Type.

Numeric/Return:  

<table>
<thead>
<tr>
<th>Arg0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Analog</td>
</tr>
<tr>
<td>1</td>
<td>Digital</td>
</tr>
<tr>
<td>2</td>
<td>DTMF</td>
</tr>
<tr>
<td>3</td>
<td>DCS</td>
</tr>
<tr>
<td>4</td>
<td>Two-Tone Sequence</td>
</tr>
<tr>
<td>5</td>
<td>Tone Removed</td>
</tr>
<tr>
<td>6</td>
<td>Tone Sequential</td>
</tr>
</tbody>
</table>

Arg1
(Digital Mod Group)

| 0    | P25      |
| 1    | DMR      |
| 2    | dPMR     |
| 3    | ARIBT98  |
| 4    | NXDN     |
| 5    | PTC      |

(Other Mod Groups)

| 0    | None     |
| 1    | FM       |
| 2    | AM       |

::upconverter:mod_inhibit
::upconverter:mod_inhibit?

This command disables/returns the modulation inhibit state for one-time calibrations.

::upconverter:mod:type?

This command returns the Modulation Type.

Numeric/Return:  

<table>
<thead>
<tr>
<th>(Digital Mod Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Other Mod Groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

::upconverter:route:enable

This command sets the Modulator ON/OFF.
2-2. REMOTE OPERATION COMMANDS (cont)  

**Upconverter (cont)**

:upconverter:sde:am <Arg0>
This command sets the SDE AM level.
Numeric/Return:  
Arg0  
0% to 100%

:upconverter:sde:fm <Arg0>
This command sets the SDE FM level.
Numeric/Return:  
Arg0  
0.0 to 100.0 kHz

:upconverter:sde:gain <Arg0>
This command sets the SDE Gain scaling.
Numeric/Return:  
Arg0  
0.0 to 1.0

:upconverter:sde:state
This command sets the SDE State.

:upconverter:type <Arg0>
:upconverter:type?
This command sets/returns the Modulator type.
Numeric/Return:  
Arg0  
0 AM  
1 FM  
2 None  
3 P25  
4 SDE-AM  
5 SDE-FM  
6 Invalid
2-2. REMOTE OPERATION COMMANDS (cont)

VSWR Meter

:vswr:cable:len
This command estimates the cable length to measure.

:vswr:cable:length2:span?
This command returns the Cable Length to Span.

:vswr:cable:loss
This command sets the cable attenuation per 100 feet.

:vswr:cable:velocity <Arg0>
This command sets the cable velocity factor.
Numeric/Return: Arg0
[0.0, 1.0]

:vswr:cal:save
This command saves the Calibration data.

:vswr:cal:recall
This command recalls the Calibration data.

:vswr:dump:capture
This command captures the VSWR phase and magnitude.

:vswr:dump:full:freq?
This command returns the full span frequencies.

:vswr:dump:full:mag?
This command returns the full span magnitude.

:vswr:dump:full:phase?
This command returns the full span phase.

:vswr:dump:user:freq?
This command returns the user span frequencies.

:vswr:dump:user:mag?
This command returns the user span magnitude.

:vswr:dump:user:phase?
This command returns the user span phase.

:vswr:freq
:vswr:freq?
This command sets/returns the center frequency.

:vswr:marker:delta <Arg0>
This command sets the Delta Marker.
Numeric/Return: Arg0
1 to 3
2-2. REMOTE OPERATION COMMANDS (cont)

VSWR Meter (cont)

:vswr:marker:delta:x?
This command returns the marker delta number at x axis.
Numeric/Return: 1 to 3
:vswr:marker:delta:y?
This command returns the marker delta number at y axis.
Numeric/Return: 1 to 3
:vswr:marker:enable <Arg0> <Arg1>
This command enables the Marker.
Numeric/Return: Arg0
1 to 3
Arg1
0 OFF
1 ON
:vswr:marker:left <Arg0>
This command moves the marker to the left.
Numeric/Return: Arg0
1 to 3
:vswr:marker:lmin <Arg0>
This command moves the marker to the next left min.
Numeric/Return: Arg0
1 to 3
:vswr:marker:lpk <Arg0>
This command moves the marker to the next left peak.
Numeric/Return: Arg0
1 to 3
:vswr:marker:max <Arg0>
This command moves the marker to maximum.
Numeric/Return: Arg0
1 to 3
:vswr:marker:min <Arg0>
This command moves the marker to minimum.
Numeric/Return: Arg0
1 to 3
:vswr:marker:pos
This command sets the horizontal position of current Marker.
2-2. REMOTE OPERATION COMMANDS (cont)

VSWR Meter (cont)

:vswr:marker:right <Arg0>
This command moves the marker to the right.
Numeric/Return: Arg0
1 to 3
:vswr:marker:rpk <Arg0>
This command moves the marker to the next right peak.
Numeric/Return: Arg0
1 to 3
:vswr:marker:min <Arg0>
This command moves the marker to the next right min.
Numeric/Return: Arg0
1 to 3
:vswr:marker:x? <Arg0>
This command returns the marker number at x axis.
Numeric/Return: Arg0
1 to 3
:vswr:marker:y? <Arg0>
This command returns the marker number at y axis.
Numeric/Return: Arg0
1 to 3
:vswr:meas:type <Arg0>
:vswr:meas:type?
This command sets/returns the type of measurement.
Numeric/Return: Arg0
0 SWR
1 DTF
2 RL
3 LOSS
4 Raw
5 Calibration
:vswr:postprocess <Arg0>
This command sets the Post Process state.
Numeric/Return: Arg0
0 INVALID_CIRCUIT
1 OPEN_CIRCUIT
2 SHORT_CIRCUIT
3 FIFTY_OHM_CIRCUIT
4 LOAD_CIRCUIT
2-2. REMOTE OPERATION COMMANDS (cont)

VSWR Meter (cont)

:vswr:runmode <Arg0>
This command sets the Run mode.
Numeric/Return:  
Arg0
0  RESULT_INVALID
1  REQUEST_RUNNING
2  RUNNING
3  STOPPED
4  REQUEST_STOP

:vswr:scale <Arg0> <Arg1>
This command sets the scale for vertical.
Numeric/Return:  
Arg0
1  Top
Arg1
2  Bottom

:vswr:span
:vswr:span?
This command sets/returns the span.
:vswr:span2cablelength?
This command returns the Calculated Span to Cable Length.
:vswr:start
:vswr:start?
This command sets/returns the start frequency.
:vswr:startsweep
This command starts the sweep.
:vswr:state <Arg0>
:vswr:state?
This command sets/returns the VSWR state.
Numeric/Return:  
Arg0
0  RESULT_INVALID
1  REQUEST_RUNNING
2  RUNNING
3  STOPPED
4  REQUEST_STOP

:vswr:stop
:vswr:stop?
This command sets/returns the stop frequency.
:vswr:stopsweep
This command stops the sweep.
2-2. REMOTE OPERATION COMMANDS (cont)

VSWR Meter (cont)

:vswr:trace:count?
This command returns the trace count of each trace completed then counts increments.
Numeric/Return: 0 to 4294967295

:vswr:trace:dtf?
This command returns the DTF trace values by index. (See :vswr:size? command.)
Numeric/Return: 0 to trace size minus one
      -50 to 0 dB

:vswr:trace:loss?
This command returns the LOSS trace values by index. (See :vswr:size? command.)
Numeric/Return: 0 to trace size minus one
      -5 to 0 dB

:vswr:trace:rtn_loss?
This command returns the Return Loss trace values by index. (See :vswr:size? command.)
 Numeric/Return: 0 to trace size minus one
      -5 to 0 dB

:vswr:trace:size?
This command returns the SWR trace length.
Numeric/Return: 2 to 512

:vswr:trace:vswr?
This command returns the SWR trace values by index. (See :vswr:size? command.)
 Numeric/Return: 0 to trace size minus one
      SWR: 1 to 6

:vswr:trace:vswr_dump?
This command returns the VSWR trace values.