Programming Commands

Agilent Technologies
ESA-E Series Spectrum Analyzers
cdmaOne Measurement Personality

This manual provides documentation for the following instruments:

ESA-E Series

E4402B (9 kHz - 3.0 GHz)
E4404B (9 kHz - 6.7 GHz)
E4405B (9 kHz - 13.2 GHz)
E4407B (9 kHz - 26.5 GHz)

Manufacturing Part Number: E4402-90009
Printed in USA
August 2000

The information contained in this document is subject to change without notice.

Agilent Technologies, Inc. makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Agilent Technologies, Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Contents

Contents

Contents

1 Programming Command Cross-References

Functional Index to SCPI Subsection

The following table lists the SCPI subsystems or subsections associated with the instrument cdmaOne function categories. The commands listed are for cdmaOne specific functions. These commands are documented in Chapter 2 , "Language Reference." If you require information on the commands for the Agilent ESA Spectrum Analyzers, refer to the *Agilent ESA Spectrum Analyzers Programmer's Guide.*

Function Category	**SCPI Subsection or Subsystem**
ATTENUATOR	see function category: Internal Attenuation
BANDWIDTH	:CALCulate :FETCh :READ [:SENSe]:ACP:BANDwidth | BWIDth [:SENSe]:CHPower:BANDwidth | BWIDth [:SENSe]:CSPur:BANDwidth | BWIDth [:SENSe]:HARMonics:BANDwidth | BWIDth [:SENSe]:MONitor:BAND:BANDwidth | BWIDth [:SENSe]:MONitor:CHANnel:BANDwidth | BWIDth [:SENSe]:OBWidth:BANDwidth | BWIDth [:SENSe]:OBWidth:EBWidth [:SENSe]:OOBSpur:TABLe:BANDwidth | BWIDth [:SENSe]:RADio:BANDwidth | BWIDth [:SENSe]:RCHPower:BANDwidth | BWIDth
CONFIGURATION and STATUS	:SYSTem
CORRECTED MEASUREMENTS	[:SENSe]:CORRection
LOAD or SAVE	:MMEMory
DEMODULATION	[:SENSe]:DEMod
DISPLAY	:DISPlay:WINDow
FREQUENCY	[:SENSe]:OOBSpur:TABLe:CFRequency [:SENSe]:OPTion:ROSCillator:EXTernal:FREQuency [:SENSe]:Frequency[:CENTer] [:SENSe]:CHANnel:RFCHannel:FREQuency
FREQUENCY SPAN	[:SENSe]:FREQuency [:SENSe]:CHPower:FREQuency:SPAN [:SENSe]:MONitor:BAND:FREQuency:SPAN [:SENSe]:MONitor:CHANnel:FREQuency:SPAN [:SENSe]:RCHPower:FREQuency:SPAN

Function Category	SCPI Subsection or Subsystem
INTERNAL ATTENUATION	[:SENSe]:POWer
LIMITS	:CALCulate
MEASURE	:CONFigure :FETCh :MEASure :READ [:SENSe]:ACP [:SENSe]:CHPower [:SENSe]:CSPur [:SENSe]:HARMonics [:SENSe]:MONitor:BAND [:SENSe]:MONitor:CHANnel [:SENSe]:OBWidth [:SENSe]:OOBSpur [:SENSe]:RCHPower [:SENSe]:RSPur [:SENSe]:RHO
SWEEP	[:SENSe]:CDPower:SWEep [:SENSe]:SWEep
TRACE	:DISPlay
TRIGGER	[:SENSe]:<measurmenr>:TRIGger

2 Language Reference

These commands are only available when the cdmaOne mode has been selected using INSTrument:SELect or INSTrument:NSElect. If cdmaOne mode is selected, commands that are unique to another mode are not available.

CALCulate Subsystem

This subsystem is used to perform post-acquisition data processing. In effect, the collection of new data triggers the CALCulate subsystem. In this instrument, the primary functions in this subsystem are markers and limits.

Code Domain—Estimated Rho Lower Limit Testing

:CALCulate:CDPower:LIMit:ERHO:LOWer:STATe OFF|ON|0|1

:CALCulate:CDPower:LIMit:ERHO:LOWer:STATe?

Turn the estimated rho lower pass/fail limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Code Domain—Relative Phase Upper Limit Testing

:CALCulate:CDPower:LIMit:PHASe[:UPPer]:STATe OFF|ON|0|1

:CALCulate:CDPower:LIMit:PHASe[:UPPer]:STATe?

Turn the relative phase upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Code Domain—Estimated Rho Lower Limit

:CALCulate:CDPower:LIMit:<standard>:BS|BTS:ERHO:LOWer [:DATA] <value>

:CALCulate:CDPower:LIMit:<standard>:BS|BTS:ERHO:LOWer [:DATA]?

Set the lower limit for code-domain estimated rho pass/fail test.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 0.912—All standards

Range: 0 to 1.0

Default Unit: None

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Code Domain—Relative Phase Upper Limit

:CALCulate:CDPower:LIMit:<standard>:BS|BTS:PHASe[:UPPer][:DATA] <angle>

:CALCulate:CDPower:LIMit:<standard>:BS|BTS:PHASe[:UPPer][:DATA]?

Set the upper limit, in radians for code-domain relative phase testing. The absolute values of the relative phase measurement results are tested against this value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST:

IS95A, JSTD8, CKOR, PKOR	C95B, P95B, C95C, P95C, ARIB T53
0.05 mRad	0.15 mRad

Range: –3.1459 to 3.1459

Default Unit: Rad

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Code Domain—Relative Timing Upper Limit

:CALCulate:CDPower:LIMit:<standard>:BS|BTS:TIMing[:UPPer][:DATA] <time>

:CALCulate:CDPower:LIMit:<standard>:BS|BTS:TIMing[:UPPer][:DATA]?

Set the upper limit, in seconds, for code-domain relative timing testing. The absolute values of the relative timing measurement results are tested against this value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 10 µs—All standards

Range: –26.7 ms to 26.7 ms

Default Unit: sec

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Code Domain—Relative Timing Upper Limit Testing

:CALCulate:CDPower:LIMit:TIMing[:UPPer]:STATe OFF|ON|0|1

:CALCulate:CDPower:LIMit:TIMing[:UPPer]:STATe?

Turn relative timing upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Channel Power—Lower Limit Test

:CALCulate:CHPower:LIMit:CHPower:LOWer:STATe OFF|ON|0|1

:CALCulate:CHPower:LIMit:CHPower:LOWer:STATe?

Turn channel power lower limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Channel Power—Upper Limit Test

:CALCulate:CHPower:LIMit:CHPower[:UPPer]:STATe OFF|ON|0|1

:CALCulate:CHPower:LIMit:CHPower[:UPPer]:STATe?

Turn channel power upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Channel Power—Lower Limit

:CALCulate:CHPower:LIMit:<standard>:BS|BTS:CHPower:LOWer [:DATA] <power>

:CALCulate:CHPower:LIMit:<standard>:BS|BTS:CHPower:LOWer [:DATA]?

Set the lower limit, in dBm, for channel power testing. This value should be lower than or equal to the upper limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: –50 dBm—All standards

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Channel Power—Upper Limit

:CALCulate:CHPower:LIMit:<standard>:BS|BTS:CHPower[:UPPer][:DATA] <power>

:CALCulate:CHPower:LIMit:<standard>:BS|BTS:CHPower[:UPPer][:DATA]?

Set the upper limit, in dBm, for channel power testing. This value should be higher than or equal to the lower limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 50 dBm–All standards

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Test Current Results Against all Limits

:CALCulate:CLIMits:FAIL?

Queries the status of the current measurement limit testing. It returns a 0 if the measured results pass when compared with the current limits. It returns a 1 if the measured results fail any limit tests.

Spur Close—Limit Definition Source

:CALCulate:CSPur:LIMit:SOURce STANdard|FILE

:CALCulate:CSPur:LIMit:SOURce STANdard|FILE?

Set the source for the limit values used in the limits test. For an example of a limit file, refer to the *Agilent ESA-E Series Spectrum Analyzers cdmaOne Measurement Personality User's Guide.*

STANdard	Defined by the standard selected using the **[:SENSe]:RADio:STANdard:BAND** command.
FILE	Defined by a user entered file.

Factory Preset and *RST: Standard

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, More, Limits**...

Spur Close—Limit Test

:CALCulate:CSPur:LIMit:STATe OFF|ON|0|1

:CALCulate:CSPur:LIMit:STATe?

Turn upper limit test for close-in spurious signals on or off.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits & Offsets**...

Spurs at Harmonics—Upper Absolute Limit

:CALCulate:HARMonics:LIMit:<standard>:BS|BTS:ABSolute [:UPPer][:DATA] <power>

:CALCulate:HARMonics:LIMit:<standard>:BS|BTS:ABSolute [:UPPer][:DATA]?

Set the upper absolute limits for harmonics measurement testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: –13 dBm

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Limits** ...

Spurs at Harmonics—Upper Relative Limit

:CALCulate:HARMonics:LIMit:<standard>:BS|BTS:RELative [:UPPer][:DATA] <rel_power>

:CALCulate:HARMonics:LIMit:<standard>:BS|BTS:RELative [:UPPer][:DATA]?

Set the upper relative limit for harmonics measurement testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: –30 dBc

Range: –200 dBc to 50 dBc

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Spurs at Harmonics—Upper Absolute Limit Test

:CALCulate:HARMonics:LIMit:ABSolute[:UPPer]:STATe OFF|ON|0|1

:CALCulate:HARMonics:LIMit:ABSolute[:UPPer]:STATe?

Turn the harmonics absolute upper limit test on or off.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Spurs at Harmonics—Upper Relative Limit Test

:CALCulate:HARMonics:LIMit:RELative[:UPPer]:STATe OFF|ON|0|1

:CALCulate:HARMonics:LIMit:RELative[:UPPer]:STATe?

Turn the harmonics relative upper limit test on or off.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Occupied Bandwidth—Emissions Bandwidth Lower Limit

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS:EBWidth:LOWer[:DATA] <frequency>

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS:EBWidth:LOWer[:DATA]?

Set the lower limit for occupied bandwidth measurement emissions bandwidth testing. This value should be less than the upper limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 1.0 MHz—All standards

Range: 10 Hz to 50 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Limits** ...

Occupied Bandwidth—Emissions Bandwidth Lower Limit Test

:CALCulate:OBWidth:LIMit:EBWidth:LOWer:STATe OFF|ON|0|1

:CALCulate:OBWidth:LIMit:EBWidth:LOWer:STATe?

Turn the emissions bandwidth lower limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Limits**...

Occupied Bandwidth—Emissions Bandwidth Upper Limit

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS:EBWidth[:UPPer][:DATA] <frequency>

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS:EBWidth[:UPPer][:DATA]?

Set the upper limit for occupied bandwidth measurement emissions bandwidth testing. This value should be greater than the lower limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 1.5 MHz—All standards

Range: 10 Hz to 50 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Limits** ...

Occupied Bandwidth—Emissions Bandwidth Upper Limit Test

:CALCulate:OBWidth:LIMit:EBWidth[:UPPer]:STATe OFF|ON|0|1

:CALCulate:OBWidth:LIMit:EBWidth[:UPPer]:STATe?

Turn emissions bandwidth upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Limits**...

Occupied Bandwidth—Occupied Bandwidth Lower Limit

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS [:OBWidth]:LOWer[:DATA] <frequency>

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS [:OBWidth]:LOWer[:DATA]?

Set the lower limit for occupied bandwidth measurement testing. This value must be lower than the upper limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 1.0 MHz—All standards

Range: 10 Hz to 50 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Occupied Bandwidth—Occupied Bandwidth Lower Limit Test

:CALCulate:OBWidth:LIMit[:OBWidth]:LOWer:STATe OFF|ON|0|1

:CALCulate:OBWidth:LIMit[:OBWidth]:LOWer:STATe?

Turn occupied bandwidth lower limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Occupied Bandwidth—Occupied Bandwidth Upper Limit

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS [:OBWidth][:UPPer][:DATA] <frequency>

:CALCulate:OBWidth:LIMit:<standard>:BS|BTS [:OBWidth][:UPPer][:DATA]?

Set the upper limit for occupied bandwidth measurement testing. This value must be greater than the lower limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A IS-95-A

JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST:

IS95A, C95B, C95C, CKOR, JSTD8, P95B, P95C, PKOR	ARIB T53
1.5 MHz	1.48 MHz

Range: 10 Hz to 50 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Occupied Bandwidth—Occupied Bandwidth Upper Limit Test

:CALCulate:OBWidth:LIMit[:OBWidth][:UPPer]:STATe OFF|ON|0|1

:CALCulate:OBWidth:LIMit[:OBWidth][:UPPer]:STATe?

Turn occupied bandwidth upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Limits**...

Out of Band Spurious—Upper Absolute Limit

:CALCulate:OOBSpur:LIMit:TABLe:ABSolute[:UPPer][:DATA] <power1, power2, …, powerN>

:CALCulate:OOBSpur:LIMit:TABLe:ABSolute[:UPPer][:DATA]?

Set the upper absolute limits for each out of band spurious emissions measurement range.

Factory Preset and *RST: –100 dBm

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Edit Table** …

Out of Band Spurious—Upper Relative Limit

:CALCulate:OOBSpur:LIMit:TABLe:RELative[:UPPer][:DATA] <rel_power1, rel_power2, …, rel_powerN>

:CALCulate:OOBSpur:LIMit:TABLe:RELative[:UPPer][:DATA]?

Set the upper relative limits for each out of band spurious emissions measurement range.

Factory Preset and *RST: Dependent on the spur table values.

Range: –170 dBc to 170 dBc

Default Unit: dBc

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Edit Table** …

Out of Band Spurious—Limit Test

:CALCulate:OOBSpur:LIMit:TABLe:TYPE <value1, value2, …, valueN>

:CALCulate:OOBSpur:LIMit:TABLe:TYPE?

Set the pass fail logic criteria for each range of the out of band spurious measurement. Either the absolute or relative limit test can be turned on, both tests can be turned on together, or both tests can be turned off. If both limit tests are turned on, the pass fail logic can be set so the test is passed if both limit tests are passed or if either test is passed.

Factory Preset and *RST: Off

Range: OFF, ABS, REL, OR, and AND

Remarks: The enumerated selection is passed as a list <value1, value2, …, valueN>

You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Edit Table**

Receive Channel Power—Lower Limit Test

:CALCulate:RCHPower:LIMit:RCHPower:LOWer:STATe OFF|ON|0|1

:CALCulate:RCHPower:LIMit:RCHPower:LOWer:STATe?

Turn the receive channel power lower limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**…

Receive Channel Power—Upper Limit Test

:CALCulate:RCHPower:LIMit:RCHPower[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RCHPower:LIMit:RCHPower[:UPPer]:STATe?

Turn receive channel power upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Receive Channel Power—Lower Limit

:CALCulate:RCHPower:LIMit:<standard>:BS|BTS:RCHPower :LOWer[:DATA] <value>

:CALCulate:RCHPower:LIMit:<standard>:BS|BTS:RCHPower :LOWer[:DATA]?

Set the lower limit, in dBm, for receive channel power testing. This value should be less than or equal to the upper limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: –50 dBm—All standards

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Receive Channel Power—Upper Limit

:CALCulate:RCHPower:LIMit:<standard>:BS|BTS:RCHPower :UPPer[:DATA] <value>

:CALCulate:RCHPower:LIMit:<standard>:BS|BTS:RCHPower :UPPer[:DATA]?

Set the upper limit, in dBm, for receive channel power testing. This value should be greater than or equal to the lower limit value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 50 dBm—All standards

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Carrier Feedthrough Upper Limit Test

:CALCulate:RHO:LIMit:CFTHrough[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:CFTHrough[:UPPer]:STATe?

Turn Rho carrier feedthrough upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Error Vector Magnitude Upper Limit Test

:CALCulate:RHO:LIMit:EVM[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:EVM[:UPPer]:STATe?

Turn rho error vector magnitude upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Frequency Error Upper Limit Test

:CALCulate:RHO:LIMit:FERRor[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:FERRor[:UPPer]:STATe?

Turn the rho frequency error upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Modulation Magnitude Error Upper Limit Test

:CALCulate:RHO:LIMit:MAGNitude[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:MAGNitude[:UPPer]:STATe?

Turn rho modulation magnitude error upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Modulation Phase Error Upper Limit Test

:CALCulate:RHO:LIMit:PHASe[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:PHASe[:UPPer]:STATe?

Turn rho modulation phase error upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Rho Lower Limit Test

:CALCulate:RHO:LIMit:RHO:LOWer:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:RHO:LOWer:STATe?

Turn rho results lower limit test on or off.

Factory Preset and *RST: ON

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Carrier Feedthrough Upper Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:CFTHrough[:UPPer][:DATA] <rel_power>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:CFTHrough[:UPPer][:DATA]?

Set the upper limit, in dB, for rho carrier feedthrough testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: –40 dBm—All standards

Range: –200 dB to 0 dB

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Error Vector Magnitude Upper Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:EVM[:UPPer][:DATA] <percentage>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:EVM[:UPPer][:DATA]?

Set the upper limit, in percent, for rho error vector magnitude testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 25%—All standards

Range: 0 to 100%

Default Unit: % (percent)

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Frequency Error Upper Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:FERRor[:UPPer][:DATA] <frequency>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:FERRor[:UPPer][:DATA]?

Set the upper limit, in hertz, for rho frequency error testing. The absolute value of the frequency error results are tested against this value.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST:

IS95A, C95B, C95C, CKOR, ARIB T53	JSTD8, P95B, P95C	PKOR
43.5 Hz	99.5 Hz	93.5 Hz

Range: –1.0 MHz to 1.0 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Modulation Magnitude Error Upper Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:MAGNitude[:UPPer][:DATA] <percentage>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:MAGNitude[:UPPer][:DATA]?

Set the upper limit, in percent, for rho modulation magnitude error testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 25%

Range: 0 to 100%

Default Unit: % (percent)

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Modulation Phase Error Upper Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:PHASe[:UPPer][:DATA] <angle>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:PHASe[:UPPer][:DATA]?

Set the upper limit, in degrees, for rho modulation phase error testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 20 deg—All Standards

Range: 0 to 360

Default Unit: degree

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Rho Lower Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:RHO:LOWer[:DATA] <parameter>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:RHO:LOWer[:DATA]?

Set the lower limit for rho results testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 0.912—All standards

Range: 0 to 1.0

Default Unit: None

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Time Offset Upper Limit

:CALCulate:RHO:LIMit:<standard>:BS|BTS:TOFFset[:UPPer][:DATA] <time>

:CALCulate:RHO:LIMit:<standard>:BS|BTS:TOFFset[:UPPer][:DATA]?

Set the upper limit, in microseconds, for rho time offset testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: 10 µs

Range: –26.7 ms to 26.7 ms

Default Unit: sec

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Modulation Accuracy (Rho)—Time Offset Upper Limit Test

:CALCulate:RHO:LIMit:TOFFset[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RHO:LIMit:TOFFset[:UPPer]:STATe?

Turn time offset upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Receiver Spurious—Receive Upper Limit

:CALCulate:RSPur:LIMit:<standard>:BS|BTS:RECeive[:UPPer][:DATA] <power>

:CALCulate:RSPur:LIMit:<standard>:BS|BTS:RECeive[:UPPer][:DATA]?

Set the upper limit, in dBm, for receiver spurious response receive band testing

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset and *RST: –80 dBm

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Receiver Spurious—Receive Upper Limit Test

:CALCulate:RSPur:LIMit:RECeive[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RSPur:LIMit:RECeive[:UPPer]:STATe?

Turn receiver spurious response receive band upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Receiver Spurious—Transmit Upper Limit

:CALCulate:RSPur:LIMit:<standard>:BS|BTS:TRANsmit[:UPPer][:DATA] <power>

:CALCulate:RSPur:LIMit:<standard>:BS|BTS:TRANsmit[:UPPer][:DATA]?

Set the upper limit, in dBm, or receive spurious response transmit band testing.

BS = Base Station

BTS = Base Transceiver Station

BS = BTS

Available Standards

IS95A	IS-95-A
JSTD8	ANSI J-STD-008
C95B	TIA/EIA-95-B Cell
P95B	TIA/EIA-95-B PCS
CKOR	TTA.KO-06.0003 (Korea Cell)
PKOR	TTA.KO-06.0013 (Korea PCS)
C95C	95-C Cell
P95C	95-C PCS
ARIB T53	ARIB-T53

Factory Preset

and *RST: –60 dBm

Range: –200 dBm to 50 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

Receiver Spurious—Transmit Upper Limit Test

:CALCulate:RSPur:LIMit:TRANsmit[:UPPer]:STATe OFF|ON|0|1

:CALCulate:RSPur:LIMit:TRANsmit[:UPPer]:STATe?

Turn receive spurious response transmit band upper limit test on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **More**, **Limits**...

CONFigure Subsystem

:CONFigure:<measurement>

The CONFigure commands are used with several other commands and are documented in the section on the "MEASure Group of Commands" on page 2-42.

DISPlay Subsystem

The DISPlay controls the selection and presentation of textual, graphical, and TRACe information. Within a DISPlay, information may be separated into individual WINDows.

Trace Y-Axis Amplitude Scaling

:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision <rel_ampl>

:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision?

Sets the value for each division of the y-axis on the display when y-axis units are set to amplitude units.

Factory Preset and *RST: 10 dB

Range: 0.1 to 20.0 dB

Default Unit: dB

Front Panel Access: **AMPLITUDE Y Scale, Scale/Div**

Trace Y-Axis Reference Level

:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel <ampl>

:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel?

Sets the reference level (maximum amplitude value on the display) of the y-axis.

Factory Preset and *RST: 0 dBm

Range: With reference level offset:

E4401B, E4411B: –327.6 to 50 dBm

E4402B, E4403B: –327.6 to 55 dBm

E4404B: –327.6 to 55 dBm

E4405B: –327.6 to 55 dBm

E4407B, E4408B: –327.6 to 55 dBm

–149.9 to 55 dBm with reference level offset and max mixer level = –10 dBm. In external mixing, the range is –327.5 to –10 dBm at the mixer.

Default Unit: current active units

Remarks: The input attenuator setting may be affected. The minimum displayed value of reference level is –327.6 dBm, and the maximum displayed value is 327.6 dBm. See the remarks given for the command **:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel :OFFSet <rel_ampl>**

Front Panel Access: **Amplitude Y Scale, Ref Level**

FETCh Subsystem

:FETCh:<measurement>[n]?

The FETCh? commands are used with several other commands and are documented in the section on the “MEASure Group of Commands” on page 2-42.

INITiate Subsystem

The INITiate subsystem is used to control the initiation of the trigger. Refer to the TRIGger and ABORt subsystems for related commands.

Continuous or Single Measurements

:INITiate:CONTinuous OFF|ON|0|1

:INITiate:CONTinuous?

Selects whether the trigger system is continuously initiated or not. This corresponds to continuous measurement or single measurement operation.

When set to ON, at the completion of each trigger cycle, the trigger system immediately initiates another trigger cycle.

When set to OFF, the trigger system remains in an “idle” state until CONTinuous is set to ON or an INITiate[:IMMediate] command is received. On receiving the INITiate{:IMMediate] command, it will go through a single trigger cycle, and then return to the “idle” state.

Factory Preset: ON

*RST: ON (OFF recommended for remote operation)

Front Panel Access: **Meas Control, Measure Single Cont**

Pause the Measurement

:INITiate:PAUSe

Pauses the current measurement by changing the current measurement state from the “wait for trigger” state to the “paused” state. If the measurement is not in the “wait for trigger” state, when the command is issued, the transition will be made the next time that state is entered as part of the trigger cycle. When in the pause state, the spectrum analyzer auto-align process stops. If the analyzer is paused for long a period of time, measurement accuracy may degrade.

Front Panel Access: **Meas Control, Pause**

Restart the Measurement

:INITiate:RESTart

Restarts the current measurement regardless of its current operating state. It is equivalent to:

INITiate[:IMMediate] (for single measurement mode)

ABort (for continuous measurement mode)

Front Panel Access: **Restart**

or

Meas Control, Restart

Resume the Measurement

:INITiate:RESume

Resumes the current measurement by changing the current measurement state from the “paused state” back to the “wait for trigger” state. If the measurement is not in the “paused” state, when the command is issued, an error is reported.

Front Panel Access: **Meas Control, Resume**

INSTrument Subsystem

This subsystem includes commands for querying and selecting instrument measurement (personality option) modes.

Select Application by Number

:INSTrument:NSELect <integer>

:INSTrument:NSELect?

Select the measurement application by its instrument number. The actual available choices depends upon which applications are installed in the instrument. These instrument numbers can be identified with **INST:CATalog:FULL**.

1=SA

3=GSM

4=cdmaOne

NOTE

If you are using the status bits and the analyzer mode is changed, the status bits should be read, and any errors resolved, prior to switching modes. Error conditions that exist prior to switching modes cannot be detected using the condition registers after the mode change. This is true unless they recur after the mode change, although transitions of these conditions can be detected using the event registers.

Changing modes resets all SCPI status registers and mask registers to their power-on defaults. Hence, any event or condition register masks must be re-established after a mode change. Also note that the power up status bit is set by any mode change, since that is the default state after power up.

Factory Preset and *RST:	Persistent state with factory default of 1
Range:	1 to x, where x depends upon which applications are installed.
Front Panel Access:	**Mode**

Select Application

:INSTrument[:SELect] SA|CDMA|GSM

:INSTrument[:SELect]?

Select the measurement application by enumerated choice. The actual available choices depends upon which applications (modes) are installed in the instrument.

Once the instrument mode is selected, only the commands that are valid for that mode can be executed. SYSTem:HELP:HEADers? provides a list of the valid commands.

Spectrum Analyzer - No down-loadable software is being used.

CDMA mode - Makes cdmaOne (code division multiple access) standard measurements.

GSM mode - Makes GSM (global system for mobile communications) standard measurements.

NOTE

If you are using the status bits and the analyzer mode is changed, the status bits should be read, and any errors resolved, prior to switching modes. Error conditions that exist prior to switching modes cannot be detected using the condition registers after the mode change. This is true unless they recur after the mode change, although transitions of these conditions can be detected using the event registers.

Changing modes resets all SCPI status registers and mask registers to their power-on defaults. Hence, any event or condition register masks must be re-established after a mode change. Also note that the power up status bit is set by any mode change, since that is the default state after power up.

Factory Preset and *RST: Persistent state with factory default of Spectrum Analyzer

Front Panel Access: **Mode**

MEASure Group of Commands

This group includes commands used to make measurements and return results. The different commands can be used to provide fine control of the overall measurement process. Most measurements should be done in single measurement mode, rather than doing the measurement continuously.

Each measurement sets the instrument state that is appropriate for that measurement. Other commands are available for each **Mode** to allow changing settings, view, limits, etc. Refer to:

SENSe:<measurement>, SENSe:CHANnel, SENSe:CORRection, SENSe:FREQuency, SENSe:POWer, SENSe:RADio, SENSe:SNYC
CALCulate:<measurement>, CALCulate:CLIMits/DATA
DISPlay:<measurement>
TRIGger

Measure Commands

:MEASure:<measurement>[n]?

This is a fast single-command way to make a measurement using the factory default instrument settings. These are the settings and units that conform to the Standard.

- Stops the current measurement and sets up the instrument for the specified measurement using the factory defaults.
- Initiates the data acquisition for the measurement.
- Blocks other SCPI communication, waiting until the measurement is complete before returning results.
- Turns the averaging function on and sets the number of averages to 10 for all measurements.
- After the data is valid it returns the scalar results, or the trace data, for the specified measurement.

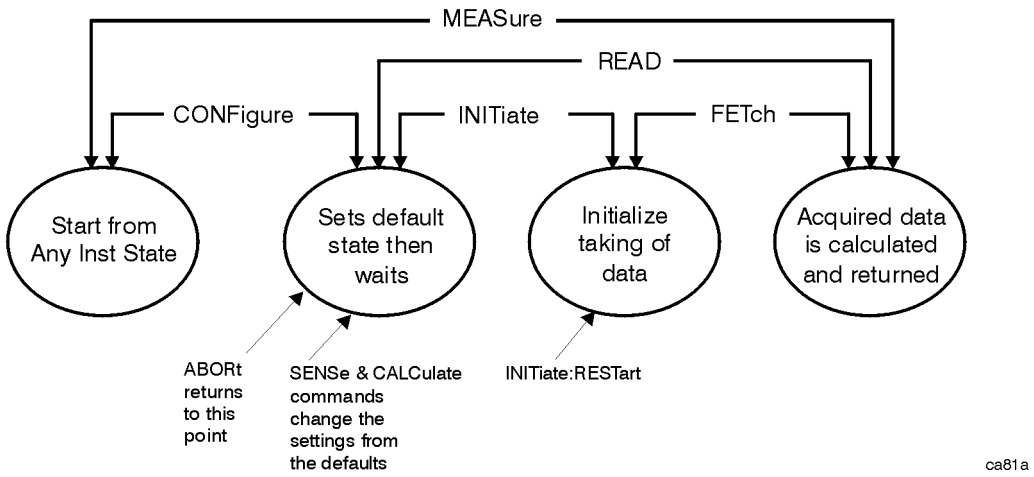
  If the optional [n] value is not included, or is set to 1, the scalar measurement results will be returned. If the [n] value is set to a value other than 1, the selected trace data results will be returned. See each command for details of what types of scalar results or trace data results are available.

If you need to change some of the measurement parameters from the factory default settings you can set up the measurement with the CONFigure command. Use the commands in the SENSe:<measurement> and CALCulate:<measurement> subsystems to change the settings. Then you can use the READ? command, or the INITiate and FETCh? commands, to initiate the measurement and query the results. See Figure 2-1.

If you need to repeatedly make a given measurement with settings other than the factory defaults, you can use the commands in the SENSe:<measurement> and CALCulate:<measurement> subsystems to set up the measurement. Then use the READ? command or INITiate and FETCh? commands, to initiate the measurement and query results.

Measurement settings persist if you initiate a different measurement and then return to a previous one. Use READ:<measurement>? if you want to use those persistent settings. If you want to go back to the default settings, use MEASure:<measurement>?.

Figure 2-1 Measurement Group of Commands



Configure Commands

:CONFigure:<measurement>

This command stops the current measurement and sets up the instrument for the specified measurement using the factory default instrument settings. It does not initiate the taking of measurement data. This command also turns the averaging function on and sets the number of averages to 10 for all measurements.

The CONFigure? query returns the current measurement name.

Fetch Commands

:FETCh:<measurement>[n]?

This command puts valid data into the output buffer, but does not initiate data acquisition. Use the INITiate[:IMMediate] command to acquire data before you use the FETCh command. You can only fetch results from the measurement that is currently selected.

If the optional [n] value is not included, or is set to 1, the scalar measurement results will be returned. If the [n] value is set to Ša value other than 1, the selected trace data results will be returned. See each command for details of what types of scalar results or trace data results are available. The binary data formats should be used for handling large blocks of data since they are smaller and faster then the ASCII format.

Read Commands

:READ:<measurement>[n]?

- Does not preset the measurement to the factory defaults. (The MEASure? and CONFigure? commands reset the parameters to the default values.) It uses the settings from the last measurement.
- Initiates the measurement and puts valid data into the output buffer. If a measurement other than the current one is specified, the instrument will switch to that measurement before it initiates the measurement and returns results.
- Blocks other SCPI communication, waiting until the measurement is complete before returning the results

  If the optional [n] value is not included, or is set to 1, the scalar measurement results will be returned. If the [n] value is set to Ša value other than 1, the selected trace data results will be returned. See each command for details of what types of scalar results or trace data results are available. The binary data formats should be used when handling large blocks of data since they are smaller and faster then the ASCII format.

Measurement settings persist if you initiate a different measurement and then return to a previous one. Use READ:<measurement>? if you want to use those persistent settings. If you want to go back to the default settings, use MEASure:<measurement>?.

Adjacent Channel Power Ratio (ACPR) Measurement

This measures the total rms power in the specified channel and in 5 offset channels. You must be in cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:ACP commands for more measurement related commands.

:CONFigure:ACP

:FETCh:ACP[n]?

:READ:ACP[n]?

:MEASure:ACP[n]?

Front Panel Access: **Measure**, **ACPR**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

Measurement Type	n	Results Returned
Total power reference	not specified or n=1 cdmaOne mode	Returns 24 comma-separated scalar results, in the following order: 1. Center frequency - relative power (dB) 2. Center frequency - absolute power (dBm) 3. Center frequency - relative power (dB) 4. Center frequency - absolute power (dBm) 5. Negative offset frequency (1) - relative power (dB), 6. Negative offset frequency (1) - absolute power (dBm) 7. Positive offset frequency (1) - relative power (dB) 8. Positive offset frequency (1) - absolute power (dBm) . . . 23. Positive offset frequency (5) - relative power (dB) 24. Positive offset frequency (5) - absolute power (dBm) **NOTE** Center frequency relative power is relative to the center frequency absolute power and therefore, is always equal to 0.00 dB.

Measurement Type	n	Results Returned
Power spectral density reference	not specified or n=1 cdmaOne mode	Returns 24 comma-separated scalar results, in the following order: 1. Center frequency - relative power (dB) 2. Center frequency - absolute power (dBm/Hz) 3. Center frequency - relative power (dB) 4. Center frequency - absolute power (dBm/Hz) 5. Negative offset frequency (1) - relative power (dB) 6. Negative offset frequency (1) - absolute power (dBm/Hz) 7. Positive offset frequency (1) - relative power (dB) 8. Positive offset frequency (1) - absolute power (dBm/Hz) . . . 23. Positive offset frequency (5) - relative power (dB) 24. Positive offset frequency (5) - absolute power (dBm/Hz) **NOTE** Center frequency relative power is relative to the center frequency absolute power and therefore, is always equal to 0.00 dB.

Code Domain Measurement

This measures the power levels of the spread channels in RF channel(s). You must be in the cdmaOne to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:CDPower commands for more measurement related commands.

:CONFigure:CDPower

:FETCh:CDPower[n]?

:READ:CDPower[n]?

:MEASure:CDPower[n]?

Front Panel Access: **Measure, Code Domain**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	Returns the following comma-separated scalar results: 1. **Time offset** is a floating point number with units of seconds. This is the time delay of the even second clock with respect to the start of the short code PN sequences. Time offset takes into account the setting of the PN offset parameter. For example, with the PN offset to 2 the reported time offset would be the calculated time offset times 64 chip intervals (or 2 X 52.0833e–6). 2. **Frequency error** is a floating point number (in Hz) of the frequency error in the measured signal. This error is based on the linear best fit of the uncorrected measured phase. 3. **Carrier feedthrough** is a floating point number (in dB) of the dc offset, of I and Q, from the origin. 4. **Pilot power** is a floating point number with units of dB. It is the relative power of the pilot channel (Walsh code 0) with respect to the carrier power. 5. **Paging power** is a floating point number with units of dB. It is the relative power of the paging channel (Walsh code 1) with respect to the carrier power. 6. **Sync power** is a floating point number with units of dB. It is the relative power of the sync channel (Walsh code 32) with respect to the carrier power. 7. **Average traffic power** is a floating point number with units of dB. It is the average relative power of the active traffic channels with respect to the carrier power. Traffic channels are defined as all of the Walsh codes except Walsh 0,1,32. A traffic channel is active if its coding power is greater than the active set threshold parameter which you have selected. 8. **Maximum inactive traffic power** is a floating point number with units of dB. It is the maximum relative power of an inactive traffic channel with respect to the carrier power. Traffic channels are defined as all of the Walsh codes except Walsh 0,1,32. A traffic channel is inactive if its coding power is less than the active set threshold parameter which you have selected. 9. **Average inactive traffic power** is a floating point number with units of dB. It is the average relative power of the inactive traffic channels with respect to the carrier power. Traffic channels are defined as all of the Walsh codes except Walsh 0,1,32. A traffic channel is inactive if its coding power is less than the active set threshold parameter which you have selected. 10. **RHO (estimated)** is a floating point number without units. This is an estimate of Rho based on the input signal as a pilot only signal. It is calculated by estimating the noise floor for the active code channels using the average of the noise in all of the inactive channels. The measured noise floor is subtracted from all active channels before they are summed together to get the total signal power. The ratio of total noise power to total power is the Rho (estimated).

n	Results Returned
2	Power trace - Returns comma-separated floating point numbers that are the trace data of the code domain *power* trace for all 64 Walsh codes. This series of 64 numbers represent the relative power levels (in dB) of all 64 walsh codes, with respect to the carrier power.
3	Timing trace - Returns comma-separated floating point numbers that are the trace data of the code domain *timing* trace for all 64 Walsh codes. This series of 64 numbers represent the relative timing estimations (in seconds) of the codes, relative to the pilot channel. Typical values are on the order of 1 ns. **NOTE** The default method is to measure the power only. CONFIG and MEAS reset the method parameter to **Power**. If you use this subopcode with the method left as Power, invalid data will be returned. Set Method to **Timing/Phase** for proper results.
4	Phase trace - Returns comma-separated floating point numbers that are the trace data of the code domain *phase* trace for all 64 Walsh codes. This series of 64 numbers represent the relative phase estimations (in radians) of the codes, relative to the pilot channel. Typical values are on the order of 1 mrad. **NOTE** The default method is to measure the power only. CONFIG and MEAS reset the method parameter to **Power**. If you use this subopcode with the method left as Power, invalid data will be returned. Set Method to **Timing/Phase** for proper results.

Channel Power Measurement

This measures the total rms power in a specified integration bandwidth. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:CHPower commands for more measurement related commands.

:CONFigure:CHPower

:FETCh:CHPower[n]?

:READ:CHPower[n]?

:MEASure:CHPower[n]?

Front Panel Access: **Measure, Channel Power**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	Returns 2 comma-separated scalar results: 1. **Channel Power** is a floating point number representing the total channel power in the specified integration bandwidth. 2. **Power Spectral Density** is the power (in dBm/Hz) in the specified integration bandwidth.

Spur Close Measurement

This measures the spurious emissions in the transmit band relative to the channel power in the selected channel. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:CSPur commands for more measurement related commands.

:CONFigure:CSPur

:FETCh:CSPur[n]?

:READ:CSPur[n]?

:MEASure:CSPur[n]?

Front Panel Access: **Measure, Spur Close**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	Returns 10 comma-separated scalar results. The 10 results represent, first, the channel power and then 3 spur values. The 3 values are composed of the spurious value from each of 3 measurement segments. The measurement segments are Lower, Center, and Upper. For each of the 3 spurs displayed, 3 values are returned: 1. The spur frequency difference from channel center frequency (in Hz) 2. The spur amplitude difference from the limit (in dB) 3. The spur amplitude difference from channel power (in dBc)
2	Returns trace of the segment containing the worst spur.

Monitor Band/Channel Measurement

This measurement has two measurement methods: monitor Band and monitor channel. In monitor band, the cdmaOne frequency band is viewed. In monitor channel, the spectrum of a selected channel is viewed.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:MONitor commands for more measurement related commands.

:CONFigure:MONitor

:FETCh:MONitor[n]

:READ:MONitor[n]

:MEASure:MONitor[n]

Front Panel Access: **Measure, Monitor Band/Channel**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	No return value

Occupied Bandwidth Measurement

This measures the bandwidth of the carrier signal. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:OBW commands for more measurement related commands.

:CONFigure:OBW

:FETCh:OBW[n]?

:READ:OBW[n]?

:MEASure:OBW[n]?

Front Panel Access: **Measure, Occupied BW**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement results available

n	Results Returned
not specified or n=1	Returns 3 comma-separated scalar results, in the following order: 1. Occupied bandwidth - Hz 2. Emissions bandwidth- Hz 3. Transmit frequency error - Hz

Out of Band Spurious Emissions Measurement

This measures the out of band spurious emissions relative to the receive channel power in the selected channel. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:OOBSpur commands for more measurement related commands.

:CONFigure:OOBSpur

:FETCh:OOBSpur[n]?

:READ:OOBSpur[n]?

:MEASure:OOBSpur[n]?

Front Panel Access:. **Measure, Out Of Band Spurious**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1 cdmaOne mode	Returns the following two components: First–the number of ranges that were measured (1 - 20) Second–the results for each range are returned. Each result is made up of seven values for each of a maximum of 10 spurs for a total of 10 X N spurs and 70 X N return values. Where N = the number of ranges set. The return values for each spur are: 1. Range number 2. Spur number 3. Center frequency 4. Amplitude 5. Delta absolute limit 6. Delta relative limit 7. Pass/Fail results

Receive Channel Power Measurement

This measures the total rms power in a specific bandwidth at the receive channel frequency. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:CHPower commands for more measurement related commands.

:CONFigure:RCHPower

:FETCh:RCHPower[n]?

:READ:RCHPower[n]?

:MEASure:RCHPower[n]?

Front Panel Access:. **Measure, Rx Channel Power**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	Returns 2 comma-separated scalar results: 1. **Channel Power** is a floating point number representing the total channel power in the specified integration bandwidth. 2. **Power Spectral Density** is the power (in dBm/Hz) in the specified integration bandwidth.

Modulation Accuracy (Rho) Measurement

This measures the modulation accuracy of the transmitter by checking the magnitude and phase error and the EVM (error vector magnitude). You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:RHO commands for more measurement related commands.

:CONFigure:RHO

:FETCh:RHO[n]?

:READ:RHO[n]?

:MEASure:RHO[n]?

Front Panel Access: **Measure, Mod Accuracy (Rho)**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
0	Returns processed I/Q trace data, as a series of comma-separated trace points. The I values are listed first in each pair, using the 0 through even-indexed values. The Q values are the odd-indexed values. The standard sample rate is 4.9152 MHz and the trace length is determined by the current measurement interval. The number of trace points depends on the current measurement interval and points per chip settings. The numbers are sent in the following order: In-phase (I) sample, of symbol 0 decision point Quadrature-phase (Q) sample, of symbol 0 decision point ... In-phase (I) sample, of symbol 1 decision point Quadrature-phase (Q) sample, of symbol 1 decision point ... The trace can be interpolated to 1, 2, 4 points/chip selected with the display Points/Chip softkey or the NSPC remote command. The **Points/Chip** soft key controls number of points between decision points in the trace, changing the number of I/Q pairs sent for each decision point. 1=only the decision points 2=the decision points with one point between them 4=the decision points with three points between them

n	Results Returned
not specified or n=1 cdmaOne mode	Returns 7 comma-separated floating point numbers, in the following order: 1. **Rho** (no units) represents the correlation of the measured power compared to the ideal pilot channel. The calculation is performed after the complimentary filter, so it is IS95 compliant. It is performed at the decision points in the pilot waveform. If averaging is on, this is the average of the individual rms measurements. 2. **Time offset** (with units of seconds) is the time delay of the even second clock with respect to the start of the short code PN sequences, at offsets from the 15 zeros in the characteristic phase of the sequence. 3. **Frequency error** of the measured signal, with units of Hz. This is based on the linear best fit of the uncorrected measured phase. 4. **Carrier feedthrough** has units of dB and is the dc error offset of I and Q, from the origin. 5. **EVM** has units of percent. The calculation is based on the composite of the phase error and magnitude error, between the measured signal and the ideal pilot channel. It is performed after the complimentary filter which removes the inter-symbol interference in the modulated data. If averaging is on, this is the average of the individual rms measurements. 6. **Magnitude error** (with units of percent) is the rms error between the measured (compensated) magnitude and the ideal magnitude. This is performed after the complimentary filter which removes the inter-symbol interference in the modulated data. If averaging is on, this is the average of the individual rms measurements. 7. **Phase error** (with units in percent) is the rms phase error between the measured phase and the ideal phase. The calculation is performed after the complimentary filter which removes the inter-symbol interference in the modulated data. If averaging is on, this is the average of the individual rms measurements.
2	EVM Trace – returns error vector magnitude (EVM) data, as comma-separated trace points in percent. The first value is the chip 0 decision point. The trace is interpolated for the currently selected points/chips displayed on the front panel. The number of trace points depends on the current measurement interval setting.
3	Magnitude Error Trace – returns magnitude error data, as comma-separated trace points, in percent. The first value is the chip 0 decision point. The trace is interpolated for the currently selected points/chips displayed on the front panel. The number of trace points depends on the current measurement interval setting.
4	Phase Error Trace – returns phase error data as comma-separated trace points, in degrees. The first value is the chip 0 decision point. The trace is interpolated for the currently selected points/chip displayed on the front panel. The number of trace points depends on the current measurement interval setting.

n	Results Returned
6	Reference IQ Data – returns a series of floating point numbers that alternately represent I and Q pairs of the reference trace data. The number of trace points depends on the current measurement interval and points per chip settings. The numbers are sent in the following order: In-phase (I) sample, of symbol 0 decision point Quadrature-phase (Q) sample, of symbol 0 decision point . . . In-phase (I) sample, of symbol 1 decision point Quadrature-phase (Q) sample, of symbol 1 decision point . . . The trace can be interpolated to 1, 2, 4 points/chip selected with the display Points/Chip softkey or the NSPC remote command. The **Points/Chip** soft key controls number of points between decision points in the trace, changing the number of I/Q pairs sent for each decision point. 1=only the decision points 2=the decision points with one point between them 4=the decision points with three points between them
6 cdma2000 or W-CDMA (3GPP) measurement	Returns 4 comma-separated scalar values of the pass/fail (0=passed, or 1=failed) results determined by testing the EVM and Peak EVM. 1. Test result of EVM 2. Test result of Peak EVM 3. Test result of Rho 4. Test result of Peak Code Domain Error

Receiver Spurious Response Measurement

This measures the spurious emissions in the receive band relative to the channel power in the selected channel. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:RSPur commands for more measurement related commands.

:CONFigure:RSPur

:FETCh:RSPur[n]?

:READ:RSPur[n]?

:MEASure:RSPur[n]?

Front Panel Access:. **Measure, RX Spur**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	Returns 9 comma-separated scalar results corresponding to the 3 worst spurs in the band starting with the worst: 1. The worst spur's frequency (in Hz) 2. The worst spur's amplitude (in dBm) 3. The worst spur's amplitude difference from the limit (in dB) 4. The second worst spur's frequency (in MHz) 5. The second worst spur's amplitude (in dBm) 6. The second worst spur's amplitude difference from the limit (in dB) 7. The third worst spur's frequency (in Hz) 8. The third worst spur's amplitude (in dBm) 9. The third worst spur's amplitude difference from the limit (in dB) If no second or third spurs are found, a value of 999 is returned.

Spurs at Harmonics Measurement

Measures the power of the spurious emissions at the selected harmonic frequencies of the current channel frequency using the selected resolution bandwidth filter. You can set the number of spurs to be measured. For each harmonic, the reference level is set 40 dB above the largest amplitude limit with input attenuation held constant. The attenuation is set to limit the carrier (fundamental) power at the spectrum analyzer input mixer to the value determined by **Max Mixer Lvl**. You must be in the cdmaOne mode to use these commands. Use INSTrument:SELect to set the mode.

The general functionality of CONFigure, FETCh, MEASure, and READ are described at the beginning of this section. See the SENSe:HARMonics commands for more measurement related commands.

:CONFigure:HARMonics

:FETCh:HARMonics[n]?

:READ:HARMonics[n]?

:MEASure:HARMonics[n]?

Front Panel Access: **Measure, Harmonics**

After the measurement is selected, press **Restore Meas Defaults** to restore factory defaults.

Measurement Results Available

n	Results Returned
not specified or n=1	Returns 61 values. The channel power value and a 10 row by 6 column array of values. Each row contains the following values: 1. Harmonic number 2. Frequency (MHz) 3. Absolute amplitude (dBm) 4. Delta from the absolute limit 5. Relative amplitude from the carrier (dBc) 6. Delta from the relative limit

MMEMory Subsystem

The purpose of the MMEMory subsystem is to provide access to mass storage devices such as internal or external disk drives. Any part of memory that is treated as a device will be in the MMEMory subsystem.

If mass storage is not specified in the filename, the default mass storage specified in the MSIS command will be used.

The forward slash / and the reverse slash \ are both acceptable delimiters for specifying a directory path.

Store a Measurement Results in a File

`:MMEMory:STORe:RESults filename.csv`

Saves the measurement results to a file in memory. The file name must have a file extension of .csv and will be in the CSV (comma-separated values) format.

Example: MMEM:STOR:RES 'C:mymeas.csv'

Front Panel Access: **File**, **Save**, **Type**, **More**, **Measurement Results**

READ Subsystem

:READ:<measurement>[n]?

The READ? commands are used with several other commands and are documented in the section on the "MEASure Group of Commands" on page 2-42.

SENSe Subsystem

Sets the instrument state parameters so that you can measure the input signal.

SENSe subsystem commands used for measurements in the MEASURE and Meas Setup menus may only be used to set parameters of a specific measurement when the measurement is active. Otherwise, an error will occur. You must first select the appropriate measurement using the :CONFigure:<measurement> command. If a :SENSe command is used to change a parameter during a measurement (while not in its idle state), the measurement will be restarted.

Adjacent Channel Power Measurement

Commands for querying the adjacent channel power measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **ACP** or **ACPR** measurement has been selected from the **MEASURE** key menu.

Adjacent Channel Power—Average Count

[:SENSe]:ACP:AVERage:COUNt <integer>

[:SENSe]:ACP:AVERage:COUNt?

Set the number of data acquisitions that will be platform averaged. After the specified number of average counts, the average mode (termination control) setting determines the average action.

Factory Preset and *RST: 20 for Basic, cdmaOne

Range: 1 to 1,000

Remarks: Use INSTrument:SELect to set the mode.

Remarks: This command is used for measurements in the MEASURE menu.

Front Panel Access: **Meas Setup**

Adjacent Channel Power—Averaging State

[:SENSe]:ACP:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:ACP:AVERage[:STATe]?

Turn average on or off.

Factory Preset and *RST: On

Remarks: Use INSTrument:SELect to set the mode.

Remarks: This command is used for measurements in the MEASURE menu.

Front Panel Access: **Meas Setup**

Adjacent Channel Power—Averaging Termination Control

[:SENSe]:ACP:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:ACP:AVERage:TCONtrol?

Select the type of termination control used for averaging. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential – Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat – After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Avg Mode**

Adjacent Channel Power—Carrier Channel BW

[:SENSe]:ACP:BANDwidth|BWIDth:INTegration <freq>

[:SENSe]:ACP:BANDwidth|BWIDth:INTegration?

Set the Integration bandwidth that will be used for the main (carrier) channel.

Factory Preset and *RST: 1.23 MHz

Range: 1 kHz to 20 MHz

Default Unit: Hz

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Adjacent Channel Power—Resolution Bandwidth

[:SENSe]:ACP:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:ACP:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 10 kHz

Range: Option 1DR—10 Hz to 5 MHz

non- Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Res BW**

Adjacent Channel Power—Resolution Bandwidth State

[:SENSe]:CHPower:BANDwidth|BWIDth[:RESolution]:AUTO OFF|ON|0|1

[:SENSe]:CHPower:BANDwidth|BWIDth[:RESolution]:AUTO?

Select auto (default value) or manual (user entered value) to set the resolution bandwidth.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Resolution BW**

Adjacent Channel Power—Adjacent Channel Spacing

[:SENSe]:ACP:CSPacing <freq>

[:SENSe]:ACP:CSPacing?

Set the adjacent channel spacing.

Factory Preset and *RST: 3.0 MHz

Range: 2.0 Hz to 30.7460321 MHz

Default Unit: Hz

Remarks: This command is used for measurements in the MEASURE menu.

Front Panel Access: **Meas Setup**

Adjacent Channel Power—Maximum Mixer Power

[:SENSe]:ACP:MIXer:RANGe[:UPPer] <power>

[:SENSe]:ACP:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the channel power measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Adjacent Channel Power—Absolute Amplitude Limits

[:SENSe]:ACP:OFFSet:LIST:ABSolute <power>,<power>,<power>,<power>,<power>

[:SENSe]:ACP:OFFSet:LIST:ABSolute?

Sets the absolute amplitude levels to test against for each of the custom offsets. The list must contain five (5) entries. [:SENSe]:ACP:OFFSet:LIST:TEST selects the type of testing to be done at each offset.

You can turn off (not use) specific offsets with the [:SENSe]:ACP:OFFSet:LIST:STATe command.

The query returns five (5) real numbers that are the current absolute amplitude test limits.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm
	MS cellular	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm

Range: –200.0 dBm to 50.0 dBm

Default Unit: dBm

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Ofs & Limits**

Adjacent Channel Power—Define Integration Bandwidth List

[:SENSe]:ACP:OFFSet:LIST:BANDwidth|BWIDth[:INTegration] <bw>,<bw>,<bw>,<bw>,<bw>

[:SENSe]:ACP:OFFSet:LIST:BANDwidth|BWIDth?

Define the custom integration bandwidth(s) for the adjacent channel power testing. If there is more than one bandwidth, the list must contain five (5) entries. Each resolution bandwidth in the list corresponds to an offset frequency in the list defined by [:SENSe]:ACP:OFFSet:LIST[:FREQuency]. You can turn off (not use) specific offsets with the [:SENSe]:ACP:OFFSet:LIST:STATe command.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	30 kHz	30 kHz	0 Hz	0 Hz	0 Hz
	MS cellular	30 kHz	30 kHz	30 kHz	30 kHz	30 kHz

Range: 300 Hz to 20 MHz

Default Unit: Hz

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Ofs & Limits**, **Ref BW**

Adjacent Channel Power—Define Offset Frequency List

, cdmaOne (ESA)

[:SENSe]:ACP:OFFSet:LIST[:FREQuency] <f_offset>,<f_offset>,<f_offset>,<f_offset>,<f_offset>

[:SENSe]:ACP:OFFSet:LIST[:FREQuency]?

Define the custom set of offset frequencies at which the switching transient spectrum part of the ACP measurement will be made. The list contains five (5) entries for offset frequencies. Each offset frequency in the list corresponds to a reference bandwidth in the bandwidth list.

An offset frequency of zero turns the display of the measurement for that offset off, but the measurement is still made and reported. You can turn off (not use) specific offsets with the [:SENSe]:ACP:OFFSet:LIST:STATe command.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	750 kHz	1.98 MHz	0 Hz	0 Hz	0 Hz
	MS cellular	885 kHz	1.98 MHz	0 Hz	0 Hz	0 Hz

Range: 0 Hz to 45 MHz

Default Unit: Hz

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Ofs Limits**

Adjacent Channel Power—Amplitude Limits Relative to the Carrier

[:SENSe]:ACP:OFFSet:LIST:RCARrier <rel_power>,<rel_power>,<rel_power>,<rel_power>,<rel_power>

[:SENSe]:ACP:OFFSet:LIST:RCARrier?

Sets the amplitude levels to test against for the specified offsets. This amplitude level is relative to the carrier amplitude. The list contains five (5) entries. [:SENSe]:ACP:OFFSet:LIST:TEST selects the type of

testing to be done at each offset.

You can turn off (not use) specific offsets with the [:SENSe]:ACP:OFFSet:LIST:STATe command.

The query returns five (5) real numbers that are the current amplitude test limits, relative to the carrier, for each offset.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	–45 dBc	–60 dBc	0 dBc	0 dBc	0 dBc
	MS cellular	–42 dBc	–54 dBc	0 dBc	0 dBc	0 dBc

Range: –150.0 dB to 50.0 dB

Default Unit: dB

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Ofs & Limits**, **Rel Lim (Car)**

Adjacent Channel Power—Amplitude Limits Relative to the Power Spectral Density

[:SENSe]:ACP:OFFSet:LIST:RPSDensity <rel_power>,<rel_power>,<rel_power>,<rel_power>,<rel_power>

[:SENSe]:ACP:OFFSet:LIST:RPSDensity?

Sets the amplitude levels to test against for any custom offsets. This amplitude level is relative to the power spectral density. The list contains five (5) entries. [:SENSe]:ACP:OFFSet:LIST:TEST selects the type of testing to be done at each offset.

You can turn off (not use) specific offsets with the [:SENSe]:ACP:OFFSet:LIST:STATe command.

The query returns five (5) real numbers that are the current amplitude test limits, relative to the power spectral density, for each offset.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	–28.87 dB	–43.87 dB	0 dB	0 dB	0 dB
	MS cellular	–25.87 dB	–37.87 dB	0 dB	0 dB	0 dB

Range: –150.0 dB to 50.0 dB

Default Unit: dB

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Ofs & Limits**, **Rel Lim (PSD)**

Adjacent Channel Power—Control Offset Frequency List

[:SENSe]:ACP:OFFSet:LIST:STATe OFF|ON|0|1, OFF|ON|0|1, OFF|ON|0|1, OFF|ON|0|1, OFF|ON|0|1

[:SENSe]:ACP:OFFSet:LIST:STATe?

Selects whether testing is to be done at the custom offset frequencies. The measured powers are tested against the absolute values defined with [:SENSe]:ACP:OFFSet:LIST:ABSolute, or the relative values defined with [:SENSe]:ACP:OFFSet:LIST:RPSDensity and [:SENSe]:ACP:OFFSet:LIST:RCARier.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	On	On	Off	Off	Off
	MS cellular	On	On	Off	Off	Off

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Adjacent Channel Power—Define Type of Offset Frequency List

[:SENSe]:ACP:OFFSet:LIST:TEST ABSolute|AND|OR|RELative|OFF, ABSolute|AND|OR|RELative|OFF, ABSolute|AND|OR|RELative|OFF, ABSolute|AND|OR|RELative|OFF, ABSolute|AND|OR|RELative|OFF

[:SENSe]:ACP:OFFSet:LIST:TEST?

Defines the type of testing to be done at any custom offset frequencies. The measured powers are tested against the absolute values defined with [:SENSe]:ACP:OFFSet[n]:LIST[n]:ABSolute, or the relative values defined with [:SENSe]:ACP:OFFSet:LIST:RPSDensity and [:SENSe]:ACP:OFFSet:LIST:RCARrier.

You can turn off (not use) specific offsets with the [:SENS]:ACP:OFFSet:LIST:STATe command.

The types of testing that can be done for each offset include:

- Absolute - Test the absolute power measurement. If it fails, then return a failure for the measurement at this offset.
- And - Test both the absolute power measurement and the power relative to the carrier. If they both fail, then return a failure for the measurement at this offset.
- Or - Test both the absolute power measurement and the power relative to the carrier. If either one fails, then return a failure for the measurement at this offset.
- Relative - Test the power relative to the carrier. If it fails, then return a failure for the measurement at this offset.
- OFF - Turns the power test off.

Factory Preset and *RST:

Mode	Variant	Offset A	Offset B	Offset C	Offset D	Offset E
cdmaOne	BS cellular	REL	REL	OFF	OFF	OFF
	MS cellular	REL	REL	OFF	OFF	OFF

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Ofs & Limits**, **Fail Type**

Adjacent Channel Power—Number of Measured Points

[:SENSe]:ACP:POINts <integer>

[:SENSe]:ACP:POINts?

Selects the number of data points in the trace.

Factory Preset and *RST: 8192

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Range: 101 to 8192

Front Panel Access: **Meas Setup**, **Advanced, Sweep Points**

Adjacent Channel Power—Trigger Source

[:SENSe]:ACP:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:ACP:TRIGger:SOURce?

Select the trigger source used to control the data acquisitions.

External – rear panel external trigger input

Immediate – the next data acquisition is immediately taken, capturing the signal asynchronously (also called free run).

Factory Preset and *RST: Immediate

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**

Adjacent Channel Power—Power Reference

[:SENSe]:ACP:TYPE PSDRef|TPRef

[:SENSe]:ACP:TYPE?

Selects the measurement type. This allows you to make absolute and relative power measurements of either total power or the power normalized to the measurement bandwidth.

Power Spectral Density Reference (PSDRef) - the power spectral density is used as the power reference

Total Power Reference (TPRef) - the total power is used as the power reference

Factory Preset and *RST: Total power reference (TPRef)

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain Measurement

Commands for querying the code domain power measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Code Domain** measurement has been selected from the **MEASURE** key menu.

Code Domain—Average Count

[:SENSe]:CDPower:AVERage:COUNt <integer>

[:SENSe]:CDPower:AVERage:COUNt?

Set the number of frames that will be averaged. After the specified number of frames (average counts) have been averaged, the averaging mode (termination control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain—Averaging State

[:SENSe]:CDPower:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:CDPower:AVERage[:STATe]?

Turn code domain averaging on or off.

Factory Preset and *RST: Off

Remarks: Trace data results are not averaged. Only scalar results are averaged.

You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain—Averaging Termination Control

[:SENSe]:CDPower:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:CDPower:AVERage:TCONtrol?

Select the type of termination control used for averaging. This determines the averaging action after the specified number of frames (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain—Active Set Threshold

[:SENSe]:CDPower:ASET:THReshold <rel_power>

[:SENSe]:CDPower:ASET:THReshold?

Set the active set threshold value. Walsh channels with power less than this value, will be treated as non-active (noise) channels.

Factory Preset and *RST: –20 dB

Range: –200 dB to 0 dB

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain—RF Mixer Input Maximum Power

[:SENSe]:CDPower:MIXer:RANGe[:UPPer] <power>

[:SENSe]:CDPower:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the code domain measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Code Domain—Method

[:SENSe]:CDPower:METHod POWer|TPHase

[:SENSe]:CDPower:METHod?

Select the measurement method.

- Power - Measures the code domain power of all 64 Walsh Channels.
- Timing & Phase - Measures the code domain power, code domain timing, and code domain phase of all 64 Walsh channels.

Factory Preset and *RST: Power

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain—Spectrum Normal/Invert

[:SENSe]:CDPower:SPECtrum INVert|NORMal

[:SENSe]:CDPower:SPECtrum?

Select normal or inverted spectrum for demodulation.

Factory Preset and *RST: Normal

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Code Domain—Measurement Interval

[:SENSe]:CDPower:SWEep:TIME <time>

[:SENSe]:CDPower:SWEep:TIME?

Set the length of the measurement interval that will be used.

Factory Preset and *RST: 1.250 ms

Range: 500 µs to 26.7 ms

Default Unit: seconds

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Digital Demod PN Offset

[:SENSe]:CHANnel:PNOFfset <integer>

[:SENSe]:CHANnel:PNOFfset?

Set the PN offset number for the base station being tested.

Factory Preset and *RST: 0

Range: 0 to 511

Default Unit: None

Remarks: Global to the current mode.

You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **FREQUENCY Channel**, **PN Offset**

or

Mode Setup, **Demod**, **Tab⇒**

RF Channel Frequency

[:SENSe]:CHANnel:RFCHannel:FREQuency <freq>

[:SENSe]:CHANnel:RFCHannel:FREQuency?

Set the RF channel frequency.

Factory Preset and *RST: The first channel in the current tuning plan.

Range: The same as the SA Range

Default Unit: Hz

Remarks: Global to the current mode.

To use this command, select the appropriate mode using INSTrument:SELect.

Front Panel Access: **FREQUENCY Channel, Channel Freq**

RF Channel Number

[:SENSe]:CHANnel:RFCHannel[:NUMBer] <integer>

[:SENSe]:CHANnel:RFCHannel[:NUMBer]?

Set the analyzer to a frequency that corresponds to the RF channel number.

Factory Preset and *RST: 1

Range: IS-95A—1 to 799 and 991 to 1023

J-STD-008—0 to 1199

ARIB STD-T53—1 to 799, 801-1039, 1041-1199

TTA.KO-06.0003 (Korea Cell)—1 to 799 and 991 to 1023

TTA.KO-06.0013 (Korea PCS)—1 to 599

Remarks: Global to the current mode.

You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **FREQUENCY Channel, RF Channel**

Channel Power Measurement

Commands for querying the channel power measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Channel Power** measurement has been selected from the **MEASURE** key menu.

Channel Power—Average Count

[:SENSe]:CHPower:AVERage:COUNt <integer>

[:SENSe]:CHPower:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the averaging mode (terminal control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Channel Power—Averaging State

[:SENSe]:CHPower:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:CHPower:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Channel Power—Averaging Termination Control

[:SENSe]:CHPower:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:CHPower:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Repeat

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Channel Power—Integration BW

[:SENSe]:CHPower:BANDwidth|BWIDth:INTegration <freq>

[:SENSe]:CHPower:BANDwidth|BWIDth:INTegration?

Set the Integration BW (IBW) that will be used.

Factory Preset and *RST: 2.0 MHz

Channel bandwidth of the standard selected using the **[:SENSe]:RADio:STANdard:BAND** command.

Range: 1 kHz to ESA span maximum

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Channel Power—Resolution Bandwidth

[:SENSe]:CHPower:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:CHPower:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 10 kHz

Range: Option 1DR—10 Hz to 5 MHz

non- Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Res BW**

Channel Power—Resolution Bandwidth State

[:SENSe]:CHPower:BANDwidth|BWIDth[:RESolution]:AUTO OFF|ON|0|1

[:SENSe]:CHPower:BANDwidth|BWIDth[:RESolution]:AUTO?

Select auto (default value) or manual (user entered value) to set the resolution bandwidth.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Res BW**

Channel Power—Span

[:SENSe]:CHPower:FREQuency:SPAN <freq>

[:SENSe]:CHPower:FREQuency:SPAN?

Set the frequency span that will be used. If resolution bandwidth is set to a value less than 1 kHz, maximum span is limited to 5 MHz.

Factory Preset and *RST: Coupled (to the integration BW at approximately 1.6 times the channel bandwidth)

Range: IBW to IBW × 400

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Channel Power—Noise Correction State

[:SENSe]:CHPower:CORRection:NOISe[:AUTO] OFF|ON|0|1

[:SENSe]:CHPower:CORRection:NOISe[:AUTO]?

Turn Noise Correction to off or auto. When set to auto, noise correction will be activated when the measurement is within less than the noise correction threshold from the computed SA noise floor. Noise correction Threshold may be set using the Properties Form under the **Mode Setup** and **Properties**... keys.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Channel Power—Maximum Mixer Power

[:SENSe]:CHPower:MIXer:RANGe[:UPPer] <power>

[:SENSe]:CHPower:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the channel power measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Channel Power—Trigger Source

[:SENSe]:CHPower:TRIGger:SOURce EXTernalIMMediate

[:SENSe]:CHPower:TRIGger:SOURce?

Select the trigger source used to control the data acquisitions. This is an Advanced control that normally does not need to be changed.

External - rear panel external trigger input

Immediate - the next data acquisition is immediately taken (also called Free Run).

Factory Preset and *RST: Immediate (Free Run)

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Trig Source**

Correction for Base Station RF Port External Attenuation

[:SENSe]:CORRection:BS[:RF]:LOSS <rel_power>

[:SENSe]:CORRection:BS[:RF]:LOSS?

Set the correction equal to the external attenuation used when measuring base stations.

Factory Preset and *RST: 0 dB

Range: –50 to 100 dB

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Value is used by all measurements except Rx Spur and Rx Channel Power.

Front Panel Access: **Input**

or

Mode Setup, Input, Tab⇒

Correction For MS RF Port External Gain

[:SENSe]:CORRection:MS[:RF]:GAIN <rel_power>

[:SENSe]:CORRection:MS[:RF]:GAIN?

Set equal to the gain of an external amplifier used when measuring mobile stations.

Factory Preset and *RST: 0 dB

Range: 0 to 100 dB

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Value is used the Rx Spur and Rx Channel Power measurements.

Front Panel Access: **Input, Tab⇒**

or

Mode Setup, Input, Tab⇒

Correction For MS RF Port External Attenuation

[:SENSe]:CORRection:MS:LOSS <rel_power>

[:SENSe]:CORRection:MS:LOSS?

Set equal to the external attenuation used when measuring mobile stations.

Factory Preset and *RST: 0 dB

Range: 0 to 81.9 dB

Default Unit: dB

Remarks: Global to the current mode.

You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Input....**

or

Input, Ext Atten, Mobile Atten

RF Noise Correction Threshold

[:SENSe]:CORRection:NOISe:THReshold <rel_power>

[:SENSe]:CORRection:NOISe:THReshold?

Sets the signal level above the noise floor at which the noise correction factor is automatically applied.

Factory Preset and *RST: 15 dB

Range: 0 dB to 100 dB

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Properties**

Spur Close—Measurement

Commands for querying the close spurs measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Spur Close** measurement has been selected from the **MEASURE** key menu.

Spur Close—Average Count

[:SENSe]:CSPur:AVERage:COUNt <integer>

[:SENSe]:CSPur:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the averaging mode (terminal control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Spur Close—Averaging State

[:SENSe]:CSPur:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:CSPur:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Spur Close—Averaging Termination Control

[:SENSe]:CSPur:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:CSPur:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Repeat

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Spur Close—Type

[:SENSe]:CSPur:TYPE EXAMine|FULL

[:SENSe]:CSPur:TYPE?

Select the measurement type.

Examine — In single sweep mode—measures spurs in the upper, lower, and center segments and then displays the segment with the highest power spur. You can select other segments for display using the **View** key.

In the continuous mode—measures spurs in the upper, lower, and center segment. It then continuously measures the segment with the highest power spur. You can select other segments for display using the **View** key. The initial spur values are held and the marker value is updated with the current spur value found on each sweep. **Segment All** is not active when the measurement type **Examine** is selected.

Full — In single sweep mode—measures the spurs in the upper, lower, and center segments and then displays the segment with the highest power spur. You can select other segments for display using the **View** key

In continuous mode—measures spurs in the upper, lower, and center segment. It then continuously cycles through segments. Unlike **Examine**, all results values are updated with the current spur values found on each sweep.

Factory Preset and *RST: Full

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Meas Setup**

Spur Close—Resolution Bandwidth

[:SENSe]:CSPur:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:CSPur:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 30 kHz

Range: Option 1DR—10 Hz to 5 MHz

non- Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Resolution BW**

Spur Close—Video Bandwidth

[:SENSe]:CSPur:BANDwidth|BWIDth:VIDeo <freq>

[:SENSe]:CSPur:BANDwidth|BWIDth:VIDeo?

Set the video bandwidth that will be used.

Factory Preset and *RST: 3 kHz

Range: Option 1DR—30 Hz to 3 MHz

non- Option 1DR—1 kHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Video BW**

Spur Close—Detector Mode

[:SENSe]:CSPur:DETector[:FUNCtion] POSitive|NEGative|SAMPle

[:SENSe]:CSPur:DETector[:FUNCtion]?

Set the detector mode type for the measurement.

Factory Preset and *RST: Sample

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Detector**

Spur Close—RF Mixer Input Maximum Power

[:SENSe]:CSPur:MIXer:RANGe[:UPPer] <power>

[:SENSe]:CSPur:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Spur Close—Trigger Source

[:SENSe]:CSPur:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:CSPur:TRIGger:SOURce?

Select the trigger source used to control the data acquisitions.

External– rear panel external trigger input

Immediate – the next data acquisition is immediately taken, capturing the signal asynchronously (also called free run)

Factory Preset and *RST: Immediate

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Trig Source**

Demodulation Synchronization Source

[:SENSe]:DEMod:SYNC ESEC|NONE

[:SENSe]:DEMod:SYNC?

Set the time reference to the external frame synchronization source.

ESEC – External frame synchronization source

Factory Preset and *RST: ESEC

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Trigger, Tab⇒**

or

Mode Setup, Trigger, Sync Type

Demodulation Trigger Source

[:SENSe]:DEMod:TRIGger:SOURce EXTernal|FRAMe|IMMediate|RFBurst

[:SENSe]:DEMod:TRIGger:SOURce?

Select the trigger source used to control data acquisitions.

External – rear panel external trigger input

Frame – internal frame trigger from front panel input

Immediate – the next data acquisition is immediately taken, capturing the signal asynchronously (also called free run).

RF Burst – internal wideband RF burst envelope trigger that has automatic level control for periodic burst signals. (Also called. BCT)

Factory Preset and *RST: Frame

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Demod**

Preamplifier Dialog Box Control

[:SENSe]:DIALog:PAMPlifier[:STATe] OFF|ON|0|1

[:SENSe]:DIALog:PAMPlifier[:STATe]?

Turns the preamplifier dialog boxes on or off. These dialog boxes are displayed for the Receiver Channel Power and Receiver Spurious measurements.

Factory Preset and *RST: On

Front Panel Access: **Mode Setup, Properties**

Center Frequency Step Size Automatic

[:SENSe]:FREQuency:CENTer:STEP:AUTO OFF|ON|0|1

[:SENSe]:FREQuency:CENTer:STEP:AUTO?

Specifies whether the step size is set automatically based on the span.

Factory Preset and *RST: On

Front Panel Access: **FREQUENCY/Channel, CF Step**

Center Frequency Step Size

[:SENSe]:FREQuency:CENTer:STEP[:INCRement] <freq>

[:SENSe]:FREQuency:CENTer:STEP[:INCRement]?

Specifies the center frequency step size.

Factory Preset and *RST: The same as the channel spacing for the current Standard and tuning plan.

Range: 100 Hz to 1 GHz

Default Unit: Hz

Front Panel Access: **FREQUENCY/Channel, CF Stepl**

Temporary Center Frequency

[:SENSe]:FREQuency:CENTer:TEMPorary <freq>

[:SENSe]:FREQuency:CENTer:TEMPorary?

Set the temporary center frequency used for many of the measurements. The affected measurements include Channel Power, Receive Channel Power, Monitor Band/Channel, Mod Accuracy (Rho), Code Domain, and Occupied Bandwidth.

This is especially useful for spurious table and spectrum measurements because it allows the user to go off-frequency spurs without losing the channel frequency value.

Factory Preset and *RST:	The same as the preset channel frequency.
Range:	The same as the SA mode range
Default Unit:	Hz
Remarks:	You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.
Front Panel Access:	**FREQUENCY, Temp Ctr Freq**

Harmonic Distortion / Spurs at Harmonics Measurement

Commands for querying the harmonic measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Harmonic Dist / Spurs At Harmonics** measurement has been selected from the **MEASURE** key menu.

Harmonics / Spurs at Harmonics—Averages

[:SENSe]:HARMonics:AVERage:COUNt <integer>

[:SENSe]:HARMonics:AVERage:COUNt?

Set the number of averages for the harmonic measurement.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: This command specifies the number of sweep averages over which the amplitude of each spur will be calculated. Intermediate averaged results will be displayed.

Front Panel Access: **Meas Setup, Avg Number**

Harmonics / Spurs at Harmonics—Turn On or Off Averaging

[:SENSe]:HARMonics:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:HARMonics:AVERage[:STATe]?

Turn on or off spurs at harmonics measurement averaging.

Factory Preset and *RST: Off

Front Panel Access: **Meas Setup, Avg Number**

Spurs at Harmonics—Averaging Termination Control

[:SENSe]:HARMonics:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:HARMonics:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - After the average count is reached, each successive data acquisition is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Mode**

Spurs at Harmonics—Resolution Bandwidth

[:SENSe]:HARMonics:BANDwidth|:BWIDth:RESolution <freq>

[:SENSe]:HARMonics:BANDwidth|:BWIDth:RESolution?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 1 MHz

Range: Option 1DR—10 Hz to 5 MHz

non-Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Resolution BW**

Spurs at Harmonics—Video Bandwidth

[:SENSe]:HARMonics:BANDwidth|:BWIDth:VIDeo <freq>

[:SENSe]:HARMonics:BANDwidth|:BWIDth:VIDeo?

Set the video bandwidth of the harmonics measurement.

Factory Preset and *RST: 3x resolution bandwidth

Range: Option 1DR—30 Hz to 3 MHz

non-Option 1DR—1 KHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Video BW**

Spurs at Harmonics—Video Bandwidth State

[:SENSe]:HARMonics:BANDwidth|BWIDth:VIDeo:AUTO OFF|ON|0|1

[:SENSe]:HARMonics:BANDwidth|BWIDth:VIDeo:AUTO?

Select auto (default value) or manual (user entered value) to set the video bandwidth.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Video BW**

Spurs at Harmonics—Detector Mode

[:SENSe]:HARMonics:DETector[:FUNCtion] POSitive|NEGative|SAMPle

[:SENSe]:HARMonics:DETector[:FUNCtion]?

Set the detector mode type for the harmonics measurement.

Factory Preset and *RST: Sample

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Detector**

Spurs at Harmonics—RF Mixer Input Maximum Power

[:SENSe]:HARMonics:MIXer:RANGe[:UPPer] <power>

[:SENSe]:HARMonics:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the harmonics measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Max Mixer Lvl**

Harmonics / Spurs at Harmonics—Number

[:SENSe]:HARMonics:NUMBer <integer>

[:SENSe]:HARMonics:NUMBer?

Set the number of harmonics to be measured.

Factory Preset and *RST: 3

Range: 2 to 10

Front Panel Access: **Meas Setup, Num Hmncs**

Harmonics / Spurs at Harmonics—Sweep Time

[:SENSe]:HARMonics:SWEep:TIME <time>

[:SENSe]:HARMonics:SWEep:TIME?

Set the sweep time used for measuring each spur.

Factory Preset and *RST: 20 ms

Range: 10 µsec to 1 ksec

Default Unit: seconds

Front Panel Access: **Meas Setup, Advanced, Sweep Time**

Spurs at Harmonics—Trigger Source

[:SENSe]:HARMonics:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:HARMonics:TRIGger:SOURce?

Select the trigger source used to control data acquisitions.

External – rear panel external trigger input

Immediate – the next data acquisition is immediately taken, capturing the signal asynchronously (also called free run).

Monitor Band/Channel Measurement

Commands for querying the monitor band/channel measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Monitor Band/Channel** measurement has been selected from the **MEASURE** key menu.

Monitor Band/Channel—Average Count

[:SENSe]:MONitor:AVERage:COUNt <integer>

[:SENSe]:MONitor:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the averaging mode (terminal control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Monitor Band/Channel—Averaging State

[:SENSe]:MONitor:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:MONitor:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Monitor Band/Channel—Averaging Termination Control

[:SENSe]:MONitor:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:MONitor:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - After the average count is reached, each successive data acquisition is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Mode**

Monitor Band/Channel—Band Method Resolution Bandwidth

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth[:RESolution]?

Set the value of the resolution bandwidth for the band method of the monitor band/channel measurement. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 300 kHz

Range: Option 1DR—30 Hz to 3 MHz

non-Option 1DR—1 KHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Res BW**

Monitor Band/Channel—Band Method Resolution Bandwidth Control

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth[:RESolution]:AUTO OFF|ON|0|1

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth[:RESolution]:AUTO?

Set the resolution bandwidth for the band method of the monitor band/channel measurement to auto.

On sets the bandwidth to the default value.

Off sets the bandwidth to the user entered value.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Res BW**

Monitor Band/Channel—Band Method Video Bandwidth

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth:VIDeo <freq>

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth:VIDeo?

Set the video bandwidth for the band method of the monitor band/channel measurement.

Factory Preset and *RST: 300 kHz

Range: Option 1DR—30 Hz to 3 MHz

non-Option 1DR—1 KHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Video BW**

Monitor Band/Channel—Band Method Video Bandwidth Control

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth:VIDeo:AUTO OFF|ON|0|1

[:SENSe]:MONitor:BAND:BANDwidth|BWIDth:VIDeo:AUTO?

Set the video bandwidth for the band method of the monitor band/channel measurement to auto.

On sets the bandwidth to the default value.

Off sets the bandwidth to the user entered value.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Video BW**

Monitor Band/Channel—Band Method Block Selection

[:SENSe]:MONitor:BAND:BLOCk <integer>

[:SENSe]:MONitor:BAND:BLOCk?

Set the band monitor measurement to monitor all of the tuning bands or one of the tuning plan frequency blocks. The tuning plans allow the following block options:

IS-95A—Full = 0, A = 1, B= 2, A'= 3, B' = 4, or A"= 5

J-STD-008—Full = 0, A = 1, D = 2, B = 3, E = 4, F = 5, or C = 6

ARIB STD-T53—Full = 0, A = 1, B = 2, or C = 3

TTA.KO-06.0003 (Korea Cell)—Full = 0, A = 1, B= 2, A'= 3, B' = 4, or A"= 5

TTA.KO-06.0013 (Korea PCS)—Full = 0, A = 1, B = 2, or C = 3

Factory Preset and *RST: Full = 0

Range: Dependent on the standard selected using the **[:SENSe]:RADio:STANdard:BAND** command.

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Band Setup**, **Block**

Monitor Band/Channel—Band Method Detector Mode

[:SENSe]:MONitor:BAND:DETector[:FUNCtion] POSitive|SAMPle|NEGative

[:SENSe]:MONitor:BAND:DETector[:FUNCtion]?

Set the detector mode type for the band method of the monitor band/channel measurement.

POSitive - positive peak detection displays the highest sample taken during the interval being displayed.

SAMPle - sample detection displays the first sample taken during the interval being displayed.

NEGative - negative peak detection displays the lowest sample taken during the interval being displayed.

Factory Preset and *RST: Positive

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Detector**

Monitor Band/Channel—Band Method Maximum Hold Trace Average State

[:SENSe]:MONitor:BAND:MAXHold[:STATe] OFF|ON|0|1

[:SENSe]:MONitor:BAND:MAXHold[:STATe]?

Turn maximum hold trace average feature on or off for the band method of the monitor band/channel measurement.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Max Hold**

Monitor Band/Channel—Band Method Internal Preamplifier State

[:SENSe]:MONitor:BAND:PRGain[:STATe] OFF|ON|0|1

[:SENSe]:MONitor:BAND:PRGain[:STATe]?

Turns the internal preamp on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Int Preamp**

Monitor Band/Channel—Band Method Frequency Span

[:SENSe]:MONitor:BAND:SPAN <freq>

[:SENSe]:MONitor:BAND:SPAN?

Set the frequency span of the monitor band measurement. If resolution bandwidth is set to a value less than 1 kHz, maximum span is limited to 5 MHz.

Factory Preset and *RST: Full (Uses the full span of the selected standard.)

Range: ESA range

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Monitor Band/Channel—Transmit or Receive Band Selection

[:SENSe]:MONitor:FBAND TRANsmit|RECeive

[:SENSe]:MONitor:FBAND?

Set the band monitor measurement to monitor the transmit or receive band.

Factory Preset and *RST: Transmit

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Band Setup, Band**

Monitor Band/Channel—Channel Method Resolution Bandwidth

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth for the channel method of the monitor band/channel measurement. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 30 kHz

Range: Option 1DR—10 Hz to 5 MHz

non-Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Res BW**

Monitor Band/Channel—Channel Method Resolution Bandwidth State

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth[:RESolution] :AUTO OFF|ON|0|1

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth[:RESolution] :AUTO?

Select auto (default value) or manual (user entered value) to set the resolution bandwidth.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Res BW**

Monitor Band/Channel—Channel Method Video Bandwidth

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth:VIDeo <freq>

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth:VIDeo?

Set the video bandwidth for the channel method of the monitor band/channel measurement.

Factory Preset and *RST: 30 kHz

Range: Option 1DR—30 Hz to 3 MHz

non- Option 1DR—1 kHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Video BW**

Monitor Band/Channel—Channel Method Video Bandwidth State

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth:VIDeo :AUTO OFF|ON|0|1

[:SENSe]:MONitor:CHANnel:BANDwidth|BWIDth:VIDeo :AUTO?

Select auto (default value) or manual (user entered value) to set the video bandwidth.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Res BW**

Monitor Band/Channel—Channel Method Detector Mode

[:SENSe]:MONitor:CHANnel:DETector[:FUNCtion] POSitive|SAMPle|NEGative

[:SENSe]:MONitor:CHANnel:DETector[:FUNCtion]?

Set the detector mode type for the channel method of the monitor band/channel measurement.

Factory Preset and *RST: Positive

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Detector**

Monitor Band/Channel—Channel Method Maximum Hold Trace Average State

[:SENSe]:MONitor:CHANnel:MAXHold[:STATe] OFF|ON|0|1

[:SENSe]:MONitor:CHANnel:MAXHold[:STATe]?

Turn maximum hold trace average feature on or off for the channel method of the monitor band/channel measurement. When max hold is turned on, trace averaging is turned off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Max Hold**

Monitor Band/Channel—Channel Method Internal Preamplifier State

[:SENSe]:MONitor:CHANnel:PRGain[:STATe] OFF|ON|0|1

[:SENSe]:MONitor:CHANnel:PRGain[:STATe]?

Turns the internal preamp on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Chan Setup, Int Preamp**

Monitor Band/Channel—Channel Method Frequency Span

[:SENSe]:MONitor:CHANnel:SPAN <freq>

[:SENSe]:MONitor:CHANnel:SPAN?

Set the frequency span of the monitor channel measurement. If resolution bandwidth is set to a value less than 1 kHz, maximum span is limited to 5 MHz.

Factory Preset and *RST: Defaults to the current channel BW.

Range: ESA range

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Monitor Band/Channel—Method Selection

[:SENSe]:MONitor:METHod CHANnel|BAND

[:SENSe]:MONitor:METHod?

Sets the monitor measurement method to either channel or band.

Factory Preset and *RST: Band

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Method**

Occupied Bandwidth Measurement

Commands for querying the occupied bandwidth measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Occupied BW** measurement has been selected from the **MEASURE** key menu.

Occupied Bandwidth—Average Count

[:SENSe]:OBWidth:AVERage:COUNt <integer>

[:SENSe]:OBWidth:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the average mode (termination control) setting determines the average action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the base, cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Occupied Bandwidth—Averaging State

[:SENSe]:OBWidth:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:OBWidth:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in the base, cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Occupied Bandwidth—Averaging Termination Control

[:SENSe]:OBWidth:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:OBWidth:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - After the average count is reached, each successive data acquisition is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Repeat

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Avg Mode**

Occupied Bandwidth—Resolution Bandwidth

[:SENSe]:OBWidth:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:OBWidth:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: Auto coupled

Range: Option 1DR—10 Hz to 5 MHz

non- Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Res BW**

Occupied Bandwidth—Video Bandwidth

[:SENSe]:OBWidth:BANDwidth|BWIDth:VIDeo <freq>

[:SENSe]:OBWidth:BANDwidth|BWIDth:VIDeo?

Set the video bandwidth that will be used.

Factory Preset and *RST: 10 X Resolution Bandwidth

Range: Option 1DR—30 Hz to 3 MHz

non- Option 1DR—1 kHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Video BW**

Occupied Bandwidth—Detector Mode

[:SENSe]:OBWidth:DETector[:FUNCtion] POSitive|NEGative|SAMPle

[:SENSe]:OBWidth:DETector[:FUNCtion]?

Set the detector mode type for the occupied bandwidth measurement.

Factory Preset and *RST: Sample

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Detector**

Occupied Bandwidth—Emissions Bandwidth Measurement Point

[:SENSe]:OBWidth:EBWidth:XDB <rel_power>

[:SENSe]:OBWidth:EBWidth:XDB?

Set the bandwidth measurement point from the mean signal power, in dB.

Factory Preset and *RST: –26 dB

Range: –100 dB to –0.1 dB

Default Unit: dB

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Emiss BW X dB**

Occupied Bandwidth—Span

[:SENSe]:OBWidth:FREQuency:SPAN <freq>

[:SENSe]:OBWidth:FREQuency:SPAN?

Set the occupied bandwidth span. The analyzer span will retain this value throughout the measurement.

Remarks: This command is used for measurements in the MEASURE menu.

Front Panel Access: **Meas Setup, OBW Span**

Occupied Bandwidth—Maximum Hold Trace Average State

[:SENSe]:OBWidth:MAXHold[:STATe] OFF|ON|0|1

[:SENSe]:OBWidth:MAXHold[:STATe]?

Turn maximum hold trace feature on or off. When max hold is turned on, trace averaging is turned off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced**

Occupied Bandwidth—Percent of Total Power

[:SENSe]:OBWidth:PERCent <number>

[:SENSe]:OBWidth:PERCent?

Set the percentage of the total power for which the occupied bandwidth is calculated.

Factory Preset and *RST: 99.0%

Range: 10% to 99.99%

Default Unit: percent

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Occ BW % Pwr**

Occupied Bandwidth—Trigger Source

[:SENSe]:OBWidth:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:OBWidth:TRIGger:SOURce?

Select the trigger source used to control the data acquisitions for the occupied bandwidth measurement.

External – rear panel external trigger input

Immediate – the next data acquisition is immediately taken, capturing the signal asynchronously (also called free run)

Factory Preset and *RST: Immediate

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced, Trig Source**

Out of Band Spurious Measurement

Commands for querying the out of band spurious measurement results and for setting to the default values are found in the Measure group of commands. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Out Of Band Spurious** measurement has been selected from the **MEASURE** key menu.

Out of Band Spurious—Average Count

[:SENSe]:OOBSpur:AVERage:COUNt <integer>

[:SENSe]:OOBSpur:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the averaging mode (terminal control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Out of Band Spurious—Averaging State

[:SENSe]:OOBSpur:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:OOBSpur:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Out of Band Spurious—Averaging Termination Control

[:SENSe]:OOBSpur:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:OOBSpur:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Repeat

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Trig Source**

Out of Band Spurious—RF Mixer Input Maximum Power

[:SENSe]:OOBSpur:MIXer:RANGe[:UPPer] <power>

[:SENSe]:OOBSpur:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the out of band spurious measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Out of Band Spurious—Oversweep State

[:SENSe]:OOBSpur:OVRSweep[:STATe] OFF|ON|0|1

[:SENSe]:OOBSpur:OVRSweep[:STATe]?

Turn oversweep function on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Oversweep**

Out of Band Spurious—Oversweep Factor

[:SENSe]:OOBSpur:OVRSweep:FACTor <value>

[:SENSe]:OOBSpur:OVRSweep:FACTor?

Set the factor value used to oversweep each range.

Factory Preset and *RST: 2

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Oversweep**

Out of Band Spurious—Spurs Per Range

[:SENSe]:OOBSpur:SPRange <integer>

[:SENSe]:OOBSpur:SPRange?

Factory Preset and *RST: 1

Range: 1 to 10

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Spurs/Range**

Set the number of spurious emissions to be measured per range.

Out of Band Spurious—Resolution Bandwidth

[:SENSe]:OOBSpur:TABLe:BANDwidth|BWIDth:RESolution <bw1, bw2, ..., bwN>

[:SENSe]:OOBSpur:TABLe:BANDwidth|BWIDth:RESolution?

Set the resolution bandwidth of the range where spurs are measured.

Factory Preset and *RST: 30 kHz

Range: Option 1DR—10 Hz to 5 MHz

non-Option 1DR—1 kHz to 5 MHz

Default Unit: kHz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Out of Band Spurious—Inspect Spur Resolution Bandwidth

[:SENSe]:OOBSpur:BANDwidth[:RESolution] <freq>

[:SENSe]:OOBSpur:BANDwidth[:RESolution]?

Set the resolution bandwidth of the out of band spurious measurement. Can only be used when the measurement has completed and Inspect Spur is set to on. ([:SENSe]:OOBSpur:ISPur:STATe ON)

Range: 1 kHz to 5 Mhz

Default Unit: Hz

Remarks: You must be in to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Inspect Spur, Res BW**

Out of Band Spurious—Video Bandwidth

[:SENSe]:OOBSpur:TABLe:BANDwidth|BWIDth:VIDeo <bw1, bw2, ..., bwN>

[:SENSe]:OOBSpur:TABLe:BANDwidth|BWIDth:VIDeo?

Set the video bandwidth of the range where spurs are measured.

Factory Preset and *RST: 10 kHz

Range: Option 1DR—30 Hz to 3 MHz

non-Option 1DR—1 kHz to 3 MHz

Default Unit: kHz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Out of Band Spurious—Center Frequency

[:SENSe]:OOBSpur:TABLe:CFRequency <freq1, freq2, …, freqN>

[:SENSe]:OOBSpur:TABLe:CFRequency?

Set the center frequency of the range where spurs are measured.

Factory Preset and *RST: 300 MHz

Range: ESA range

Default Unit: MHz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Out of Band Spurious—Detector Mode

[:SENSe]:OOBSpur:TABLe:DETector POSitive|SAMPle|NEGative

[:SENSe]:OOBSpur:TABLe:DETector?

Set the detector mode type for the range where spurs are measured.

Factory Preset and *RST: Positive

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Out of Band Spurious—Frequency Span

[:SENSe]:OOBSpur:TABLe:FREQuency:SPAN <freq1, freq2, ..., freqN>

[:SENSe]:OOBSpur:TABLe:FREQuency:SPAN?

Set the frequency span of the range where spurs are measured.

Factory Preset and *RST: 2 MHz

Range: ESA range

Default Unit: MHz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Edit Table**

Out of Band Spurious—Trigger Source

[:SENSe]:OOBSpur:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:OOBSpur:TRIGger:SOURce?

Select the trigger source used to control data acquisitions.

External – rear panel external trigger input.

Immediate – the next data acquisition is immediately taken, capturing the signal asynchronously (also called free run).

Factory Preset and *RST: Immediate

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Trig Source**

Reference Oscillator External Frequency

[:SENSe]:OPTion:ROSCillator:EXTernal:FREQuency <freq>

[:SENSe]:OPTion:ROSCillator:EXTernal:FREQuency?

Set the frequency of the external reference oscillator being supplied to the option B7E RF assembly Ext Ref In jack. This provides the proper frequency division in the option B7E RF assembly to achieve the required 10 MHz reference frequency. Switch to the external reference with OPT:ROSC:SOUR.

Preset and *RST: 10 MHz

Range: 1 MHz to 30 MHz

Default Unit: Hz

Remarks: Global to cdmaOne measurements.

Front Panel Access: **Mode Setup, Properties**

Reference Oscillator Rear Panel Output

[:SENSe]:OPTion:ROSCillator:OUTPut[:STATe] OFF|ON|0|1

[:SENSe]:OPTion:ROSCillator:OUTPut?

Set the frequency source for the option B7E RF assembly 10 MHz Out jack to the option reference oscillator.

Preset and *RST: Off

Remarks: Global to cdmaOne measurements.

Front Panel Access: **Mode Setup, Properties**

Reference Oscillator Source

[:SENSe]:OPTion:ROSCillator:SOURce INTernal|EXTernal

[:SENSe]:OPTion:ROSCillator:SOURce?

Select the reference oscillator (time base) source to the internal reference oscillator or an external oscillator. Use OPT:ROSC:EXT:FREQ to tell the instrument the frequency of the external reference.

INTernal - uses 10 MHz internal time base

EXTernal - uses the signal at the rear panel external reference input port.

Preset and *RST:

Internal

Remarks:

Global to cdmaOne measurements.

Front Panel Access:

Mode Setup, Properties

Carrier Power State

[:SENSe]:POWer:CARRier:STATe OFF|ON|0|1

[:SENSe]:POWer:CARRier:STATe?

Turn carrier power check function on or off.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Properties**

Carrier Detection Threshold

[:SENSe]:POWer:CTHReshold <power>

[:SENSe]:POWer:CTHReshold?

Set the minimum carrier signal level for detection.

Factory Preset and *RST: 5 dBm

Range: –100 dBm to 30 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Properties**

Minimum Level of Detection

[:SENSe]:POWer:LEVel:MINimum <power>

[:SENSe]:POWer:LEVel:MINimum?

Set the minimum signal level for detection.

Factory Preset and *RST:	–60 dBm
Range:	–200 dBm to 50 dBm
Unit:	dBm
Remarks:	You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.
Front Panel Access:	**Mode Setup, Properties**

RF Port Input Attenuation

[:SENSe]:POWer[:RF]:ATTenuation <rel_power>

[:SENSe]:POWer[:RF]:ATTenuation?

Set the RF input attenuator. This value is set at its auto value if RF input is set to auto.

Factory Preset and *RST: 5 dB

Range: 0 to 75 dB in 5 dB steps

Default Unit: dB

Front Panel Access: **Input, Input Atten**

or

Mode Setup, Input, Tab⇒, Input Atten

RF Port Power Range Auto

[:SENSe]:POWer[:RF]:RANGe:AUTO OFF|ON|0|1

[:SENSe]:POWer[:RF]:RANGe:AUTO?

Select the RF port power range to be set either automatically or manually.

On - power range is automatically set as determined by the actual measured power level at the start of a measurement.

Off - power range is manually set

Factory Preset and *RST: On

Front Panel Access: **Input**

RF Port Power Range Maximum Total Power

[:SENSe]:POWer[:RF]:RANGe[:UPPer] <power>

[:SENSe]:POWer[:RF]:RANGe[:UPPer]?

Set the maximum expected total power level at the radio unit under test. This value is ignored if RF port power range is set to auto. External attenuation required above 30 dBm.

Factory Preset

and *RST: 30 dBm

Range: –200 to 100 dBm

Default Unit: dBm

Remarks: Global to the current mode. This is coupled to the RF input attenuation

Front Panel Access: **Input, Max Total Pwr (at UUT)**

Channel Bandwidth for cdmaOne Measurements

[:SENSe]:RADio:BANDwidth|BWIDth <freq>

[:SENSe]:RADio:BANDwidth|BWIDth?

Specifies the CDMA channel bandwidth.

Factory Preset and *RST: 1.2288 MHz

Range: 1 kHz to 50 MHz.

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Global to the cdmaOne mode.

Front Panel Access: **Mode Setup, Radio**

Radio Device Under Test

[:SENSe]:RADio:DEVice BS|MS

[:SENSe]:RADio:DEVice?

Select the type of radio device to be tested.

BS – Base transceiver station test.

MS – Mobile transceiver station test.

Factory Preset and *RST: BS

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Global to current mode.

Front Panel Access: **Mode Setup, Radio, Tab⇒**

Radio Standard Band

[:SENSe]:RADio:STANdard:BAND ARIBT53|C95B|C95C|CKOR|IS95A|JSTD8|P95B|P95C|PKOR

[:SENSe]:RADio:STANdard:BAND?

Select the standard variant that applies to the radio to be tested.

ARIBT53 - ARIB STD-T53

C95B - EIA/TIA-95B Cellular

C95C - EIA/TIA-95C Cellular

CKOR - TTA.KO-06.0003 (Korea Cell)

IS95A - IS-95A Cellular

JSTD8 - J-STD-008 PCS

P95B - EIA/TIA-95B (PCS)

P95C - EIA/TIA-95C (PCS)

PKOR - TTA.KO-06.0013 (Korea PCS)

Factory Preset and *RST: IS-95A Cellular

Remarks: Global to the current mode.

You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Mode Setup, Radio, Standard/Band**

Receive Channel Power Measurement

Commands for querying the receive channel power measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Receive Channel Power** measurement has been selected from the **MEASURE** key menu.

Receive Channel Power—Average Count

[:SENSe]:RCHPower:AVERage:COUNt <integer>

[:SENSe]:RCHPower:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the averaging mode (terminal control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Receive Channel Power—Averaging State

[:SENSe]:RCHPower:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:RCHPower:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Receive Channel Power—Averaging Termination Control

[:SENSe]:RCHPower:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:RCHPower:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg, Mode**

Receive Channel Power—Integration Bandwidth

[:SENSe]:RCHPower:BANDwidth|BWIDth:INTegration <freq>

[:SENSe]:RCHPower:BANDwidth|BWIDth:INTegration?

Set the integration bandwidth (IBW) that will be used.

Factory Preset and *RST: Channel bandwidth of the standard selected using the **[:SENSe]:RADio:STANdard:BAND** command.

Range: 1 kHz to maximum ESA span

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Integ BW**

Receive Channel Power—Resolution Bandwidth

[:SENSe]:RCHPower:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:RCHPower:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: Calculated based on the selected standard and tuning plan.

Range: Option 1DR—10 Hz to 5 MHz

non- Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Res BW**

Receive Channel Power—Noise Correction State

[:SENSe]:RCHPower:CORRection:NOISe[:AUTO] OFF|ON|0|1

[:SENSe]:RCHPower:CORRection:NOISe[:AUTO]?

Turn Noise Correction to off or auto. When set to auto, noise correction will be activated when the measurement is within less than the noise correction threshold from the computed SA noise floor. Noise correction Threshold may be set using the Properties Form under the **Mode Setup** and **Properties**... keys.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Receive Channel Power—Span

[:SENSe]:RCHPower:FREQuency:SPAN <freq>

[:SENSe]:RCHPower:FREQuency:SPAN?

Set the frequency span that will be used. If resolution bandwidth is set to a value less than 1 kHz, maximum span is limited to 5 MHz.

Factory Preset and *RST: Coupled (to the integration BW at approximately 1.6 times the integration bandwidth)

Range: IBW to IBW X 400

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Span**

Receive Channel Power—RF Mixer Input Maximum Power

[:SENSe]:RCHPower:MIXer:RANGe[:UPPer] <power>

[:SENSe]:RCHPower:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the receiver channel power measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access:. **Meas Setup, Advanced, Max Mixer Lvl**

Receiver Channel Power—Internal Preamplifier State

[:SENSe]:RCHPower:PRGain[:STATe] OFF|ON|0|1

[:SENSe]:RCHPower:PRGain[:STATe]?

Turns the internal preamp on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Int Preamp**

Receive Channel Power—Trigger Source

[:SENSe]:RCHPower:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:RCHPower:TRIGger:SOURce?

Select the trigger source used to control the data acquisitions. This is an Advanced control that normally does not need to be changed.

External - rear panel external trigger input

Immediate - the next data acquisition is immediately taken (also called Free Run).

Factory Preset and *RST: Immediate (Free Run)

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Trig Source**

Modulation Accuracy (Rho) Measurement

Commands for querying the rho measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **Mod Accuracy (Rho)** or **Mod Accuracy (Composite Rho)** measurement has been selected from the **MEASURE** key menu.

Modulation Accuracy (Rho)—Average Count

[:SENSe]:RHO:AVERage:COUNt <integer>

[:SENSe]:RHO:AVERage:COUNt?

Set the number of frames that will be averaged. After the specified number of frames (average counts), the averaging mode (termination control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Frames**

Modulation Accuracy (Rho)—Averaging State

[:SENSe]:RHO:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:RHO:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: Trace data results are not averaged. Only scalar results are averaged.

You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Frames**

Modulation Accuracy (Rho)—Averaging Termination Control

[:SENSe]:RHO:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:RHO:AVERage:TCONtrol?

Select the type of termination control used for the averaging function. This determines the averaging action after the specified number of frames (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**

Modulation Accuracy (Rho)—Display Chip Dots

[:SENSe]:RHO:DISPlay:DOTS OFF|ON|0|1

[:SENSe]:RHO:DISPlay:DOTS?

Turns the chip dots on or off for the rho measurement. Chip dots are the markers that indicate the decision points on the I/Q graph.

Factory Preset and *RST: On

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Display**, **Chip Dots**

Modulation Accuracy (Rho)—Display Length

[:SENSe]:RHO:DISPlay:LENGth <value>

[:SENSe]:RHO:DISPlay:LENGth?

Set the segment length to view a portion of the display interval for the rho measurement I/Q trace. Use [:SENS]:RHO:SWE:TIME to set the display interval and [:SENS]:RHO:DISP:TOFF to set the start of the trace segment.

Factory Preset and *RST: 600

Range: 1 to 40,000

Default Unit: Samples

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Display, I/Q Points**

Modulation Accuracy (Rho)—RF Mixer Input Maximum Power

[:SENSe]:RHO:MIXer:RANGe[:UPPer] <power>

[:SENSe]:RHO:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the rho measurement.

Factory Preset and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Modulation Accuracy (Rho)—Number of Sample Points Per Chip

[:SENSe]:RHO:NSPC ONE|TWO|FOUR

[:SENSe]:RHO:NSPC?

Allows you to select the number of sample points for the trace to be interpolated to One, Two, or Four points/chip.

One = only the decision points
Two = the decision points with one point between them
Four = the decision points with three points between them

Factory Preset and *RST: Four

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Display, Chip Dots**

Modulation Accuracy (Rho)—Spectrum Normal/Invert

[:SENSe]:RHO:SPECtrum INVert|NORMal

[:SENSe]:RHO:SPECtrum?

Select inverted or normal spectrum for demodulation.

Factory Preset and *RST: Normal

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Frames**

Modulation Accuracy (Rho)—Sweep Time (Measurement Interval)

[:SENSe]:RHO:SWEep:TIME <time>

[:SENSe]:RHO:SWEep:TIME?

Set the length of the measurement interval that will be used.

Factory Preset and *RST: 1.250 ms

Range: 150 µs to 26.7 ms

Default Unit: seconds

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Receiver Spurious Measurement

Commands for querying the receiver spurious responses measurement results and for setting to the default values are found in the "MEASure Group of Commands" on page 2-42. The equivalent front panel keys for the parameters described in the following commands, are found under the **Meas Setup** key, after the **RX Spur** measurement has been selected from the **MEASURE** key menu.

Receiver Spurious—Average Count

[:SENSe]:RSPur:AVERage:COUNt <integer>

[:SENSe]:RSPur:AVERage:COUNt?

Set the number of data acquisitions that will be averaged. After the specified number of average counts, the averaging mode (terminal control) setting determines the averaging action.

Factory Preset and *RST: 10

Range: 1 to 1,000

Remarks: You must be in cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Receiver Spurious—Averaging State

[:SENSe]:RSPur:AVERage[:STATe] OFF|ON|0|1

[:SENSe]:RSPur:AVERage[:STATe]?

Turn averaging on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Number**

Receiver Spurious—Averaging Termination Control

[:SENSe]:RSPur:AVERage:TCONtrol EXPonential|REPeat

[:SENSe]:RSPur:AVERage:TCONtrol?

Select the type of termination control used for averaging. This determines the averaging action after the specified number of data acquisitions (average count) is reached.

Exponential - Each successive data acquisition after the average count is reached, is exponentially weighted and combined with the existing average.

Repeat - After reaching the average count, the averaging is reset and a new average is started.

Factory Preset and *RST: Exponential

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Avg Mode**

Receiver Spurious—Resolution Bandwidth

[:SENSe]:RSPur:BANDwidth|BWIDth[:RESolution] <freq>

[:SENSe]:RSPur:BANDwidth|BWIDth[:RESolution]?

Set the resolution bandwidth that will be used. If span is set to a value greater than 5 MHz, minimum resolution bandwidth is limited to 1 kHz.

Factory Preset and *RST: 30 kHz

Range: Option 1DR—10 Hz to 5 MHz

non- Option 1DR—1 kHz to 5 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Resolution BW**

Receiver Spurious—Video Bandwidth

[:SENSe]:RSPur:BANDwidth|BWIDth:VIDeo <freq>

[:SENSe]:RSPur:BANDwidth|BWIDth:VIDeo?

Set the video bandwidth that will be used.

Factory Preset and *RST: 3 kHz

Range: Option 1DR—30 Hz to 3 MHz

non- Option 1DR—1 kHz to 3 MHz

Default Unit: Hz

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Advanced**, **Video BW**

Receiver Spurious—Band Select

[:SENSe]:RSPur:FBANd TRANsmit|RECeive

[:SENSe]:RSPur:FBANd?

Sets the receiver spurious measurement to measure either transmit or receive band.

Factory Preset and *RST: Receive band

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Band Select**

Receiver Spurious—Block

[:SENSe]:RSPur:BLOCk <value> (Tuning Plan Dependent)

[:SENSe]:RSPur:BLOCk?

Set the receiver spurious measurement to monitor the full block or sub-blocks of the band. The tuning plans allow the following block options:

IS-95A—Full = 0, A = 1, B= 2, A'= 3, B' = 4, or A"= 5

J-STD-008—Full = 0, A = 1, D = 2, B = 3, E = 4, F = 5, or C = 6

ARIB STD-T53—Full = 0, A = 1, B = 2, or C = 3

TTA.KO-06.0003 (Korea Cell)—Full = 0, A = 1, B= 2, A'= 3, B' = 4, or A"= 5

TTA.KO-06.0013 (Korea PCS)—Full = 0, A = 1, B = 2, or C = 3

Factory Preset and *RST: 0 = Full

Range: Dependent on the selected standard.

Remarks: The parameters available for this command are dependent on the standard and tuning plan selected for the measurement. You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Block Select**

Receiver Spurious—Detector Mode

[:SENSe]:RSPur:DETector[:FUNCtion] POSitive|NEGative|SAMPle

[:SENSe]:RSPur:DETector[:FUNCtion]?

Set the detector mode type for the receiver spurious measurement.

Factory Preset and *RST: Peak

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Detector**

Receiver Spurious—RF Mixer Input Maximum Power

[:SENSe]:RSPur:MIXer:RANGe[:UPPer] <power>

[:SENSe]:RSPur:MIXer:RANGe[:UPPer]?

Specifies the maximum power at the input mixer for the receiver spurious measurement.

Factory Preset

and *RST: –10 dBm

Range: –70 dBm to 10 dBm

Default Unit: dBm

Remarks: You must be in the cdmaOne mode to use this command. Use :INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup, Advanced, Max Mixer Lvl**

Receiver Spurious—Internal Preamplifier State

[:SENSe]:RSPur:PRGain[:STATe] OFF|ON|0|1

[:SENSe]:RSPur:PRGain[:STATe]?

Turns the internal preamp on or off.

Factory Preset and *RST: Off

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **Meas Setup**, **Int Preamp**

Receiver Spurious—Trigger Source

[:SENSe]:RSPur:TRIGger:SOURce EXTernal|IMMediate

[:SENSe]:RSPur:TRIGger:SOURce?

Select the trigger source used to control data acquisitions.

External – Sets the trigger to the rear panel external trigger input

Immediate – The next measurement is immediately taken, capturing the signal asynchronously (also called free run).

Factory Preset and *RST: Immediate

Remarks: You must be in the cdmaOne mode to use this command. Use INSTrument:SELect to set the mode.

Front Panel Access: **System, Advanced, Trig Source**

STATus Subsystem

The STATus subsystem controls the SCPI-defined instrument-status reporting structures. Each status register has a set of five commands used for querying or masking that particular register.

Operation Register

Operation Condition Query

:STATus:OPERation:CONDition?

This query returns the decimal value of the sum of the bits in the Status Operation Condition register.

NOTE The data in this register is continuously updated and reflects the current conditions.

Operation Enable

:STATus:OPERation:ENABle <number>

:STATus:OPERation:ENABle?

This command determines what bits in the Operation Event register, will set the Operation Status Summary bit (bit 7) in the Status Byte Register. The variable <number> is the sum of the decimal values of the bits you want to enable.

NOTE The preset condition is to have all bits in this enable register set to 0. To have any Operation Events reported to the Status Byte Register, one or more bits need to be set to 1.

Factory Preset and *RST: 0

Range: 0 to 32767

Operation Event Query

:STATus:OPERation[:EVENt]?

This query returns the decimal value of the sum of the bits in the Operation Event register.

NOTE

The register requires that the associated PTR or NTR filters be set before a condition register bit can set a bit in the event register.

The data in this register is latched until it is queried. Once queried, the register is cleared.

Operation Negative Transition

:STATus:OPERation:NTRansition <number>

:STATus:OPERation:NTRansition?

This command determines what bits in the Operation Condition register will set the corresponding bit in the Operation Event register when the condition register bit has a negative transition (1 to 0). The variable <number> is the sum of the decimal values of the bits that you want to enable.

Factory Preset and *RST: 0

Range: 0 to 32767

Operation Positive Transition

:STATus:OPERation:PTRansition <number>

:STATus:OPERation:PTRansition?

This command determines what bits in the Operation Condition register will set the corresponding bit in the Operation Event register when the condition register bit has a positive transition (0 to 1). The variable <number> is the sum of the decimal values of the bits that you want to enable.

Factory Preset and *RST: 32767 (all 1's)

Range: 0 to 32767

SYSTem Subsystem

This subsystem is used to set the controls and parameters associated with the overall system communication. These are functions that are not related to instrument performance. Examples include functions for performing general housekeeping and functions related to setting global configurations.

System Configuration Query

`:SYSTem:CONFigure:MODE?`

Queries the instrument for the current configuration and returns the current DLP version.

Front Panel Access: **Mode Setup**, **Properties...**

TRIGger Subsystem

The Trigger Subsystem is used to set the controls and parameters associated with triggering the data acquisitions. Other trigger-related commands are found in the INITiate and ABORt subsystems.

Rear Panel External Trigger Delay

:TRIGger[:SEQuence]:EXTernal:DELay <time>

:TRIGger[:SEQuence]:EXTernal:DELay?

Set the trigger delay when using the rear panel external trigger.

Factory Preset and *RST: 0.0 s

Range: 0 ns to 429 s Anything less than 300 ns is equal to off.

Default Unit: seconds

Front Panel Access: **Mode Setup, Trigger....**

or

Trig, External, Delay

Rear Panel External Trigger Slope

:TRIGger[:SEQuence]:EXTernal:SLOPe NEGative|POSitive

:TRIGger[:SEQuence]:EXTernal:SLOPe?

Sets the trigger slope when using the rear panel external trigger input.

Factory Preset and *RST: Positive

Front Panel Access: **Mode Setup, Trigger....**

or

Trig, External, Slope

Trig, External BASE

Frame Trigger Delay

:TRIGger[:SEQuence]:FRAMe:DELay <time>

:TRIGger[:SEQuence]:FRAMe:DELay?

Set trigger delay to be used in zero span measurements to adjust the active burst within a mask. Use positive values to achieve trigger delay (that is, to measure later than the trigger source event) and use negative values to achieve pre-trigger (that is, to measure earlier than the trigger source event).

Factory Preset and *RST: 0

Range: 0 ns to 429 s Anything less than 300 ns is equal to off.

Default Unit: seconds

Front Panel Access: **Mode Setup, Trigger....**

or

Trig, Tab⇒, Frame Timer Delay

Frame Trigger Period

:TRIGger[:SEQuence]:FRAMe:PERiod <time>

:TRIGger[:SEQuence]:FRAMe:PERiod?

Set the frame period that you want when using the external frame timer trigger. If the traffic rate is changed, the value of the frame period is initialized to the preset value.

Factory Preset and *RST: 26.6666667 ms

Range: 50 µs to 13.65333 s

Default Unit: seconds

Front Panel Access: **Mode Setup, Trigger, Tab⇒, Frame Timer, Period**

RF Burst Trigger Delay

:TRIGger[:SEQuence]:RFBurst:DELay <time>

:TRIGger[:SEQuence]:RFBurst:DELay?

Set the trigger delay when using the RF burst (wideband) trigger.

Factory Preset and *RST: 0.0 µs

Range: 0.0 ns to 429.0 s Anything less than 300 ns is equal to off.

Default Unit: seconds

Front Panel Access: **Mode Setup, Trigger, Tab⇒, RF Burst Delay**

RF Burst Trigger Level

:TRIGger[:SEQuence]:RFBurst:LEVel <rel_power>

:TRIGger[:SEQuence]:RFBurst:LEVel?

Set the trigger level when using the RF Burst (wideband) Trigger. The value is relative to the peak of the signal. RF Burst is also known as RF Envelope.

Factory Preset and *RST: –6.0 dB

Range: –25.0 to 0.0 dB

Default Unit: dB

Front Panel Access: **Mode Setup, Trigger, Tab⇒, RF Burst Level**

Index

Index

Index

Index