



# Communications Test Set 3550 / 3550R RCI Manual

Issue-4

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# **OPERATION MANUAL**

## **COMMUNICATIONS TEST SET**

### **3550 / 3550R**

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Aeroflex

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**Subject to Export Control, see Cover Page for details.**

**Electromagnetic Compatibility:**

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

**Nomenclature Statement:**

In this manual, 3550 / 3550R, Test Set or Unit refers to the 3550 / 3550R Communications Test Set.

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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.



**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.

### **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 3550 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.

The 3550R is intended for use in both indoor and outdoor environments and remains functional in typical rain conditions.

### **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.

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# PREFACE

## SCOPE

This Manual contains Instructions for operating the 3550 / 3550R 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 3550 / 3550R.

## ORGANIZATION

The Manual is composed of the following Chapters:

### CHAPTER 1 - REMOTE OPERATION CONFIGURATION

Describes how to configure the 3550 / 3550R for remote operation.

### CHAPTER 2 - REMOTE OPERATION COMMANDS

Identifies and explains the Remote Operation commands.

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# CHAPTER 1 - REMOTE OPERATION CONFIGURATION

## 1-1. GENERAL

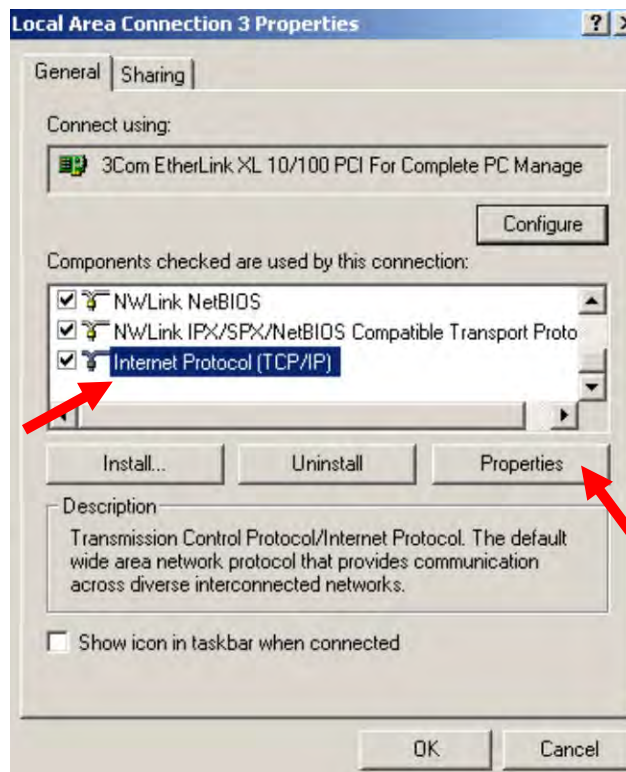
The 3550 / 3550R can be controlled through a serial interface.

## 1-2. REMOTE OPERATION CONFIGURATION

The 3500 / 3500A can be configured for remote operation using an Ethernet connection.

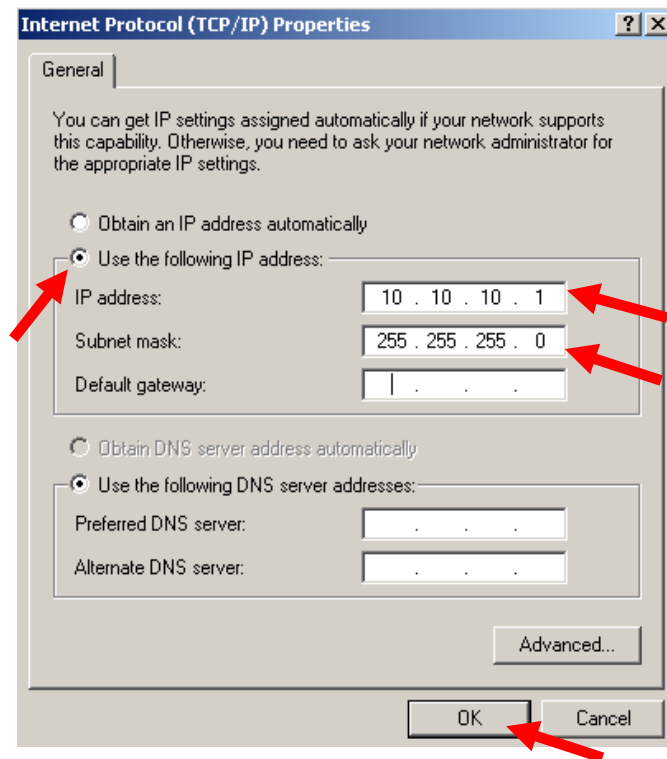
**This is an example configuration for a static address on the PC  
utilizing an Ethernet Crossover Cable.**

1. On the PC, select the Internet Protocol (TCP/IP). Select 'Properties.'



## 2-2. 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 3550 / 3550R ETHERNET Connector and the Ethernet Connector on the PC.



## 2-2. REMOTE OPERATION CONFIGURATION (cont)

4. Select the System Function Tab to display the System Dropdown selections. Select “System Config” to display the System Config (Configuration) Function Window. Press the “Remote” Button to display the Remote Configuration Screen.



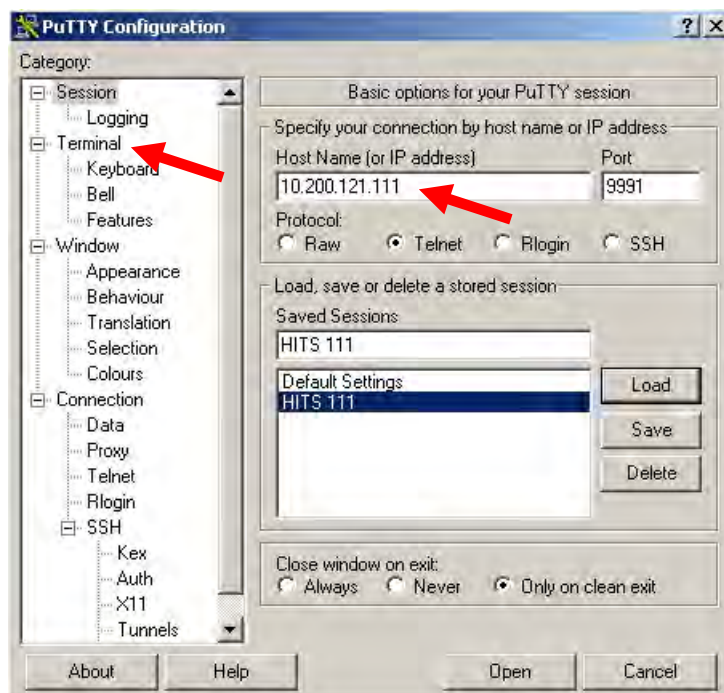
5. Select the following field settings:
- |              |              |
|--------------|--------------|
| Port         | Ethernet     |
| IP Address   | 10.10.10.193 |
| Subnet Mask  | 255.255.0.0  |
| Network Mode | Static IP    |



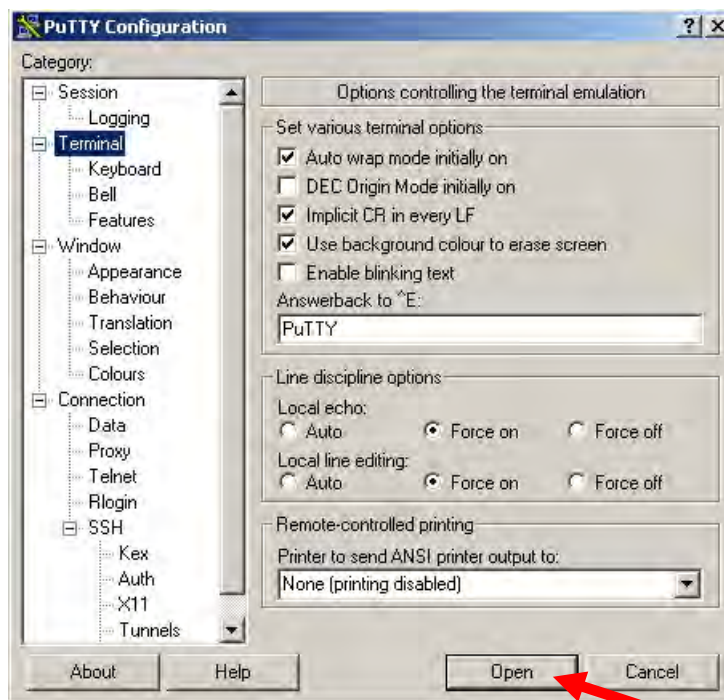
6. Open the ‘Command Shell’ on the PC and ping the IP address of the PC ( 10 10 10 1 ) to test the connection. Ping the IP address of the 3550 / 3550R ( 10 10 10 193 ) to test the connection.

## 2-2. REMOTE OPERATION CONFIGURATION (cont)

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



- Set the fields as shown and select “Open.”



## 2-2. REMOTE OPERATION CONFIGURATION (cont)

9. The Remote Window is displayed on the PC. Remote commands can now be issued to the 3550 / 3550R.



```
>
>gen:freq?
40.000000
      :gen:freq?
40.000000
      :gen:freq?
40.000000
      █
```

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## 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 3550 / 3550R must be terminated with a Carriage Return/Line Feed and EOI asserted on the last byte.

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## 2-2. REMOTE OPERATION COMMANDS

### AF Counter

:afctr:alarm:high:limit <n>	Sets Alarm high limit value.
:afctr:alarm:high:limit?	Returns Alarm high limit value.
<n>	15.0 to 20000.0
:afctr:alarm:high:state	Sets Alarm high limit state.
:afctr:alarm:high:state?	Returns Alarm high limit state.
:afctr:alarm:low:limit <n>	Sets Alarm low limit value.
:afctr:alarm:low:limit?	Returns Alarm low limit value.
<n>	15.0 to 20000.0
:afctr:alarm:low:state	Sets Alarm low limit state.
:afctr:alarm:low:state?	Returns Alarm low limit state.
:afctr:average <n>	Sets number of readings to average.
:afctr:average?	Returns number of readings to average.
<n>	1 to 99
:afctr:filter <n>	Sets input filter type.
:afctr:filter?	Returns input filter type.
<n>	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
:afctr:range:auto	Sets AF Counter autorange state to Auto.
:afctr:range>manual	Sets AF Counter autorange state to Manual.
:afctr:range:state? <n>	Returns AF Counter autorange state.
<n>	0 - Auto 1 - Manual 2 - Manual -Waiting Update



## 2-2. REMOTE OPERATION COMMANDS (cont)

### AF Counter (cont)

<b>:afctr:range?</b>	Returns AF Counter range information.
<b>:afctr:reading:avg?</b>	Returns AF Counter reading averaged value.
	0.0 to 20000.0 Hz
<b>:afctr:reading:clear</b>	Clears AF Counter reading.
<b>:afctr:reading:max?</b>	Returns AF Counter reading maximum value.
	0.0 to 20000.0 Hz
<b>:afctr:reading:min? &lt;n&gt;</b>	Returns AF Counter reading minimum value.
<b>&lt;n&gt;</b>	0.0 to 20000.0 Hz
<b>:afctr:reading:val? &lt;n&gt;</b>	Returns AF Counter reading with no statistics.
<b>&lt;n&gt;</b>	0.0 to 20000.0 Hz
<b>:afctr:resolution &lt;n&gt;</b>	Sets resolution for the reading.
<b>&lt;n&gt;</b>	1 - 1 Hz 2 - 0.1 Hz
<b>:afctr:source &lt;n&gt;</b>	Sets signal source to count.
<b>:afctr:source?</b>	Returns signal source to count.
<b>&lt;n&gt;</b>	0 - EXT_AUD_IN_2_AFCOUNTER 1 - DEMOD_2_AFCOUNTER 2 - MODULATION_2_AFCOUNTER 3 - FGEN_2_AFCOUNTER
<b>:afctr:state</b>	Activates AF Counter.
<b>:afctr:state?</b>	Returns AF Counter state.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### AGC

:agc:mode <n>	Sets AGC Mode.
:agc:mode?	Returns AGC Mode.
<n>	0 - Manual 1 - Auto

:agc:rfamp_mode <n>	Sets Receiver input preamp state.
:agc:rfamp_mode?	Returns Receiver input preamp state.
<n>	0 - Auto 1 - OFF 2 - ON

:agc:state	Activates Receiver AGC.
:agc:state?	Returns Receiver AGC state.

:agc:tos <n>	Sets Top of Scale adjustment for Manual AGC Mode.
:agc:tos?	Returns Top of Scale adjustment for Manual AGC Mode.
<n>	-90.0 to 10.0 dBm

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Audio Level Meter

:alm:alarm:high:limit <n>	Sets Alarm high limit value.
:alm:alarm:high:limit?	Returns Alarm high limit value.
<n>	0.0 to 50.0
:alm:alarm:high:state	Sets Alarm high limit state.
:alm:alarm:high:state?	Returns Alarm high limit state.
:alm:alarm:low:limit <n>	Sets Alarm low limit value.
:alm:alarm:low:limit?	Returns Alarm low limit value.
<n>	0.0 to 50.0
:alm:alarm:low:state	Sets Alarm low limit state.
:alm:alarm:low:state?	Returns Alarm low limit state.
:alm:average <n>	Sets the average size.
:alm:average?	Returns the average size.
<n>	1 to 99
:alm:coupling <n>	Sets signal coupling.
:alm:coupling?	Returns signal coupling.
<n>	0 - AC 1 - DC 2 - GND
:alm:detector <n>	Sets detector type.
:alm:detector?	Returns detector type.
<n>	0 - RMS 1 - PEAK PLUS 2 - PEAK MINUS 3 - PK2PK
:alm:dvm:overload?	Returns overload status of DVM Connector.
<n>	0 - No Overload 1 - Overload
:alm:range:dbuv:auto	Sets Audio Level autorange state to Auto.
:alm:range:dbuv>manual	Sets Audio Level autorange state to Manual.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Audio Level Meter (cont)

:alm:range:dbuv:range?	Returns Audio Level range information.
:alm:range:dbuv:state?	Returns Audio Level autorange state.
<n>	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:alm:range:dbm:auto	Sets Audio Level autorange state to Auto.
:alm:range:dbm>manual	Sets Audio Level autorange state to Manual.
:alm:range:dbm:range?	Returns Audio Level range information.
:alm:range:dbm:state?	Returns Audio Level autorange state.
<n>	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:alm:range:mv:auto	Sets Audio Level autorange state to Auto.
:alm:range:mv>manual	Sets Audio Level autorange state to Manual.
:alm:range:mv:range?	Returns Audio Level range information.
:alm:range:mv:state?	Returns Audio Level autorange state.
<n>	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:alm:range:volt:auto	Sets Audio Level autorange state to Auto.
:alm:range:volt>manual	Sets Audio Level autorange state to Manual.
:alm:range:volt:range?	Returns Audio Level range information.
:alm:range:volt:state?	Returns Audio Level autorange state.
<n>	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:alm:range:watts:auto	Sets Audio Level autorange state to Auto.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Audio Level Meter (cont)

:alm:range:watts>manual	Sets Audio Level autorange state to Manual.
:alm:range:watts:range?	Returns Audio Level range information.
:alm:range:watts:state?	Returns Audio Level autorange state.
<n>	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:alm:reading:avg?	Returns Audio Level Meter reading with averaged value.
<n>	0.0 to 50.0
:alm:reading:clear	Clears the meter readings.
:alm:reading:max?	Returns Audio Level Meter reading maximum value.
<n>	0.0 to 50.0
:alm:reading:min?	Returns Audio Level Meter reading minimum value
<n>	0.0 to 50.0
:alm:reading:val?	Returns Audio Level Meter average value.
<n>	0.0 to 50.0
:alm:scale <n>	Sets hardware input scaling for the DVM connector.
:alm:scale?	Returns hardware input scaling for the DVM connector.
<n>	0 - 2 V max 1 - 40 V max
:alm:source <n>	Sets input signal selection.
:alm:source?	Returns input signal selection.
<n>	0 - AUD IN 1 - DVM

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Audio Level Meter (cont)

<b>:alm:state &lt;n&gt;</b>	Sets Audio Level Meter state.
<b>:alm:state?</b>	Returns Audio Level Meter state.
<b>&lt;n&gt;</b>	0 - Disable 1 - Enable

<b>:alm:units &lt;n&gt;</b>	Sets current units setting.
<b>:alm:units?</b>	Returns current units setting.
<b>&lt;n&gt;</b>	0 - V 1 - mV 2 - dB $\mu$ V 3 - dBm 4 - W

<b>:alm:zero</b>	Activates DC offset compensation for the DVM input.
<b>:alm:zero?</b>	Returns DC offset compensation for the DVM input.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK

:c4fsk:rx:average:ber <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:ber?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:average:dev <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:dev?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:average:freq <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:freq?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:average:freq2 <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:freq2?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:average:freq_err <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:freq_err?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:average:mod_fid <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:mod_fid?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:average:pwr <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:pwr?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:average:time <n> <y>	Sets number of readings to average.
:c4fsk:rx:average:time?	Returns current average setting.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	1 to 99

:c4fsk:rx:ber:clear <n>	Clears the current BER minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN



## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:ber:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:chan_id?	Returns 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?	Returns color code (DMR Option).
:c4fsk:rx:dev:clear <n>	Clears the current Deviation minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:dev:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:dev2:clear <n>	Clears the current Deviation 2 minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:dev2:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:freq:clear <n>	Clears the current Frequency minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:freq:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:freq2:clear <n>	Clears the current Frequency 2 minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:freq2:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:freq_err:clear <n>	Clears the current Frequency Error minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:freq_err:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:magerr?	Returns Magnitude Error value (DMR Option).
	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:magerr:clear	Clears the current Magnitude Error minimum, maximum and average settings. (DMR Option).
:c4fsk:rx:mod_fid:clear <n>	Clears the current Mod Fidelity minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:mod_fid:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:nac:val?	Returns current value of Network Access Code.
:c4fsk:rx:nxdnrate <n>	Sets rate data is transmitted (NXDN Option).
:c4fsk:rx:nxdnrate?	Returns rate data is transmitted (NXDN Option).
<n>	0 - 4800 1 - 9600
:c4fsk:rx:pattern <n> <y>	Sets decode pattern.
:c4fsk:rx:pattern?	Returns decode pattern.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	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 (DMR / NXDN) 1 - Cal (DMR / NXDN) 2 - 0.153 (DMR / NXDN)
:c4fsk:rx:pwr:clear <n>	Clears the current Power minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:pwr:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:pwr2:clear <n>	Clears the current Power minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:pwr2:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:ran?	Returns radio access number (NXDN Option).
:c4fsk:rx:reset_acq <n>	Resets variables.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:rx:state <n> <y>	Sets digital receive state.
:c4fsk:rx:state?	Returns digital receive state.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - OFF 1 - ON
:c4fsk:rx:time:clear <n>	Clears the current Time minimum, maximum and average settings.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
:c4fsk:rx:time:val?	Returns current value.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Average 1 - Maximum 2 - Minimum
:c4fsk:rx:unit_id?	Returns unit ID (DMR Option).
:c4fsk:tx:chan_id <n>	Sets channel ID (DMR Option).
<n>	00000000 to 16777215
:c4fsk:tx:color_code <n>	Sets color code (DMR Option).
<n>	0 to 15
:c4fsk:tx:err <n> <y>	Sets number of false errors on transmitted signal.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 to 20

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:tx:nac <n>	Sets digital receive Network Access Code (P25 Option only).
<n>	000 to FFF

:c4fsk:tx:nxdnrate <n>	Sets rate data is transmitted (NXDN Option).
:c4fsk:tx:nxdnrate?	Returns rate data is transmitted (NXDN Option).
<n>	0 - 4800 1 - 9600

:c4fsk:tx:option?	Returns digital transmit option enable status.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - Disabled 1 - Enabled

:c4fsk:tx:pattern	Sets digital transmit decode pattern.
:c4fsk:tx:pattern?	Returns digital transmit decode pattern.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	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)

## 2-2. REMOTE OPERATION COMMANDS (cont)

### C4FSK (cont)

:c4fsk:tx:state	Sets digital transmit state.
:c4fsk:tx:state?	Returns digital transmit state.
<n>	0 - P25 1 - DMR 2 - dPMR 3 - ARIBT98 4 - NXDN
<y>	0 - ON 1 - OFF

:c4fsk:tx:unitid <n>	Sets Unit ID (DMR Option).
<n>	0 to 15



## 2-2. REMOTE OPERATION COMMANDS (cont)

### Calibration

<b>:calibration:continue &lt;n&gt;</b>	Continues individual Calibration.
<b>&lt;n&gt;</b>	0 - GEN 1 - REC 2 - Audio In
<b>:calibration:save &lt;n&gt;</b>	Saves individual Calibration.
<b>&lt;n&gt;</b>	0 - GEN 1 - REC 2 - Audio In
<b>:calibration:start &lt;n&gt;</b>	Starts individual Calibration.
<b>&lt;n&gt;</b>	0 - GEN 1 - REC 2 - Audio In
<b>:calibration:state? &lt;n&gt; &lt;y&gt;</b>	Returns individual Calibration state.
<b>&lt;n&gt;</b>	0 - GEN 1 - REC 2 - Audio In
<b>&lt;y&gt;</b>	0 - Not Running 1 - Running 2 - Waiting for Continue
<b>:calibration:stop &lt;n&gt;</b>	Stops individual Calibration.
<b>&lt;n&gt;</b>	0 - GEN 1 - REC 2 - Audio In

## 2-2. REMOTE OPERATION COMMANDS (cont)

### DCS

:dcs:decode:getcode? <n>	Returns DCS Decode number code.		
<n>	0 - 023	29 - 205	58 - 465
	1 - 025	30 - 223	59 - 466
	2 - 026	31 - 226	60 - 503
	3 - 031	32 - 243	61 - 506
	4 - 032	33 - 244	62 - 516
	5 - 043	34 - 245	63 - 532
	6 - 047	35 - 251	64 - 546
	7 - 051	36 - 261	65 - 565
	8 - 054	37 - 263	66 - 606
	9 - 065	38 - 265	67 - 612
	10 - 071	39 - 271	68 - 624
	11 - 072	40 - 306	69 - 627
	12 - 073	41 - 311	70 - 631
	13 - 074	42 - 315	71 - 632
	14 - 114	43 - 331	72 - 654
	15 - 115	44 - 343	73 - 662
	16 - 116	45 - 346	74 - 664
	17 - 125	46 - 351	75 - 703
	18 - 131	47 - 364	76 - 712
	19 - 132	48 - 365	77 - 723
	20 - 134	49 - 371	78 - 731
	21 - 143	50 - 411	79 - 732
	22 - 152	51 - 412	80 - 734
	23 - 155	52 - 413	81 - 743
	24 - 156	53 - 423	82 - 754
	25 - 162	54 - 431	83 - OFF
	26 - 165	55 - 432	84 - N/S
	27 - 172	56 - 445	
	28 - 174	57 - 464	

:dcs:decode:invert <n>	Sets DCS Decode Inverted state.		
<n>	0 - Non-Inverted 1 - Inverted		

:dcs:decode:state <n>	Sets DCS Decode state.		
:dcs:decode:state?	Returns DCS Decode state.		
<n>	0 - OFF 1 - ON		

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Demod

:demod:afbw <n>	Sets Demod AF Bandwidth.
:demod:afbw?	Returns Demod AF bandwidth setting.
<n>	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 HPF 9 - 300 to 5000 Hz HPF 10 - 300 to 20000 Hz HPF
:demod:dcpwr	Sets DC power to ADC.
:demod:dcpwr?	Returns DC power state.
:demod:state	Activates Analog Demod.
:demod:state?	Returns Analog Demod state.
:demod:type <n>	Sets Demod Modulation.
:demod:type?	Returns Demod Modulation setting.
<n>	0 - FM_DEMOD_DEV_5 1 - FM_DEMOD_DEV_6P25 2 - FM_DEMOD_DEV_8P33 3 - FM_DEMOD_DEV_10 4 - FM_DEMOD_DEV_12P5 5 - FM_DEMOD_DEV_25 6 - FM_DEMOD_DEV_30 7 - FM_DEMOD_DEV_100 8 - FM_DEMOD_DEV_300 9 - AM_DEMOD_DEV_5 10 - AM_DEMOD_DEV_6P25 11 - AM_DEMOD_DEV_8P33 12 - AM_DEMOD_DEV_10 13 - AM_DEMOD_DEV_12P5 14 - AM_DEMOD_DEV_25 15 - AM_DEMOD_DEV_30 25 - SIGSTR_DEMOD_DEV_30K 26 - SIGSTR_DEMOD_DEV_300K 27 - SIGSTR_DEMOD_DEV_3M 28 - SIGSTR_DEMOD_DEV_5M

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Deviation Meter / Modulation Meter

:devmod:alarm:high:limit <n>	Sets Alarm high limit value.
:devmod:alarm:high:limit?	Returns Alarm high limit value.
<n>	-100.0% to 100% (AM) -100.0 to 100.0 kHz (FM)
:devmod:alarm:high:state	Sets Alarm high limit state.
:devmod:alarm:high:state?	Returns Alarm high limit state.
:devmod:alarm:low:limit <n>	Sets Alarm low limit value.
:devmod:alarm:low:limit?	Returns Alarm low limit value.
<n>	-100.0% to 100% (AM) -100.0 to 100.0 kHz (FM)
:devmod:alarm:low:state	Sets Alarm low limit state.
:devmod:alarm:low:state?	Returns Alarm low limit state.
:devmod:average <n>	Sets number of readings to average.
:devmod:average?	Returns number of readings to average.
<n>	1 to 99
:devmod:range:am:auto	Sets Modulation Meter autorange state to Auto.
:devmod:range:am>manual	Sets Modulation Meter autorange state to Manual.
:devmod:range:am:range?	Returns Modulation Meter range information.
:devmod:range:am:state?	Returns Modulation Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:devmod:range:fm:auto	Sets Modulation Meter autorange state to Auto.
:devmod:range:fm>manual	Sets Modulation Meter autorange state to Manual.
:devmod:range:fm:range?	Returns Modulation Meter range information.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Deviation Meter / Modulation Meter (cont)

<b>:devmod:range:fm:state?</b>	Returns Modulation Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update
<b>:devmod:reading:avg?</b>	Returns Modulation Meter reading new average Peak2Peak value.
	0.0% to 100% (AM) 0.0 to 100.0 kHz (FM)
<b>:devmod:reading:clear</b>	Clears Meter reading.
<b>:devmod:reading:max?</b>	Returns Modulation Meter reading maximum value.
	0.0% to 100% (AM) 0.0 to 100.0 kHz (FM)
<b>:devmod:reading:min?</b>	Returns Modulation Meter reading minimum value
	0.0% to 100% (AM) 0.0 to 100.0 kHz (FM)
<b>:devmod:reading:peak2peak?</b>	Returns Modulation Meter reading Peak2Peak value.
	0.0% to 100% (AM) 0.0 to 100.0 kHz (FM)
<b>:devmod:reading:pk_state</b>	Enables/disables reading Peak Hold function.
<b>:devmod:reading:type &lt;n&gt;</b>	Selects readings sent to CF Meter.
<b>:devmod:reading:type?</b>	Returns readings sent to CF Meter.
<b>&lt;n&gt;</b>	0 - PEAK_READING_PLUS 1 - PEAK_READING_MINUS 2 - PK_PK_READING
<b>:devmod:reading:val?</b>	Returns Modulation Meter reading current average Peak2Peak value.
	0.0% to 100% (AM) 0.0 to 100.0 kHz (FM)

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Deviation Meter / Modulation Meter (cont)

:devmod:type <n>	Sets Meter Type.
:devmod:type?	Returns Meter Type.
<n>	0 - AM 1 - FM

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Distortion Meter

:distortion:demod:alarm:high:limit <n>	Sets Alarm high limit value.
:distortion:demod:alarm:high:limit?	Returns Alarm high limit value.
<n>	0.0% to 100%
:distortion:demod:alarm:high:state	Sets Alarm high limit state.
:distortion:demod:alarm:high:state?	Returns Alarm high limit state.
:distortion:demod:alarm:low:limit <n>	Sets Alarm low limit value.
:distortion:demod:alarm:low:limit?	Returns Alarm low limit value.
<n>	0.0% to 100%
:distortion:demod:alarm:low:state	Sets Alarm low limit state.
:distortion:demod:alarm:low:state?	Returns Alarm low limit state.
:distortion:demod:average <n>	Sets number of readings to average.
:distortion:demod:average?	Returns number of readings to average.
<n>	1 to 99
:distortion:demod:reading:avg?	Returns Distortion Meter reading with averaged value.
	0.0% to 100%
:distortion:demod:reading:clear	Clear Distortion Meter reading.
:distortion:demod:reading:max?	Returns Distortion Meter reading maximum value.
	0.0% to 100%
:distortion:demod:reading:min?	Returns Distortion Meter reading minimum value.
	0.0% to 100%
:distortion:demod:reading:val?	Returns Distortion Meter average value.
	0.0% to 100%
:distortion:demod:state	Activates Distortion Meter on demod input.
:distortion:demod:state?	Returns Distortion Meter state on demod input.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Distortion Meter (cont)

:distortion:ext_aud_in:alarm:high:limit <n>	Sets Alarm high limit value.
:distortion:ext_aud_in:alarm:high:limit?	Returns Alarm high limit value.
<n>	0.0% to 100%
:distortion:ext_aud_in:alarm:high:state	Sets Alarm high limit state.
:distortion:ext_aud_in:alarm:high:state?	Returns Alarm high limit state.
:distortion:ext_aud_in:alarm:low:limit <n>	Sets Alarm low limit value.
:distortion:ext_aud_in:alarm:low:limit?	Returns Alarm low limit value.
<n>	0.0% to 100%
:distortion:ext_aud_in:alarm:low:state	Sets Alarm low limit state.
:distortion:ext_aud_in:alarm:low:state?	Returns Alarm low limit state.
:distortion:ext_aud_in:average <n>	Sets number of readings to average.
:distortion:ext_aud_in:average?	Returns number of readings to average.
<n>	1 to 99
:distortion:ext_aud_in:filter <n>	Sets audio filter status.
:distortion:ext_aud_in:filter?	Returns audio filter status.
<n>	0 - No Filter 1 - 15 kHz LP 2 - 300 Hz to 3 kHz BP
:distortion:ext_aud_in:reading:avg?	Returns Distortion Meter reading with averaged value.
	0.0% to 100%
:distortion:ext_aud_in:reading:clear	Clear Distortion Meter reading.
:distortion:ext_aud_in:reading:max?	Returns Distortion Meter reading maximum value.
	0.0% to 100%
:distortion:ext_aud_in:reading:min?	Returns Distortion Meter reading minimum value.
	0.0% to 100%



## 2-2. REMOTE OPERATION COMMANDS (cont)

### Distortion Meter (cont)

<b>:distortion:ext_aud_in:reading:val?</b>	Returns Distortion Meter average value.
	0.0% to 100%
<b>:distortion:ext_aud_in:state</b>	Activates Distortion Meter on ext audio input.
<b>:distortion:ext_aud_in:state?</b>	Returns Distortion Meter state on ext audio input.
<b>:distortion:range?</b>	Returns Distortion Meter range information.
<b>:distortion:range:auto</b>	Sets Distortion Meter autorange state to Auto.
<b>:distortion:range&gt;manual</b>	Sets Distortion Meter autorange state to Manual.
<b>:distortion:range:state?</b>	Returns Distortion Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update

## 2-2. REMOTE OPERATION COMMANDS (cont)

### External Audio Input

<b>:extaudin:gain &lt;n&gt;</b>	Sets external audio input gain.
<b>&lt;n&gt;</b>	0.0001 to 1.0

<b>:extaudin:load &lt;n&gt;</b>	Sets output scaling.
<b>&lt;n&gt;</b>	0 - Open 1 - 150 $\Omega$ 2 - 600 $\Omega$ 3 - 1 k $\Omega$ 4 - Divide-by-10

<b>:extaudin:mute</b>	Sets input state.
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<b>:extaudin:state &lt;n&gt;</b>	Sets external audio input ON/OFF.
<b>:extaudin:state?</b>	Returns external audio input state.
<b>&lt;n&gt;</b>	ON or OFF

## 2-2. REMOTE OPERATION COMMANDS (cont)

### External Audio Output

<b>:extaudout:source &lt;n&gt;</b>	Selects signal source.
<b>:extaudout:source?</b>	Returns external audio output source.
<b>&lt;n&gt;</b>	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
<b>:extaudout:state &lt;n&gt;</b>	Sets external audio output ON/OFF.
<b>:extaudout:state?</b>	Returns external audio output state.
<b>&lt;n&gt;</b>	ON or OFF

## 2-2. REMOTE OPERATION COMMANDS (cont)

### External RF Power

:extrfpwr:CCDF:limit <n>	Sets the CCDF limit.
:extrfpwr:CCDF:limit?	Returns the CCDF limit.
<n>	0 to 400 (W)
:extrfpwr:dutycycle:avg <n>	Sets the number of averages for duty cycle.
:extrfpwr:dutycycle:avg?	Returns the number of averages for duty cycle.
<n>	1 to 99
:extrfpwr:dutycycle:lower:limit:state	Sets the duty cycle lower limit state.
:extrfpwr:dutycycle:lower:limit:state?	Returns the duty cycle lower limit state.
:extrfpwr:dutycycle:lower:limit:value <n>	Sets the duty cycle lower limit value.
:extrfpwr:dutycycle:lower:limit:value?	Returns the duty cycle lower limit value.
<n>	0 to 100
:extrfpwr:dutycycle:reading:val?	Returns the duty cycle reading.
:extrfpwr:dutycycle:upper:limit:state	Sets the duty cycle upper limit state.
:extrfpwr:dutycycle:upper:limit:state?	Returns the duty cycle upper limit state.
:extrfpwr:dutycycle:upper:limit:value <n>	Sets the duty cycle upper limit value.
:extrfpwr:dutycycle:upper:limit:value?	Returns the duty cycle upper limit value.
<n>	0 to 100
:extrfpwr:filter <n>	Sets the video filter.
:extrfpwr:filter?	Returns the video filter.
<n>	0 - 4500 1 - 400000
:extrfpwr:fwd:avg <n>	Sets the number of averages for forward power.
:extrfpwr:fwd:avg?	Returns the number of averages for forward power.
<n>	1 to 99
:extrfpwr:fwd:lower:limit:state	Sets the forward lower limit state.
:extrfpwr:fwd:lower:limit:state?	Returns the forward lower limit state.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### External RF Power (cont)

:extrfpwr:fwd:lower:limit:value <n>	Sets the forward lower limit value.
:extrfpwr:fwd:lower:limit:value?	Returns the forward lower limit value.
<n>	0 to 400
:extrfpwr:fwd:reading:val?	Returns the forward power reading.
:extrfpwr:fwd:units <n>	Sets the forward power units.
:extrfpwr:fwd:units?	Returns the forward power units.
<n>	6 - dBm 7 - uW 8 - mW 9 - W
:extrfpwr:fwd:upper:limit:state	Sets the forward upper limit state.
:extrfpwr:fwd:upper:limit:state?	Returns the forward upper limit state.
:extrfpwr:fwd:upper:limit:value <n>	Sets the forward upper limit value.
:extrfpwr:fwd:upper:limit:value?	Returns the forward upper limit value.
<n>	0 to 400
:extrfpwr:match:avg <n>	Sets the number of averages for match.
:extrfpwr:match:avg?	Returns the number of averages for match.
<n>	1 to 99
:extrfpwr:match:lower:limit:state	Sets the match lower limit state.
:extrfpwr:match:lower:limit:state?	Returns the match lower limit state.
:extrfpwr:match:lower:limit:value <n>	Sets the match lower limit value.
:extrfpwr:match:lower:limit:value?	Returns the match lower limit value.
<n>	0 to 100
:extrfpwr:match:reading:val?	Returns the match reading.
:extrfpwr:match:units <n>	Sets the match units.
:extrfpwr:match:units?	Returns the match units.
<n>	2 - RHO 3 - VSWR 5 - RTL

## 2-2. REMOTE OPERATION COMMANDS (cont)

### External RF Power (cont)

:extrfpwr:match:upper:limit:state	Sets the match upper limit state.
:extrfpwr:match:upper:limit:state?	Returns the match upper limit state.
:extrfpwr:match:upper:limit:value <n>	Sets the match upper limit value.
:extrfpwr:match:upper:limit:value?	Returns the match upper limit value.
<n>	0 to 100
:extrfpwr:meas:type <n>	Sets the measurement type.
:extrfpwr:meas:type?	Returns the measurement type.
<n>	0 - avg 1 - peak 2 - burst 3 - crest 4 - ccdf
:extrfpwr:offset <n>	Sets the offset in dB.
:extrfpwr:offset?	Returns the offset in dB.
<n>	0 to 100 (dB).
:extrfpwr:refl:avg <n>	Sets the number of averages for reflected power.
:extrfpwr:refl:avg?	Returns the number of averages for reflected power.
<n>	1 to 99
:extrfpwr:refl:lower:limit:state	Sets the reflected lower limit state.
:extrfpwr:refl:lower:limit:state?	Returns the reflected lower limit state.
:extrfpwr:refl:lower:limit:value <n>	Sets the reflected lower limit value.
:extrfpwr:refl:lower:limit:value?	Returns the reflected lower limit value.
<n>	0 to 400
:extrfpwr:refl:reading:val?	Returns the reflected power reading.
:extrfpwr:refl:units <n>	Sets the reflected power units.
:extrfpwr:refl:units?	Returns the reflected power units.
<n>	6 - dBm 7 - uW 8 - mW 9 - W

## 2-2. REMOTE OPERATION COMMANDS (cont)

### External RF Power (cont)

<b>:extrfpwr:refl:upper:limit:state</b>	Sets the reflected upper limit state.
<b>:extrfpwr:refl:upper:limit:state?</b>	Returns the reflected upper limit state.
<b>:extrfpwr:refl:upper:limit:value &lt;n&gt;</b>	Sets the reflected upper limit value.
<b>:extrfpwr:refl:upper:limit:value?</b>	Returns the reflected upper limit value.
<b>&lt;n&gt;</b>	0 to 400
<b>:extrfpwr:zero</b>	Zero the power sensor.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Frequency Find

<b>:freqfind:peak?</b>	Returns next tune frequency.
<b>:freqfind:start &lt;n&gt;</b>	Sets tune start frequency.
<b>:freqfind:start?</b>	Returns tune start frequency.
<b>&lt;n&gt;</b>	2 to 1000 MHz
<b>:freqfind:stop &lt;n&gt;</b>	Sets tune stop frequency.
<b>:freqfind:stop?</b>	Returns tune stop frequency.
<b>&lt;n&gt;</b>	2 to 1000 MHz
<b>:freqfind:threshold &lt;n&gt;</b>	Sets tune threshold.
<b>:freqfind:threshold?</b>	Returns tune threshold.
<b>&lt;n&gt;</b>	-110.0 to 40.0 dBm
<b>:freqfind:channel_boundary &lt;n&gt;</b>	Sets channel bandwidth step for frequency search.
<b>:freqfind:channel_boundary?</b>	Returns channel bandwidth step for frequency search.
<b>&lt;n&gt;</b>	0.001 to 5.000 MHz



## 2-2. REMOTE OPERATION COMMANDS (cont)

### Function Generator

<b>:fgen:enable</b>	Sets Function Generator ON/OFF.
<b>:fgen:enable?</b>	Returns Function Generator condition.
<b>:fgen:freq &lt;n&gt; &lt;y&gt;</b>	Sets individual Function Generator frequency.
<b>&lt;n&gt;</b>	1 - Fgen1 2 - Fgen2
<b>&lt;y&gt;</b>	0 to 24000 Hz
<b>:fgen:level &lt;n&gt; &lt;y&gt;</b>	Sets individual Function Generator output level.
<b>&lt;n&gt;</b>	1 - Fgen1 2 - Fgen2
<b>&lt;y&gt;</b>	0 to 1.7 Vrms
<b>:fgen:load &lt;n&gt;</b>	Sets output scaling.
<b>&lt;n&gt;</b>	0 - 600 $\Omega$ 1 - 150 $\Omega$ 2 - Open Circuit
<b>:fgen:state &lt;n&gt; &lt;y&gt;</b>	Sets individual Function Generator ON/OFF.
<b>&lt;n&gt;</b>	1 - Fgen1 2 - Fgen2
<b>&lt;y&gt;</b>	ON or OFF

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Normalize

<b>:normalize:pre:state</b>	Activates pre-normalize.
<b>:normalize:pre:status?</b>	Returns pre-normalize status.
	0 - Stopped 1 - Running
<b>:normalize:recall</b>	Issues command to database to recall TABLE_CURRENT_NORMALIZE.
<b>:normalize:run:state</b>	Activates normalize.
<b>:normalize:run:status?</b>	Returns normalize status.
	0 - Stopped 1 - Running

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Options

<b>:options:flash?</b>	Returns unique ID Number.
	ID Number
<b>:options:isactive?</b>	Returns status of installed Option.
	35000001 - Spectrum Analyzer 35000010 - Oscilloscope 35000060 - Scripting 35000070 - Tracking Generator 35000100 - P25 35000200 - DMR 35000300 - dPMR 35000400 - NXDN 35000500 - ARIBT98
	0 - Not Installed 1 - Installed
<b>:options:man?</b>	Returns manufacturer's name.
	Aeroflex
<b>:options:model?</b>	Returns model number.
	3550
<b>:options:serial?</b>	Returns serial number.
	10 Digit SN

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Oscilloscope

<b>:scope:coupling &lt;n&gt;</b>	Sets Oscilloscope input coupling.
<b>:scope:coupling?</b>	Returns Oscilloscope input coupling.
<b>&lt;n&gt;</b>	0 - AC 1 - DC 2 - GND

<b>:scope:dvm:divby20 &lt;n&gt;</b>	Sets input scaling for DVM Connector.
<b>:scope:dvm:divby20?</b>	Returns input scaling for DVM Connector.
<b>&lt;n&gt;</b>	0 - 2 V max 1 - 40 V max

<b>:scope:dvm:overload?</b>	Returns DVM overload status.
	0 - No Overload 1 - Overload

<b>:scope:offset:vertical &lt;n&gt;</b>	Sets Oscilloscope input vertical offset.
<b>:scope:offset:vertical?</b>	Returns Oscilloscope input vertical offset.
<b>&lt;n&gt;</b>	-100.0 to 100.0

<b>:scope:scale:horiz &lt;n&gt;</b>	Sets Oscilloscope input horizontal scale.
<b>:scope:scale:horiz?</b>	Returns Oscilloscope input horizontal scale.
<b>&lt;n&gt;</b>	0 - 20 $\mu$ s/Div 1 - 50 $\mu$ s/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)

<b>:scope:scale:vertical &lt;n&gt;</b>	Sets Oscilloscope input vertical scale.
<b>:scope:scale:vertical?</b>	Returns Oscilloscope input vertical scale.
<b>&lt;n&gt;</b>	0 - 10 mV/Div (DVM / AUDIO IN) 0.1 kHz/Div (DEMODO FM) 5%/Div (DEMODO AM) 1 - 20 mV/Div (DVM / AUDIO IN) 0.2 kHz/Div (DEMODO FM) 10%/Div (DEMODO AM) 2 - 50 mV/Div (DVM / AUDIO IN) 0.5 kHz/Div (DEMODO FM) 20%/Div (DEMODO AM) 3 - 0.1 V/Div (DVM / AUDIO IN) 1 kHz/Div (DEMODO FM) 50%/Div (DEMODO AM) 4 - 0.2 V/Div (DVM / AUDIO IN) 2 kHz/Div (DEMODO FM) 5 - 0.5 V/Div (DVM / AUDIO IN) 5 kHz/Div (DEMODO FM) 6 - 1 V/Div (DVM / AUDIO IN) 10 kHz/Div (DEMODO FM) 7 - 2 V/Div (DVM / AUDIO IN) 20 kHz/Div (DEMODO FM) 8 - 5 V/Div (DVM / AUDIO IN) 50 kHz/Div (DEMODO FM) 9 - 10 V/Div (DVM / AUDIO IN)
<b>:scope:source &lt;n&gt;</b>	Sets Oscilloscope input source.
<b>:scope:source?</b>	Returns Oscilloscope input source.
<b>&lt;n&gt;</b>	0 - DVM 1 - DEMODO 2 - AUD IN
<b>:scope:state &lt;n&gt;</b>	Sets Oscilloscope input state.
<b>:scope:state?</b>	Returns Oscilloscope input state.
<b>&lt;n&gt;</b>	0 - Disable 1 - Enable
<b>:scope:trace:length?</b>	Returns maximum Oscilloscope trace elements.
<b>:scope:trace:val?</b>	Returns Oscilloscope trace value.
<b>:scope:trigger:edge &lt;n&gt;</b>	Sets Oscilloscope input trigger edge.
<b>:scope:trigger:edge?</b>	Returns Oscilloscope input trigger edge.
<b>&lt;n&gt;</b>	0 - FALL 1 - RISE

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Oscilloscope (cont)

<b>:scope:trigger:level</b>	Sets Oscilloscope input trigger level.
<b>:scope:trigger:level?</b>	Returns Oscilloscope input trigger level.
<b>:scope:trigger:mode &lt;n&gt;</b>	Sets Oscilloscope input trigger mode.
<b>:scope:trigger:mode?</b>	Returns Oscilloscope input trigger mode.
<b>&lt;n&gt;</b>	0 - NORMAL 1 - AUTO
<b>:scope:trigger:type &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Oscilloscope input trigger.
<b>:scope:trigger:type?</b>	Returns Oscilloscope input trigger.
<b>&lt;n&gt;</b>	0 - NORMAL 1 - AUTO
<b>&lt;y&gt;</b>	0 - FALL 1 - RISE
<b>&lt;z&gt;</b>	LEVEL

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Receiver

:rec:atten?	Returns Receiver attenuator setting.
	0, 10, 20 or 30 dB
:rec:dcpwr <n>	Sets Receiver DC Power state.
<n>	0 - OFF 1 - ON
:rec:extpad <n>	Sets compensation of Receiver TOS for external pad.
:rec:extpad?	Returns value of compensation for external pad.
<n>	-30.0 to 30.0 dB
:rec:freq <n>	Sets Receiver frequency.
:rec:freq?	Returns Receiver frequency.
<n>	2.000000 to 1000.000000 MHz
:rec:port <n>	Sets Receiver Input Connector.
:rec:port?	Returns Receiver Input Connector selected.
<n>	0 - T/R 1 - ANT
:rec:port:protection <n>	Resets ANT Connector protection circuit.
<n>	0 - OFF 1 - RESET 2 - ON

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Error Meter

<b>:rferr:alarm:high:limit &lt;n&gt;</b>	Sets Alarm high limit value.
<b>:rferr:alarm:high:limit?</b>	Returns Alarm high limit value.
<b>&lt;n&gt;</b>	-200.0 to 200.0 kHz
<b>:rferr:alarm:high:state</b>	Sets Alarm high limit state.
<b>:rferr:alarm:high:state?</b>	Returns Alarm high limit state.
<b>:rferr:alarm:low:limit &lt;n&gt;</b>	Sets Alarm low limit value.
<b>:rferr:alarm:low:limit?</b>	Returns Alarm low limit value.
<b>&lt;n&gt;</b>	-200.0 to 200.0 kHz
<b>:rferr:alarm:low:state</b>	Sets Alarm low limit state.
<b>:rferr:alarm:low:state?</b>	Returns Alarm low limit state.
<b>:rferr:average &lt;n&gt;</b>	Sets number of readings to average.
<b>:rferr:average?</b>	Returns number of readings to average.
<b>&lt;n&gt;</b>	1 to 99
<b>:rferr:interval &lt;n&gt;</b>	Sets RF Counter update interval.
<b>:rferr:interval?</b>	Returns RF Counter interval.
<b>&lt;n&gt;</b>	0.0 to 53.0 sec
<b>:rferr:range?</b>	Returns RF Error Meter range information.
<b>:rferr:range:auto</b>	Sets RF Error Meter autorange state to Auto.
<b>:rferr:range&gt;manual</b>	Sets RF Error Meter autorange state to Manual.
<b>:rferr:range:state?</b>	Returns RF Error Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update
<b>:rferr:reading:avg?</b>	Returns RF Error Counter reading averaged value.
	-500.0 to 500.0 kHz
<b>:rferr:reading:clear</b>	Clears RF Error Counter reading.



## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Error Meter (cont)

<b>:rferr:reading:max?</b>	Returns RF Error Counter reading maximum value.
	-500.0 to 500.0 kHz
<b>:rferr:reading:min?</b>	Returns RF Error Counter reading minimum value.
	-500.0 to 500.0 kHz
<b>:rferr:reading:val?</b>	Returns RF Error Counter reading with no statistics.
	-500.0 to 500.0 kHz
<b>:rferr:relative &lt;n&gt;</b>	Sets RF Error to absolute or relative counting using the Receiver RF.
<b>:rferr:relative?</b>	Returns if RF Error set to absolute or relative counting.
<b>&lt;n&gt;</b>	0 - Absolute 1 - Relative
<b>:rferr:state</b>	Activates RF Error Counter.
<b>:rferr:state?</b>	Returns state of RF Error Counter.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Generator

:gen:ant:protection?	Returns ANT Connector protection state.
	0 - OFF 1 - ON (Overload)

:gen:ant:protection:reset	Resets ANT Connector protection state.
---------------------------	--

:gen:atten?	Returns RF Generator attenuator setting.
	0 to 63 dB

:gen:dcpwr <n>	Sets RF Generator DC Power state.
<n>	0 - OFF 1 - ON

:gen:extpad <n>	Sets compensation of RF Generator output level for external pad.
:gen:extpad?	Returns value of compensation for external pad.
<n>	-30.0 to 30.0 dB

:gen:freq <n>	Sets RF Generator frequency.
:gen:freq?	Returns RF Generator frequency.
<n>	2.000000 to 1000.000000 MHz

:gen:lvl:dbm <n>	Sets RF Generator level on selected output connector.
:gen:lvl:dbm?	Returns RF Generator level on selected output connector.
<n>	SWR - -65 to -5 dBm T/R - -120 to -50 dBm ANT - -90 to -30 dBm

:gen:lvl:unit <n>	Sets RF Generator level units to $\mu$ V or dBm.
<n>	0 - dBm 1 - $\mu$ V

:gen:lvl:uv	Sets RF Generator level on selected output connector.
:gen:lvl:uv?	Returns RF Generator level on selected output connector.
	SWR - 125.74 to 125743.34 $\mu$ V T/R - 0.22361 to 707.11 $\mu$ V ANT - 7.071 to 7071.07 $\mu$ V

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Generator (cont)

<b>:gen:port</b>	Sets RF Generator Output Connector.
<b>:gen:port?</b>	Returns RF Generator Output Connector selected.
	0 - T/R 1 - ANT 2 - SWR
<b>:gen:port:protection &lt;n&gt;</b>	Resets SWR Connector protection circuit.
<b>&lt;n&gt;</b>	0 - OFF 1 - RESET 2 - ON
<b>:gen:swr:protection?</b>	Returns SWR Connector protection state.
	0 - OFF 1 - ON (Overload)
<b>:gen:swr:protection:reset</b>	Resets SWR Connector protection state.
<b>:gen:tr:protection?</b>	Returns T/R Connector protection state.
	0 - OFF 1 - ON (Overload)
<b>:gen:tr:protection:reset</b>	Resets T/R Connector protection state.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Power Meter

<b>:rfpow:alarm:high:limit &lt;n&gt;</b>	Sets Alarm high limit value.
<b>:rfpow:alarm:high:limit?</b>	Returns Alarm high limit value.
<b>&lt;n&gt;</b>	0.0 to 43.0 dBm 0.0 to 100.0 W
<b>:rfpow:alarm:high:state</b>	Sets Alarm high limit state.
<b>:rfpow:alarm:high:state?</b>	Returns Alarm high limit state.
<b>:rfpow:alarm:low:limit &lt;n&gt;</b>	Sets Alarm low limit value.
<b>:rfpow:alarm:low:limit?</b>	Returns Alarm low limit value.
<b>&lt;n&gt;</b>	0.0 to 43.0 dBm 0.0 to 100.0 W
<b>:rfpow:alarm:low:state</b>	Sets Alarm low limit state.
<b>:rfpow:alarm:low:state?</b>	Returns Alarm low limit state.
<b>:rfpow:average &lt;n&gt;</b>	Sets number of readings to average.
<b>:rfpow:average?</b>	Returns number of readings to average.
<b>&lt;n&gt;</b>	1 to 99
<b>:rfpow:cal:freq:resp?</b>	Returns frequency in MHz at supplied index.
<b>:rfpow:cal:lin:high:calpt</b>	Takes current high power reading and supplied cal value at supplied index.
<b>:rfpow:cal:lin:high:dac?</b>	Returns DAC value at supplied index.
<b>:rfpow:cal:lin:high:pow?</b>	Returns dBm value at supplied index.
<b>:rfpow:cal:lin:high:size</b>	Clears previous high range cal curve and resizes as required.
<b>:rfpow:cal:lin:high:size?</b>	Returns high power cal curve size.
<b>:rfpow:cal:lin:low:calpt</b>	Takes current low power reading and supplied cal value at supplied index.
<b>:rfpow:cal:lin:low:dac?</b>	Returns dac value at supplied index.
<b>:rfpow:cal:lin:low:pow?</b>	Returns dBm value at supplied index.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Power Meter (cont)

<b>:rfpow:cal:lin:low:size</b>	Clears previous low range cal curve and resizes as required.
<b>:rfpow:cal:lin:low:size?</b>	Returns low power cal curve size.
<b>:rfpow:cal:recalc</b>	Recalculates Calibration.
<b>:rfpow:cal:recall</b>	Recalls Calibration Data.
<b>:rfpow:cal:resp:calpt</b>	Takes correction freq and index to fill cal table.
<b>:rfpow:cal:resp:calpt?</b>	Returns cal factor value at supplied index.
<b>:rfpow:cal:resp:size</b>	Clears previous response cal curve and resizes as required.
<b>:rfpow:cal:resp:size?</b>	Returns response cal curve size.
<b>:rfpow:cal:save</b>	Saves Calibration Data.
<b>:rfpow:cal:state &lt;n&gt;</b>	Sets Calibration State
<b>:rfpow:cal:state?</b>	Returns Calibration State.
<b>&lt;n&gt;</b>	0 - Normal PT Operation 1 - Range Cal 2 - Response Cal
<b>:rfpow:extatten &lt;n&gt;</b>	Sets compensation factor for external attenuation.
<b>:rfpow:extatten?</b>	Returns compensation factor for external attenuation.
<b>&lt;n&gt;</b>	-30.0 to +30.0 dB
<b>:rfpow:range &lt;n&gt;</b>	Sets reading range operation.
<b>&lt;n&gt;</b>	0 - Low Range 1 - High Range 2 - Auto Range
<b>:rfpow:range:dbm:range?</b>	Returns RF Power Meter range information.
<b>:rfpow:range:dbm:auto</b>	Sets RF Power Meter autorange state to Auto.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Power Meter (cont)

<b>:rfpow:range:dbm&gt;manual</b>	Sets RF Power Meter autorange state to Manual.
<b>:rfpow:range:dbm:state?</b>	Returns RF Power Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update
<b>:rfpow:range:watt:range?</b>	Returns RF Power Meter range information.
<b>:rfpow:range:watt:auto</b>	Sets RF Power Meter autorange state to Auto.
<b>:rfpow:range:watt&gt;manual</b>	Sets RF Power Meter autorange state to Manual.
<b>:rfpow:range:watt:state?</b>	Returns RF Power Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update
<b>:rfpow:reading:avg?</b>	Returns RF Power Meter average reading.
<b>:rfpow:reading:clear</b>	Clears the current minimum, maximum and average settings.
<b>:rfpow:reading:dbm:avg?</b>	Returns RF Power Meter average reading.
	1.0 to 43.0 dBm
<b>:rfpow:reading:dbm:max?</b>	Returns RF Power Meter reading maximum value.
	1.0 to 43.0 dBm
<b>:rfpow:reading:dbm:min?</b>	Returns RF Power Meter reading minimum value.
	1.0 to 43.0 dBm
<b>:rfpow:reading:dbm:val?</b>	Returns RF Power Meter average reading.
	1.0 to 43.0 dBm
<b>:rfpow:reading:max?</b>	Returns RF Power Meter reading maximum value.
	1.0 to 43.0 dBm

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RF Power Meter (cont)

<b>:rfpow:reading:min?</b>	Returns RF Power Meter reading minimum value.
	1.0 to 43.0 dBm
<b>:rfpow:reading:val?</b>	Returns RF Power Meter average reading.
	1.0 to 43.0 dBm
<b>:rfpow:reading:watt:avg?</b>	Returns RF Power Meter average reading.
	0.00125 to 100 W
<b>:rfpow:reading:watt:max?</b>	Returns RF Power Meter reading maximum value.
	0.00125 to 100 W
<b>:rfpow:reading:watt:min?</b>	Returns RF Power Meter reading minimum value.
	0.00125 to 100 W
<b>:rfpow:reading:watt:val?</b>	Returns RF Power Meter average reading.
	0.00125 to 100 W
<b>:rfpow:state</b>	Enables/disables RF Power Meter operation.
<b>:rfpow:state?</b>	Returns state of RF Power Meter.
<b>:rfpow:units &lt;n&gt;</b>	Sets units for reading.
<b>&lt;n&gt;</b>	0 - dBm 1 - Watts
<b>:rfpow:zero</b>	Starts zero operation required before measurements.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RSSI Meter

:rssi:alarm:high:limit	Sets Alarm high limit value.
:rssi:alarm:high:limit?	Returns Alarm high limit value.
<n>	0 to 20 W
:rssi:alarm:high:state	Sets Alarm high limit state.
:rssi:alarm:high:state?	Returns Alarm high limit state.
:rssi:alarm:low:limit	Sets Alarm low limit value.
:rssi:alarm:low:limit?	Returns Alarm low limit value.
<n>	0 to 20 W
:rssi:alarm:low:state	Sets Alarm low limit state.
:rssi:alarm:low:state?	Returns Alarm low limit state.
:rssi:average	Sets number of readings to average.
:rssi:average?	Returns number of readings to average.
<n>	1 to 99
:rssi:range:dbm:auto	Sets Audio Level autorange state to Auto.
:rssi:range:dbm>manual	Sets Audio Level autorange state to Manual.
:rssi:range:dbm:range?	Returns Audio Level range information.
:rssi:range:dbm:state?	Returns Audio Level autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update
:rssi:range:watts:auto	Sets Audio Level autorange state to Auto.
:rssi:range:watts>manual	Sets Audio Level autorange state to Manual.
:rssi:range:watts:range?	Returns Audio Level range information.
:rssi:range:watts:state?	Returns Audio Level autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update



## 2-2. REMOTE OPERATION COMMANDS (cont)

### RSSI Meter (cont)

:rssi:reading:avg?	Returns RSSI reading averaged value.
	-110 to 53 dBm
:rssi:reading:dbm:avg?	Returns RSSI reading averaged value.
:rssi:reading:dbm:max?	Returns RSSI reading maximum value.
:rssi:reading:dbm:min?	Returns RSSI reading minimum value.
:rssi:reading:dbm:val?	Returns RSSI reading with no statistics.
:rssi:reading:clear	Clears RSSI reading.
:rssi:reading:max?	Returns RSSI reading maximum value.
	-110 to 53 dBm
:rssi:reading:min?	Returns RSSI reading minimum value.
	-110 to 53 dBm
:rssi:reading:units	Sets displayed units.
<n>	0 - dBm 1 - Watts 2 - $\mu$ Watts
:rssi:reading:val?	Returns RSSI reading with no statistics.
	-110 to 53 dBm
:rssi:reading:watt:avg?	Returns RSSI reading averaged value.
	0 to 100 W
:rssi:reading:watt:max?	Returns RSSI reading maximum value.
	0 to 100 W
:rssi:reading:watt:min?	Returns RSSI reading minimum value.
	0 to 100 W
:rssi:reading:watt:val?	Returns RSSI reading with no statistics.
	0 to 100 W

## 2-2. REMOTE OPERATION COMMANDS (cont)

### RSSI Meter (cont)

<b>:rssi:state</b>	Activates RSSI readings.
<b>:rssi:state?</b>	Returns state of RSSI Meter.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Screens

:screen:af_counter_meter	Selects AF Counter Meter Screen.
:screen:analyzer	Selects Analyzer Screen.
:screen:annunciator	Selects Annunciator Screen.
:screen:audio	Selects Audio Function Generator Test Screen.
:screen:audio_level_meter	Selects Audio Level Meter Screen.
:screen:date_time_config	Selects Date/Time Screen.
:screen:diagnostic_tests	Selects Diagnostic Screen.
:screen:distortion_meter	Selects Distortion Meter Screen.
:screen:duplex_test	Selects Duplex Test Screen.
:screen:hwconfig	Selects HW Config Screen.
:screen:options	Selects Options Screen.
:screen:receiver_test	Selects Receiver Test Screen.
:screen:remote_config	Selects Remote Screen.
:screen:scope	Selects Oscilloscope Screen.
:screen:self_test	Selects Self Test Screen.
:screen:sinad_meter	Selects Sinad Meter Screen.
:screen:swr_test	Selects ANT-Cable Test Screen.
:screen:trackgen	Selects Tracking Generator Screen.
:screen:transmitter_test	Selects Transmitter Test Screen.
:screen:unitcopy	Selects Unit Copy Screen.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Screens (cont)

<b>:screen:usbmanager</b>	Selects USB Manager Screen.
<b>:screen:version</b>	Selects Version Screen.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Scripting

<b>:scripting:checkkey?</b>	Returns Key Code or -1 if no key is pressed.
<b>:scripting:dialog:close</b>	Closes an open Dialog Box.
<b>:scripting:dialog:create</b>	Creates a Dialog Box.
<b>:scripting:event:enable &lt;n&gt; &lt;y&gt;</b>	Sets the event for the Soft Key to a Lua Command.
<b>&lt;n&gt;</b>	1 to 5 Lua Command
<b>&lt;y&gt;</b>	1 to 5 Lua Command
<b>:scripting:event:idle</b>	Waits for Key Event.
<b>:scripting:event:idle:dcib</b>	Waits for Key Event without closing Dialog Box.
<b>:scripting:exit</b>	Signals the end of a running script.
<b>:scripting:getkey?</b>	Returns Key Code
<b>:scripting:rs232:close</b>	Closes the RS-232 connection.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Scripting (cont)

<b>:scripting:rs232:config</b>	Configures the RS-232 Connector.
<b>&lt;n&gt;</b>	<b>Baud Rate:</b> 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400
<b>&lt;n&gt;</b>	<b>Byte Size:</b> 5, 6, 7, 8
<b>&lt;n&gt;</b>	<b>Parity:</b> 0 (no parity), 1 (even parity), 2 (odd parity), 3 (space parity)
<b>&lt;n&gt;</b>	<b>Stop Bits:</b> 1, 2
<b>&lt;n&gt;</b>	<b>Flow:</b> 0 (Off), 1 (On)
<b>&lt;n&gt;</b>	<b>Crtscts:</b> 0 (flow off), 1 (flow on)
<b>&lt;n&gt;</b>	<b>Timeout:</b> Integer
<b>&lt;n&gt;</b>	<b>Term:</b> Terminating character in hex format
<b>:scripting:rs232:open</b>	Opens the RS-232 connection.
<b>:scripting:rs232:pacewrite &lt;n&gt; &lt;y&gt;</b>	Writes to RS-232 Connector, pausing between each character.
<b>&lt;n&gt;</b>	<string>
<b>&lt;y&gt;</b>	Time
<b>:scripting:rs232:read</b>	Reads in from RS-232 until the term character is reached or timeout occurs.
<b>:scripting:rs232:readsize</b>	Reads Number of Characters in RS-232 Buffer.
<b>:scripting:rs232:stringwrite &lt;n&gt;</b>	Writes string to RS-232 Connector.
<b>&lt;n&gt;</b>	<string>

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Scripting (cont)

<b>:scripting:rs232:wait &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Waits until the given string is read.
<b>&lt;n&gt;</b>	<string>
<b>&lt;y&gt;</b>	<timeout>
<b>&lt;z&gt;</b>	<log enable>
<b>:scripting:rs232:write &lt;n&gt;</b>	Writes string of hex values delimited by commas to RS-232 Connector.
<b>&lt;n&gt;</b>	<string>
<b>:scripting:screen:print &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Prints the given string to the given x,y coordinates on the Dialog Box.
<b>&lt;n&gt;</b>	X Coordinate
<b>&lt;y&gt;</b>	Y Coordinate
<b>&lt;z&gt;</b>	"String"
<b>:scripting:screen:print:invert</b>	Prints the given string to the given x,y coordinates on the Dialog Box with Inverted Colors.
<b>:scripting:screen:rectangle</b>	Prints a Rectangle to the Scripting Dialog.
<b>&lt;n&gt;</b>	X1 Coordinate
<b>&lt;n&gt;</b>	Y1 Coordinate
<b>&lt;n&gt;</b>	X2 Coordinate
<b>&lt;n&gt;</b>	Y2 Coordinate
<b>&lt;n&gt;</b>	0 - Black 1 - White
<b>:scripting:sleep</b>	Sets the Sleep time in ms. For time >1 minute, the Sleep time is truncated to 1 minute.
<b>:scripting:softkey:clear</b>	Clears all the Soft Key Labels.
<b>:scripting:softkey:label &lt;n&gt; &lt;y&gt;</b>	Sets the Soft Key Label.
<b>&lt;n&gt;</b>	1 to 5
<b>&lt;y&gt;</b>	Label Name

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Setup

:setup:date:cal:new <n> <y> <z>	Writes next Calibration Date into RTC.
<n>	Day
<y>	Month
<z>	Year
:setup:date:cal_due?	Returns next Calibration Date.
:setup:date:current?	Returns the current date.
:setup:ftp:filepath	Sets path to files on FTP server.
:setup:ftp:filepath?	Returns path to files on FTP server.
:setup:ppcram:free?	Returns PowerPC free RAM value.
:setup:ppcram:total?	Returns PowerPC total RAM value.
:setup:ppcflash:free?	Returns PowerPC free Flash value.
:setup:ppcflash:total?	Returns PowerPC total Flash value.
:setup:ptt:35xx	Sets PTT ON/OFF.
:setup:ptt:hw?	Returns PTT hardware.
	0 - Aeroflex Mic 1 - H-250 Mic 2 - Headset Mic 3 - Aeroflex Breakout Box
:setup:rem:in14?	Returns Remote input on Pin 14.
:setup:rem:in28?	Returns Remote input on Pin 28.
:setup:rem:in40?	Returns Remote input on Pin 40.
:setup:rem:inall	Returns Remote input on all 4 input pins.
:setup:rem:out15	Sets Remote output on Pin 15.
:setup:rem:out29	Sets Remote output on Pin 29.
:setup:rem:out30	Sets Remote output on Pin 30.



## 2-2. REMOTE OPERATION COMMANDS (cont)

### Setup (cont)

:setup:rem:out41	Sets Remote output on Pin 41.
:setup:temp:battery?	Returns battery temperature in degrees.
:setup:temp:internal?	Returns FPGA temperature in degrees.
:setup:temp:remote?	Returns I <sup>2</sup> C temperature in degrees.
:setup:time:active?	Returns total time unit has been powered on.
:setup:time:current?	Returns Time.
:setup:version:cpld:rf?	Returns CPLD RF version number.
:setup:version:fpga?	Returns FPGA version number.
:setup:version:powerpc?	Returns PPC Application Code version number.
:setup:version:rf_hdw?	Returns RF hardware version number (FPGA).

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling

<b>:signaling:dcs:disable</b>	Disables DCS Encode (immediate stop).
<b>:signaling:dcs:getcode?</b>	Returns DCS Encode Code.
<b>:signaling:dcs:getpolarity?</b>	Returns DCS Encode Polarity.
<b>:signaling:dcs:setcode &lt;n&gt;</b>	Sets DCS Encode Code (i.e., Enter 19 for DCS Code 023).
<b>&lt;n&gt;</b>	(DCS Code in Decimal)
<b>:signaling:dcs:setpolarity &lt;n&gt;</b>	Sets DCS Encode Polarity.
<b>&lt;n&gt;</b>	0 - Non-Inverted 1 - Inverted
<b>:signaling:dcs:start</b>	Starts DCS Encode.
<b>:signaling:dcs:state &lt;n&gt;</b>	Sets DCS Encode State.
<b>:signaling:dcs:state?</b>	Returns DCS Encode State.
<b>&lt;n&gt;</b>	0 - OFF 1 - ON
<b>:signaling:dcs:turnoff</b>	Disables DCS Encode (200 ms delay).
<b>:signaling:dtmf:decode:idle &lt;n&gt;</b>	Sets DTMF Decode Idle.
<b>:signaling:dtmf:decode:idle?</b>	Returns DTMF Decode Idle.
<b>&lt;n&gt;</b>	0.0 to 100.0 sec
<b>:signaling:dtmf:decode:lastmessage?</b>	Returns last complete DTMF message decoded.
<b>:signaling:dtmf:decode:message?</b>	Returns current DTMF Message being decoded.
<b>:signaling:dtmf:decode:state &lt;n&gt;</b>	Sets DTMF Decode State.
<b>:signaling:dtmf:decode:state?</b>	Returns DTMF Decode State.
<b>&lt;n&gt;</b>	0 - OFF 1 - ON

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:dtmf:encode:idle &lt;n&gt;</b>	Sets DTMF Encode Idle.
<b>:signaling:dtmf:encode:idle?</b>	Returns DTMF Encode Idle.
<b>&lt;n&gt;</b>	0.0 to 100.0 sec
<b>:signaling:dtmf:encode:mark &lt;n&gt;</b>	Sets DTMF Encode Mark.
<b>:signaling:dtmf:encode:mark?</b>	Returns DTMF Encode Mark.
<b>&lt;n&gt;</b>	0 to 1000 ms
<b>:signaling:dtmf:encode:message &lt;n&gt;</b>	Sets DTMF Encode Message.
<b>:signaling:dtmf:encode:message?</b>	Returns DTMF Encode Message.
<b>&lt;n&gt;</b>	Up to 20 valid DTMF Tones
<b>:signaling:dtmf:encode:oneshot</b>	Transmits DTMF Encode Message Only Once. (Valid only when DTMF Encode Space is set to OFF.)
<b>:signaling:dtmf:encode:space &lt;n&gt;</b>	Sets DTMF Encode Space.
<b>:signaling:dtmf:encode:space?</b>	Returns DTMF Encode Space.
<b>&lt;n&gt;</b>	0 to 1000 ms
<b>:signaling:dtmf:encode:state &lt;n&gt;</b>	Sets DTMF Encode State.
<b>:signaling:dtmf:encode:state?</b>	Returns DTMF Encode State.
<b>&lt;n&gt;</b>	0 - OFF 1 - ON
<b>:signaling:toneremote:encode:af:dblevel &lt;n&gt; &lt;y&gt;</b>	Sets Tone Remote Encode AF dB Level.
<b>:signaling:toneremote:encode:af:dblevel?</b>	Returns Tone Remote Encode AF dB Level.
<b>&lt;n&gt;</b>	Tone 1, 2 or 3
<b>&lt;y&gt;</b>	-20 to 20 dB
<b>:signaling:toneremote:encode:af:dur &lt;n&gt; &lt;y&gt;</b>	Sets Tone Remote Encode AF Duration.
<b>:signaling:toneremote:encode:af:dur?</b>	Returns Tone Remote Encode AF Duration.
<b>&lt;n&gt;</b>	Tone 1, 2 or 3
<b>&lt;y&gt;</b>	20 to 500 ms

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

:signaling:toneremote:encode:af:freq <n> <y>	Sets Tone Remote Encode AF Frequency.
:signaling:toneremote:encode:af:freq?	Returns Tone Remote Encode AF Frequency.
<n>	Tone 1, 2 or 3
<y>	0 to 20 kHz

:signaling:toneremote:encode:aflevel <n>	Sets Tone Remote Encode AF Level
:signaling:toneremote:encode:aflevel?	Returns Tone Remote Encode AF Level.
<n>	0 to 1.57 Vrms

:signaling:toneremote:encode:amlevel <n>	Sets Tone Remote Encode AM Level
:signaling:toneremote:encode:amlevel?	Returns Tone Remote Encode AM Level.
<n>	0% to 100%

:signaling:toneremote:encode:fmlevel <n>	Sets Tone Remote Encode FM Level
:signaling:toneremote:encode:fmlevel?	Returns Tone Remote Encode FM Level.
<n>	0 to 100 kHz

:signaling:toneremote:encode:mod:dblevel <n> <y>	Sets Tone Remote Encode Mod dB Level.
:signaling:toneremote:encode:mod:dblevel?	Returns Tone Remote Encode Mod dB Level.
<n>	Tone 1, 2 or 3
<y>	-20 to 20 dB

:signaling:toneremote:encode:mod:dur <n> <y>	Sets Tone Remote Encode Mod Duration.
:signaling:toneremote:encode:mod:dur?	Returns Tone Remote Encode Mod Duration.
<n>	Tone 1, 2 or 3
<y>	20 to 500 ms

:signaling:toneremote:encode:mod:freq <n> <y>	Sets Tone Remote Encode Mod Frequency.
:signaling:toneremote:encode:mod:freq?	Returns Tone Remote Encode Mod Frequency.
<n>	Tone 1, 2 or 3
<y>	0 to 20 kHz

:signaling:toneremote:encode:run <n>	Starts Tone Remote Encode.
<n>	0 - FGGEN 1 - MOD

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:toneremote:encode:state?</b>	Returns Tone Remote Encode state (if Tone Remote is running).
	0 - OFF 1 - ON
<b>:signaling:tonesequential:encode:af:code &lt;n&gt;</b>	Sets Tone Sequential Encode AF Code.
<b>:signaling:tonesequential:encode:af:code?</b>	Returns Tone Sequential Encode AF Code.
<b>&lt;n&gt;</b>	Code
<b>:signaling:tonesequential:encode:af:freqshift &lt;n&gt;</b>	Sets Tone Sequential Encode AF Frequency Shift.
<b>:signaling:tonesequential:encode:af:freqshift?</b>	Returns Tone Sequential Encode AF Frequency Shift.
<b>&lt;n&gt;</b>	-100% to 100%
<b>:signaling:tonesequential:encode:af:level &lt;n&gt;</b>	Sets Tone Sequential Encode AF Level.
<b>:signaling:tonesequential:encode:af:level?</b>	Returns Tone Sequential Encode AF Level.
<b>&lt;n&gt;</b>	0 to 1.57 Vrms
<b>:signaling:tonesequential:encode:af:protocol &lt;n&gt;</b>	Sets Tone Sequential Encode AF Protocol.
<b>:signaling:tonesequential:encode:mod:af:protocol?</b>	Returns Tone Sequential Encode AF Protocol.
<b>&lt;n&gt;</b>	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

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:tonesequential:encode:af:user: dur &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Tone Sequential Encode AF User Duration.
<b>:signaling:tonesequential:encode:af:user: dur?</b>	Returns Tone Sequential Encode AF User Duration.
<b>&lt;n&gt;</b>	User 1 or 2
<b>&lt;y&gt;</b>	Tone 0 to 15
<b>&lt;z&gt;</b>	0 to 1000 ms

<b>:signaling:tonesequential:encode:af:user: freq &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Tone Sequential Encode AF User Frequency.
<b>:signaling:tonesequential:encode:af:user: freq?</b>	Returns Tone Sequential Encode AF User Frequency.
<b>&lt;n&gt;</b>	User 1 or 2
<b>&lt;y&gt;</b>	Tone 0 to 15
<b>&lt;z&gt;</b>	0 to 20 kHz

<b>:signaling:tonesequential:encode:af:user: pause &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Tone Sequential Encode AF User Pause.
<b>:signaling:tonesequential:encode:af:user: pause?</b>	Returns Tone Sequential Encode AF User Pause.
<b>&lt;n&gt;</b>	User 1 or 2
<b>&lt;y&gt;</b>	Tone 0 to 15
<b>&lt;z&gt;</b>	0 to 1000 ms

<b>:signaling:tonesequential:encode:amlevel &lt;n&gt;</b>	Sets Tone Sequential Encode AM Level.
<b>:signaling:tonesequential:encode:amlevel?</b>	Returns Tone Sequential Encode AM Level.
<b>&lt;n&gt;</b>	0% to 100%

<b>:signaling:tonesequential:encode:fmlevel &lt;n&gt;</b>	Sets Tone Sequential Encode AM Level.
<b>:signaling:tonesequential:encode:fmlevel?</b>	Returns Tone Sequential Encode AM Level.
<b>&lt;n&gt;</b>	0 to 100 kHz

<b>:signaling:tonesequential:encode:mod:code &lt;n&gt;</b>	Sets Tone Sequential Encode Mod Code.
<b>:signaling:tonesequential:encode:mod:code?</b>	Returns Tone Sequential Encode Mod Code.
<b>&lt;n&gt;</b>	Code

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:tonesequential:encode:mod:freqshift &lt;n&gt;</b>	Sets Tone Sequential Encode Mod Frequency Shift.
<b>:signaling:tonesequential:encode:mod:freqshift?</b>	Returns Tone Sequential Encode Mod Frequency Shift.
<b>&lt;n&gt;</b>	-100% to 100%

<b>:signaling:tonesequential:encode:mod:protocol &lt;n&gt;</b>	Sets Tone Sequential Encode Mod Protocol.
<b>:signaling:tonesequential:encode:mod:protocol?</b>	Returns Tone Sequential Encode Mod Protocol.
<b>&lt;n&gt;</b>	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

<b>:signaling:tonesequential:encode:mod:user:dur &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Tone Sequential Encode Mod User Duration.
<b>:signaling:tonesequential:encode:mod:user:dur?</b>	Returns Tone Sequential Encode Mod User Duration.
<b>&lt;n&gt;</b>	User 1 or 2
<b>&lt;y&gt;</b>	Tone 0 to 15
<b>&lt;z&gt;</b>	0 to 1000 ms

<b>:signaling:tonesequential:encode:mod:user:freq &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Tone Sequential Encode Mod User Frequency.
<b>:signaling:tonesequential:encode:mod:user:freq?</b>	Returns Tone Sequential Encode Mod User Frequency.
<b>&lt;n&gt;</b>	User 1 or 2
<b>&lt;y&gt;</b>	Tone 0 to 15
<b>&lt;z&gt;</b>	0 to 20 kHz

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:tonesequential:encode:mod:user:pause &lt;n&gt; &lt;y&gt; &lt;z&gt;</b>	Sets Tone Sequential Encode Mod User Pause.
<b>:signaling:tonesequential:encode:mod:user:pause?</b>	Returns Tone Sequential Encode Mod User Pause.
<b>&lt;n&gt;</b>	User 1 or 2
<b>&lt;y&gt;</b>	Tone 0 to 15
<b>&lt;z&gt;</b>	0 to 1000 ms
<b>:signaling:tonesequential:encode:run &lt;n&gt;</b>	Sets Tone Sequential Encode.
<b>&lt;n&gt;</b>	0 - Fgen 1 - Mod
<b>:signaling:tonesequential:encode:state?</b>	Returns Tone Sequential Encode State if running.
<b>&lt;n&gt;</b>	0 - OFF 1 - ON
<b>:signaling:twotoneseq:encode:af:adur &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AF A Duration.
<b>:signaling:twotoneseq:encode:af:adur?</b>	Returns 2 Tone Sequence Encode AF A Duration.
<b>&lt;n&gt;</b>	20 to 5000 ms
<b>:signaling:twotoneseq:encode:af:afreq &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AF A Frequency.
<b>:signaling:twotoneseq:encode:af:afreq?</b>	Returns 2 Tone Sequence Encode AF A Frequency.
<b>&lt;n&gt;</b>	0 to 20 kHz
<b>:signaling:twotoneseq:encode:af:bdur &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AF B Duration.
<b>:signaling:twotoneseq:encode:af:bdur?</b>	Returns 2 Tone Sequence Encode AF B Duration.
<b>&lt;n&gt;</b>	20 to 5000 ms
<b>:signaling:twotoneseq:encode:af:bfreq &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AF B Frequency.
<b>:signaling:twotoneseq:encode:af:bfreq?</b>	Returns 2 Tone Sequence Encode AF B Frequency.
<b>&lt;n&gt;</b>	0 to 20 kHz



## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:twotoneseq:encode:af:space &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AF Space.
<b>:signaling:twotoneseq:encode:af:space?</b>	Returns 2 Tone Sequence Encode AF Space.
<b>&lt;n&gt;</b>	0 to 5000 ms
<b>:signaling:twotoneseq:encode:aflevel &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AF Level.
<b>:signaling:twotoneseq:encode:aflevel?</b>	Returns 2 Tone Sequence Encode AF Level.
<b>&lt;n&gt;</b>	0 to 1.57 Vrms
<b>:signaling:twotoneseq:encode:amlevel &lt;n&gt;</b>	Sets 2 Tone Sequence Encode AM Level.
<b>:signaling:twotoneseq:encode:amlevel?</b>	Returns 2 Tone Sequence Encode AM Level.
<b>&lt;n&gt;</b>	0% to 100%
<b>:signaling:twotoneseq:encode:fmlevel &lt;n&gt;</b>	Sets 2 Tone Sequence Encode FM Level.
<b>:signaling:twotoneseq:encode:fmlevel?</b>	Returns 2 Tone Sequence Encode FM Level.
<b>&lt;n&gt;</b>	0 to 100 kHz
<b>:signaling:twotoneseq:encode:mod:adur &lt;n&gt;</b>	Sets 2 Tone Sequence Encode Mod A Duration.
<b>:signaling:twotoneseq:encode:mod:adur?</b>	Returns 2 Tone Sequence Encode Mod A Duration.
<b>&lt;n&gt;</b>	20 to 5000 ms
<b>:signaling:twotoneseq:encode:mod:afreq &lt;n&gt;</b>	Sets 2 Tone Sequence Encode Mod A Frequency.
<b>:signaling:twotoneseq:encode:mod:afreq?</b>	Returns 2 Tone Sequence Encode Mod A Frequency.
<b>&lt;n&gt;</b>	0 to 20 kHz
<b>:signaling:twotoneseq:encode:mod:bdur &lt;n&gt;</b>	Sets 2 Tone Sequence Encode Mod B Duration.
<b>:signaling:twotoneseq:encode:mod:bdur?</b>	Returns 2 Tone Sequence Encode Mod B Duration.
<b>&lt;n&gt;</b>	20 to 5000 ms
<b>:signaling:twotoneseq:encode:mod:bfreq &lt;n&gt;</b>	Sets 2 Tone Sequence Encode Mod B Frequency.
<b>:signaling:twotoneseq:encode:mod:bfreq?</b>	Returns 2 Tone Sequence Encode Mod B Frequency.
<b>&lt;n&gt;</b>	0 to 20 kHz

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Signaling (cont)

<b>:signaling:twotoneseq:encode:mod:space &lt;n&gt;</b>	Sets 2 Tone Sequence Encode Mod Space.
<b>:signaling:twotoneseq:encode:mod:space?</b>	Returns 2 Tone Sequence Encode Mod Space.
<b>&lt;n&gt;</b>	0 to 5000 ms
<b>:signaling:twotoneseq:encode:run &lt;n&gt;</b>	Starts 2 Tone Sequence Encode.
<b>&lt;n&gt;</b>	0 - FGEN 1 - MOD
<b>:signaling:twotoneseq:encode:state?</b>	Returns Two Tone Sequence Encode state (if Two Tone Sequence is running).
	0 - OFF 1 - ON

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Sinad Meter

:sinad:demod:alarm:high:limit <n>	Sets Alarm high limit value.
:sinad:demod:alarm:high:limit?	Returns Alarm high limit value.
<n>	0.0 to 60.0 dB
:sinad:demod:alarm:high:state	Sets Alarm high limit state.
:sinad:demod:alarm:high:state?	Returns Alarm high limit state.
:sinad:demod:alarm:low:limit <n>	Sets Alarm low limit value.
:sinad:demod:alarm:low:limit?	Returns Alarm low limit value.
<n>	0.0 to 60.0 dB
:sinad:demod:alarm:low:state	Sets Alarm low limit state.
:sinad:demod:alarm:low:state?	Returns Alarm low limit state.
:sinad:demod:average <n>	Sets number of readings to average.
:sinad:demod:average?	Returns number of readings to average.
<n>	1 to 99
:sinad:demod:reading:avg?	Returns Sinad Meter reading with averaged value.
	0.0 to 60.0 dB
:sinad:demod:reading:clear	Clear Sinad Meter reading.
:sinad:demod:reading:max?	Returns Sinad Meter reading maximum value.
	0.0 to 60.0 dB
:sinad:demod:reading:min?	Returns Sinad Meter reading minimum value.
	0.0 to 60.0 dB
:sinad:demod:reading:val?	Returns Sinad Meter average value.
	0.0 to 60.0 dB
:sinad:demod:state	Activates Sinad Meter on demod input.
:sinad:demod:state?	Returns Sinad Meter state on demod input.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Sinad Meter (cont)

:sinad:ext_aud_in:alarm:high:limit <n>	Sets Alarm high limit value.
:sinad:ext_aud_in:alarm:high:limit?	Returns Alarm high limit value.
<n>	0.0 to 60.0 dB
:sinad:ext_aud_in:alarm:high:state	Sets Alarm high limit state.
:sinad:ext_aud_in:alarm:high:state?	Returns Alarm high limit state.
:sinad:ext_aud_in:alarm:low:limit <n>	Sets Alarm low limit value.
:sinad:ext_aud_in:alarm:low:limit?	Returns Alarm low limit value.
<n>	0.0 to 60.0 dB
:sinad:ext_aud_in:alarm:low:state	Sets Alarm low limit state.
:sinad:ext_aud_in:alarm:low:state?	Returns Alarm low limit state.
:sinad:ext_aud_in:average <n>	Sets number of readings to average.
:sinad:ext_aud_in:average?	Returns number of readings to average.
<n>	1 to 99
:sinad:ext_aud_in:filter <n>	Sets audio filter status.
:sinad:ext_aud_in:filter?	Returns audio filter status.
<n>	0 - No Filter 1 - 15 kHz LP 2 - 300 Hz to 3 kHz BP
:sinad:ext_aud_in:reading:avg?	Returns Sinad Meter reading with averaged value.
	0.0 to 60.0 dB
:sinad:ext_aud_in:reading:clear	Clear Sinad Meter reading.
:sinad:ext_aud_in:reading:max?	Returns Sinad Meter reading maximum value.
	0.0 to 60.0 dB
:sinad:ext_aud_in:reading:min?	Returns Sinad Meter reading minimum value.
	0.0 to 60.0 dB
:sinad:ext_aud_in:reading:val?	Returns Sinad Meter average value.
	0.0 to 60.0 dB

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Sinad Meter (cont)

<b>:sinad:ext_aud_in:state</b>	Activates Sinad Meter on ext audio input.
<b>:sinad:ext_aud_in:state?</b>	Returns Sinad Meter state on ext audio input.
<b>:sinad:range?</b>	Returns Sinad Meter range information.
<b>:sinad:range:auto</b>	Sets Sinad Meter autorange state to Auto.
<b>:sinad:range&gt;manual</b>	Sets Sinad Meter autorange state to Manual.
<b>:sinad:range:state?</b>	Returns Sinad Meter autorange state.
	0 - Auto 1 - Manual 2 - Manual - Waiting Update

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Speaker

<b>:speaker:level:squelch:level &lt;n&gt;</b>	Sets speaker level squelch level.
<b>:speaker:level:squelch:level?</b>	Returns speaker level squelch level.
<b>&lt;n&gt;</b>	-150 to 50
<b>:speaker:source &lt;n&gt;</b>	Selects signal source.
<b>:speaker:source?</b>	Returns speaker input source.
<b>&lt;n&gt;</b>	0 - EXT_AUD_IN_2_SPEAKER 1 - DEMOD_2_SPEAKER 2 - MODULATION_2_SPEAKER 3 - FGEN_2_SPEAKER
<b>:speaker:state &lt;n&gt;</b>	Turns speaker output ON/OFF.
<b>:speaker:state?</b>	Returns speaker output state.
<b>&lt;n&gt;</b>	1 - ON 2 - OFF
<b>:speaker:volume &lt;n&gt;</b>	Sets speaker volume.
<b>:speaker:volume?</b>	Returns speaker volume.
<b>&lt;n&gt;</b>	0 to 100

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Spectrum Analyzer

:analyzer:avg <n>	Sets Spectrum Analyzer average.
:analyzer:avg?	Returns Spectrum Analyzer average.
<n>	1 to 99
:analyzer:current:avg?	Returns number of traces for current Spectrum Analyzer trace reading.
	0 to 99
:analyzer:freq <n>	Sets Spectrum Analyzer center frequency.
:analyzer:freq?	Returns Spectrum Analyzer center frequency.
<n>	2 to 1000 MHz
:analyzer:marker:freq <n>	Sets Spectrum Analyzer marker center frequency.
:analyzer:marker:freq?	Returns Spectrum Analyzer marker center frequency.
<n>	2 to 1000 MHz
:analyzer:obw:bw?	Returns Spectrum Analyzer obw bandwidth frequency.
:analyzer:obw:mode <n>	Sets Spectrum Analyzer obw mode.
:analyzer:obw:mode?	Returns Spectrum Analyzer obw mode.
<n>	0 - Live 1 - Peak Hold 2 - Hold
:analyzer:obw:percent <n>	Sets Spectrum Analyzer obw percentile.
:analyzer:obw:percent?	Returns Spectrum Analyzer obw percentile.
<n>	0 to 100 MHz
:analyzer:obw:power <n>	Returns Spectrum Analyzer obw power.
:analyzer:obw:state <n>	Activates Spectrum Analyzer obw processing.
:analyzer:obw:state?	Returns Spectrum Analyzer obw state.
<n>	0 - OFF 1 - ON

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Spectrum Analyzer (cont)

:analyzer:psd <n>	Sets Spectrum Analyzer power spectral density.
:analyzer:psd?	Returns Spectrum Analyzer power spectral density.
<n>	0 - Spectrum 1 - Power Spectral Density
:analyzer:peakhold <n>	Activates Spectrum Analyzer peak hold.
:analyzer:peakhold?	Returns Spectrum Analyzer peak hold status.
<n>	0 - OFF 1 - ON
:analyzer:pwrbwspan <n>	Sets Spectrum Analyzer power bandwidth span.
:analyzer:pwrbwspan?	Returns Spectrum Analyzer power bandwidth span.
<n>	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:bwpr?	Returns Spectrum Analyzer bandwidth power.
:analyzer:reading:rbwe?	Returns Spectrum Analyzer resolution bandwidth equivalent.
:analyzer:sleep <n>	Sets Spectrum Analyzer sleep time.
:analyzer:sleep?	Returns Spectrum Analyzer sleep time.
<n>	10000 to 500000 $\mu$ s



## 2-2. REMOTE OPERATION COMMANDS (cont)

### Spectrum Analyzer (cont)

<b>:analyzer:span &lt;n&gt;</b>	Sets Spectrum Analyzer span.
<b>:analyzer:span?</b>	Returns Spectrum Analyzer span.
<b>&lt;n&gt;</b>	10000 Hz 20000 Hz 50000 Hz 100000 Hz 200000 Hz 500000 Hz 1000000 Hz 2000000 Hz 5000000 Hz
<b>:analyzer:state</b>	Activates Spectrum Analyzer signal processing.
<b>:analyzer:state?</b>	Returns Spectrum Analyzer signal processing state.
<b>:analyzer:trace:amplitude?</b>	Returns Spectrum Analyzer trace amplitude.
<b>:analyzer:trace:frequency?</b>	Returns Spectrum Analyzer trace frequency.
<b>:analyzer:trace:length &lt;n&gt;</b>	Sets Spectrum Analyzer graph width.
<b>:analyzer:trace:length?</b>	Returns Spectrum Analyzer graph width.
<b>&lt;n&gt;</b>	0 - 768 1 - 256 2 - 180 3 - 128 4 - 90
<b>:analyzer:trace:points?</b>	Returns Spectrum Analyzer graph points.
<b>:analyzer:window &lt;n&gt;</b>	Sets Spectrum Analyzer window size.
<b>:analyzer:window?</b>	Returns Spectrum Analyzer window size.
<b>&lt;n&gt;</b>	0 - HANNING 1 - FLATTOP 2 - RECTANGULAR 3 - BLACKMAN

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Tracking Generator

<b>:trackgen:freq &lt;n&gt;</b>	Sets Tracking Generator frequency.
<b>:trackgen:freq?</b>	Returns Tracking Generator frequency.
<b>&lt;n&gt;</b>	2 to 1000 MHz
<b>:trackgen:peakhold</b>	Sets Peak Hold ON/OFF.
<b>:trackgen:peakhold?</b>	Returns Peak Hold status.
<b>:trackgen:reset:peak</b>	Resets Peak Hold data.
<b>:trackgen:scale &lt;n&gt;</b>	Sets Tracking Generator scale.
<b>:trackgen:scale?</b>	Returns Tracking Generator scale.
<b>&lt;n&gt;</b>	0 - 2 dB/Div 1 - 5 dB/Div 2 - 10 dB/Div 3 - 15 dB/Div 4 - 20 dB/Div
<b>:trackgen:setref</b>	Sets Tracking Generator reference.
<b>:trackgen:setreflvl &lt;n&gt;</b>	Sets Tracking Generator reference level.
<b>:trackgen:setreflvl?</b>	Returns Tracking Generator reference level.
<b>&lt;n&gt;</b>	-70 dBm -60 dBm -50 dBm -40 dBm -30 dBm -20 dBm -10 dBm 0 dBm 10 dBm

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Tracking Generator (cont)

<b>:trackgen:span &lt;n&gt;</b>	Sets Tracking Generator span.
<b>:trackgen:span?</b>	Returns Tracking Generator span.
<b>&lt;n&gt;</b>	0 - 10 kHz 1 - 20 kHz 2 - 50 kHz 3 - 100 kHz 4 - 200 kHz 5 - 500 kHz 6 - 1 MHz 7 - 2 MHz 8 - 5 MHz 9 - 10 MHz 10 - 20 MHz 11 - 50 MHz 12 - 100 MHz 13 - 200 MHz 14 - 500 MHz 15 - 998 MHz
<b>:trackgen:start &lt;n&gt;</b>	Sets Tracking Generator start frequency.
<b>:trackgen:start?</b>	Returns Tracking Generator start frequency.
<b>&lt;n&gt;</b>	2 to 1000 MHz
<b>:trackgen:state</b>	Activates Tracking Generator signal processing.
<b>:trackgen:state?</b>	Returns Tracking Generator signal processing state.
<b>:trackgen:stop &lt;n&gt;</b>	Sets Tracking Generator stop frequency.
<b>:trackgen:stop?</b>	Returns Tracking Generator stop frequency.
<b>&lt;n&gt;</b>	2 to 1000 MHz
<b>:trackgen:type &lt;n&gt;</b>	Sets Tracking Generator type.
<b>:trackgen:type?</b>	Returns Tracking Generator type.
<b>&lt;n&gt;</b>	0 - Live 1 - Diff

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Upconverter

<b>:upconverter:carrier_state</b>	Acts as a PTT. Needs to be ON for normal Generator operation.
<b>:upconverter:carrier_state?</b>	Returns carrier state.
<b>:upconverter:dcs:am &lt;n&gt;</b>	Sets Modulator DCS AM level.
<b>&lt;n&gt;</b>	0% to 100%
<b>:upconverter:dcs:fm &lt;n&gt;</b>	Sets Modulator DCS FM level.
<b>&lt;n&gt;</b>	0.0 to 100.0 kHz
<b>:upconverter:dcs:state</b>	Sets Modulator DCS Signaling State.
<b>:upconverter:dtmf:am:high &lt;n&gt;</b>	Sets Modulator DTMF AM high level.
<b>&lt;n&gt;</b>	0% to 100%
<b>:upconverter:dtmf:am:low &lt;n&gt;</b>	Sets Modulator DTMF AM low level.
<b>&lt;n&gt;</b>	0% to 100%
<b>:upconverter:dtmf:fm:high &lt;n&gt;</b>	Sets Modulator DTMF FM high level.
<b>&lt;n&gt;</b>	0.0 to 100.0 kHz
<b>:upconverter:dtmf:fm:low &lt;n&gt;</b>	Sets Modulator DTMF FM low level.
<b>&lt;n&gt;</b>	0.0 to 100.0 kHz
<b>:upconverter:ext_aud_in:gain &lt;n&gt;</b>	Sets Modulator External Audio Input Raw Scaling.
<b>&lt;n&gt;</b>	0.0 to 1.0
<b>:upconverter:ext_aud_in:state</b>	Sets Modulator External Audio Input State.
<b>:upconverter:fgen1:am &lt;n&gt;</b>	Sets Modulator fgen #1 AM level.
<b>&lt;n&gt;</b>	0% to 100%
<b>:upconverter:fgen1:fm &lt;n&gt;</b>	Sets Modulator fgen #1 FM level.
<b>&lt;n&gt;</b>	0.0 to 100.0 kHz
<b>:upconverter:fgen1:freq &lt;n&gt;</b>	Sets Modulator fgen #1 frequency.
<b>&lt;n&gt;</b>	0 to 24000 Hz

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Upconverter (cont)

:upconverter:fgen1:gain <n>	Sets Modulator fgen #1 Raw Scaling.
<n>	0.0 to 1.0
:upconverter:fgen1:state	Sets Modulator fgen #1 ON/OFF.
:upconverter:fgen2:am <n>	Sets Modulator fgen #2 AM level.
<n>	0% to 100%
:upconverter:fgen2:fm <n>	Sets Modulator fgen #2 FM level.
<n>	0.0 to 100.0 kHz
:upconverter:fgen2:freq <n>	Sets Modulator fgen #2 frequency.
<n>	0 to 20000 Hz
:upconverter:fgen2:gain <n>	Sets Modulator fgen #2 Raw Scaling.
<n>	0.0 to 1.0
:upconverter:fgen2:state	Sets Modulator fgen #2 ON/OFF.
:upconverter:mic:am <n>	Sets Modulator Microphone AM level.
<n>	0% to 100%
:upconverter:mic:fm <n>	Sets Modulator Microphone FM level.
<n>	0.0 to 100.0 kHz
:upconverter:mic:gain <n>	Sets Modulator Microphone State.
<n>	0.0 to 1.0
:upconverter:mic:select?	Returns the Microphone connected.
:upconverter:mic:state	Sets Modulator Microphone State.
:upconverter:mod_inhibit	Disables modulation for one-time calibrations.
:upconverter:mod_inhibit?	Returns modulation inhibit state.
:upconverter:route:enable	Sets Modulator ON/OFF.
:upconverter:sde:am <n>	Sets SDE AM level.
<n>	0% to 100%

## 2-2. REMOTE OPERATION COMMANDS (cont)

### Upconverter (cont)

:upconverter:sde:fm <n>	Sets SDE FM level.
<n>	0.0 to 100.0 kHz
:upconverter:sde:gain <n>	Sets SDE Gain ffff Scaling.
<n>	0.0 to 1.0
:upconverter:sde:state	Sets SDE State ON/OFF.
:upconverter:type <n>	Sets Modulator type.
:upconverter:type?	Returns Modulator type.
<n>	0 - AM 1 - FM 2 - None 3 - P25 4 - SDE-AM 5 - SDE-FM 6 - Invalid

## 2-2. REMOTE OPERATION COMMANDS (cont)

### VSWR Meter

<b>:vswr:cable:len</b>	Estimates cable length to measure.
<b>:vswr:cablelength2span?</b>	Returns Cable Length to Span.
<b>:vswr:cable:loss</b>	Sets cable attenuation per 100 feet.
<b>:vswr:cable:velocity &lt;n&gt;</b>	Sets cable velocity factor.
<b>&lt;n&gt;</b>	[0.0, 1.0]
<b>:vswr:cal:save</b>	Saves Calibration data.
<b>:vswr:cal:recall</b>	Recalls Calibration data.
<b>:vswr:dump:capture</b>	Captures VSWR phase and magnitude.
<b>:vswr:dump:full:freq?</b>	Returns full span frequencies.
<b>:vswr:dump:full:mag?</b>	Returns full span magnitude.
<b>:vswr:dump:full:phase?</b>	Returns full span phase.
<b>:vswr:dump:user:freq?</b>	Returns user span frequencies.
<b>:vswr:dump:user:mag?</b>	Returns user span magnitude.
<b>:vswr:dump:user:phase?</b>	Returns user span phase.
<b>:vswr:freq</b>	Sets center frequency.
<b>:vswr:freq?</b>	Returns center frequency.
<b>:vswr:marker:delta &lt;n&gt;</b>	Sets Delta Marker.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:delta:x?</b>	Returns marker delta number at x axis.
	1 to 3
<b>:vswr:marker:delta:y?</b>	Returns marker delta number at y axis.
	1 to 3

## 2-2. REMOTE OPERATION COMMANDS (cont)

### VSWR Meter (cont)

<b>:vswr:marker:enable &lt;n&gt; &lt;y&gt;</b>	Enables Marker.
<b>&lt;n&gt;</b>	1 to 3
<b>&lt;y&gt;</b>	0 - OFF 1 - ON
<b>:vswr:marker:left &lt;n&gt;</b>	Moves marker to the left.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:lmin &lt;n&gt;</b>	Moves marker to next left min.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:lpk &lt;n&gt;</b>	Moves marker to next left peak.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:max &lt;n&gt;</b>	Moves marker to maximum.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:min &lt;n&gt;</b>	Moves marker to minimum.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:pos &lt;n&gt;</b>	Sets horizontal position of current Marker.
<b>:vswr:marker:right &lt;n&gt;</b>	Moves marker to the right.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:rpk &lt;n&gt;</b>	Moves marker to next right peak.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:rmin &lt;n&gt;</b>	Moves marker to next right min.
<b>&lt;n&gt;</b>	1 to 3
<b>:vswr:marker:x?</b>	Returns marker number at x axis.
	1 to 3
<b>:vswr:marker:y?</b>	Returns marker number at y axis.
	1 to 3



## 2-2. REMOTE OPERATION COMMANDS (cont)

### VSWR Meter (cont)

<b>:vswr:meas:type &lt;n&gt;</b>	Selects type of measurement.
<b>:vswr:meas:type?</b>	Returns type of measurement.
<b>&lt;n&gt;</b>	0 - SWR 1 - DTF 2 - RL 3 - LOSS 4 - Raw 5 - Calibration
<b>:vswr:postprocess &lt;n&gt;</b>	Sets Post Process state.
<b>&lt;n&gt;</b>	0 - INVALID_CIRCUIT 1 - OPEN_CIRCUIT 2 - SHORT_CIRCUIT 3 - FIFTY_OHM_CIRCUIT 4 - LOAD_CIRCUIT
<b>:vswr:runmode &lt;n&gt;</b>	Sets Run mode.
<b>&lt;n&gt;</b>	0 - RESULT_INVALID 1 - REQUEST_RUNNING 2 - RUNNING 3 - STOPPED 4 - REQUEST_STOP
<b>:vswr:scale &lt;n&gt; &lt;y&gt;</b>	Sets scale for vertical.
<b>&lt;n&gt;</b>	1 - Top
<b>&lt;y&gt;</b>	2 - Bottom
<b>:vswr:span</b>	Sets span.
<b>:vswr:span?</b>	Returns span.
<b>:vswr:span2cablelength?</b>	Returns Calculated Span to Cable Length.
<b>:vswr:start</b>	Sets start frequency.
<b>:vswr:start?</b>	Returns start frequency.
<b>:vswr:startswEEP</b>	Starts sweep.

## 2-2. REMOTE OPERATION COMMANDS (cont)

### VSWR Meter (cont)

<b>:vswr:state &lt;n&gt;</b>	Sets VSWR state.
<b>:vswr:state?</b>	Returns VSWR state.
<b>&lt;n&gt;</b>	0 - RESULT_INVALID 1 - REQUEST_RUNNING 2 - RUNNING 3 - STOPPED 4 - REQUEST_STOP
<b>:vswr:stop</b>	Sets stop frequency.
<b>:vswr:stop?</b>	Returns stop frequency.
<b>:vswr:stopsweep</b>	Stops sweep.
<b>:vswr:trace:count?</b>	Returns trace count of each trace completed then counts increments.
	0 to 4294967295
<b>:vswr:trace:dtf?</b>	Returns DTF trace values by index. (See :vswr:size? command.)
	0 to trace size minus one -50 to 0 dB
<b>:vswr:trace:loss?</b>	Returns LOSS trace values by index. (See :vswr:size? command.)
	0 to trace size minus one -5 to 0 dB
<b>:vswr:trace:rtn_loss?</b>	Returns Return Loss trace values by index. (See :vswr:size? command.)
	0 to trace size minus one -5 to 0 dB
<b>:vswr:trace:size?</b>	Returns SWR trace length.
	2 to 512
<b>:vswr:trace:vswr?</b>	Returns SWR trace values by index. (See :vswr:size? command.)
	0 to trace size minus one SWR: 1 to 6
<b>:vswr:trace:vswr_dump?</b>	Returns VSWR trace values.

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