

# **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**

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# Contents

## 1. Programming Command Cross-References

Functional Index to SCPI Subsection .....	1-2
---	-----

## 2. Language Reference

CALCulate Subsystem .....	2-2
Code Domain—Estimated Rho Lower Limit Testing .....	2-2
Code Domain—Relative Phase Upper Limit Testing .....	2-2
Code Domain—Estimated Rho Lower Limit .....	2-3
Code Domain—Relative Phase Upper Limit .....	2-4
Code Domain—Relative Timing Upper Limit .....	2-5
Code Domain—Relative Timing Upper Limit Testing .....	2-6
Channel Power—Lower Limit Test .....	2-6
Channel Power—Upper Limit Test .....	2-6
Channel Power—Lower Limit .....	2-7
Channel Power—Upper Limit .....	2-8
Test Current Results Against all Limits .....	2-9
Spur Close—Limit Definition Source .....	2-9
Spur Close—Limit Test .....	2-9
Spurs at Harmonics—Upper Absolute Limit .....	2-10
Spurs at Harmonics—Upper Relative Limit .....	2-11
Spurs at Harmonics—Upper Absolute Limit Test .....	2-12
Spurs at Harmonics—Upper Relative Limit Test .....	2-12
Occupied Bandwidth—Emissions Bandwidth Lower Limit .....	2-12
Occupied Bandwidth—Emissions Bandwidth Lower Limit Test .....	2-13
Occupied Bandwidth—Emissions Bandwidth Upper Limit .....	2-14
Occupied Bandwidth—Emissions Bandwidth Upper Limit Test .....	2-15
Occupied Bandwidth—Occupied Bandwidth Lower Limit .....	2-15
Occupied Bandwidth—Occupied Bandwidth Lower Limit Test .....	2-16
Occupied Bandwidth—Occupied Bandwidth Upper Limit .....	2-16
Occupied Bandwidth—Occupied Bandwidth Upper Limit Test .....	2-17
Out of Band Spurious—Upper Absolute Limit .....	2-18
Out of Band Spurious—Upper Relative Limit .....	2-18
Out of Band Spurious—Limit Test .....	2-19
Receive Channel Power—Lower Limit Test .....	2-19
Receive Channel Power—Upper Limit Test .....	2-19
Receive Channel Power—Lower Limit .....	2-20
Receive Channel Power—Upper Limit .....	2-21
Modulation Accuracy (Rho)—Carrier Feedthrough Upper Limit Test .....	2-22
Modulation Accuracy (Rho)—Error Vector Magnitude Upper Limit Test .....	2-22
Modulation Accuracy (Rho)—Frequency Error Upper Limit Test .....	2-22
Modulation Accuracy (Rho)—Modulation Magnitude Error Upper Limit Test .....	2-23
Modulation Accuracy (Rho)—Modulation Phase Error Upper Limit Test .....	2-23
Modulation Accuracy (Rho)—Rho Lower Limit Test .....	2-23
Modulation Accuracy (Rho)—Carrier Feedthrough Upper Limit .....	2-24
Modulation Accuracy (Rho)—Error Vector Magnitude Upper Limit .....	2-25
Modulation Accuracy (Rho)—Frequency Error Upper Limit .....	2-26
Modulation Accuracy (Rho)—Modulation Magnitude Error Upper Limit .....	2-27
Modulation Accuracy (Rho)—Modulation Phase Error Upper Limit .....	2-28
Modulation Accuracy (Rho)—Rho Lower Limit .....	2-29

---

## Contents

Modulation Accuracy (Rho)—Time Offset Upper Limit	2-29
Modulation Accuracy (Rho)—Time Offset Upper Limit Test	2-30
Receiver Spurious—Receive Upper Limit	2-31
Receiver Spurious—Receive Upper Limit Test	2-32
Receiver Spurious—Transmit Upper Limit	2-32
Receiver Spurious—Transmit Upper Limit Test	2-33
CONFigure Subsystem	2-34
DISPlay Subsystem	2-35
Trace Y-Axis Amplitude Scaling	2-35
Trace Y-Axis Reference Level	2-35
FETCh Subsystem	2-37
INITiate Subsystem	2-38
Continuous or Single Measurements	2-38
Pause the Measurement	2-38
Restart the Measurement	2-39
Resume the Measurement	2-39
INSTrument Subsystem	2-40
Select Application by Number	2-40
Select Application	2-41
MEASure Group of Commands	2-42
Measure Commands	2-42
Configure Commands	2-43
Fetch Commands	2-44
Read Commands	2-44
Adjacent Channel Power Ratio (ACPR) Measurement	2-45
Code Domain Measurement	2-47
Channel Power Measurement	2-50
Spur Close Measurement	2-51
Monitor Band/Channel Measurement	2-52
Occupied Bandwidth Measurement	2-53
Out of Band Spurious Emissions Measurement	2-54
Receive Channel Power Measurement	2-55
Modulation Accuracy (Rho) Measurement	2-56
Measurement Results Available	2-56
Receiver Spurious Response Measurement	2-59
Spurs at Harmonics Measurement	2-60
MMEMory Subsystem	2-61
Store a Measurement Results in a File	2-61
READ Subsystem	2-62
SENSE Subsystem	2-63
Adjacent Channel Power Measurement	2-63
Code Domain Measurement	2-74
Digital Demod PN Offset	2-77
RF Channel Frequency	2-77
RF Channel Number	2-78
Channel Power Measurement	2-79
Correction for Base Station RF Port External Attenuation	2-84
Correction For MS RF Port External Gain	2-84
Correction For MS RF Port External Attenuation	2-85

---

## Contents

RF Noise Correction Threshold	2-86
Spur Close—Measurement	2-87
Demodulation Synchronization Source	2-92
Demodulation Trigger Source	2-92
Preamplifier Dialog Box Control	2-93
Center Frequency Step Size Automatic	2-93
Center Frequency Step Size	2-93
Temporary Center Frequency	2-94
Harmonic Distortion / Spurs at Harmonics Measurement	2-95
Monitor Band/Channel Measurement	2-100
Occupied Bandwidth Measurement	2-110
Out of Band Spurious Measurement	2-115
Reference Oscillator External Frequency	2-121
Reference Oscillator Rear Panel Output	2-121
Reference Oscillator Source	2-121
Carrier Power State	2-123
Carrier Detection Threshold	2-123
Minimum Level of Detection	2-124
RF Port Input Attenuation	2-125
RF Port Power Range Auto	2-125
RF Port Power Range Maximum Total Power	2-125
Channel Bandwidth for cdmaOne Measurements	2-126
Radio Device Under Test	2-127
Radio Standard Band	2-127
Receive Channel Power Measurement	2-128
Modulation Accuracy (Rho) Measurement	2-133
Receiver Spurious Measurement	2-137
STATus Subsystem	2-142
Operation Register	2-142
SYSTEM Subsystem	2-144
System Configuration Query	2-144
TRIGger Subsystem	2-145
Rear Panel External Trigger Delay	2-145
Rear Panel External Trigger Slope	2-145
Frame Trigger Delay	2-146
Frame Trigger Period	2-146
RF Burst Trigger Delay	2-147
RF Burst Trigger Level	2-147

---

# Commands

## Alphabetical Listing

:CALCulate:CDPower:LIMit:<standard>:BS   BTS:ERHO:LOWer[:DATA] <value> . . . . .	2-3
:CALCulate:CDPower:LIMit:<standard>:BS   BTS:ERHO:LOWer[:DATA]? . . . . .	2-3
:CALCulate:CDPower:LIMit:<standard>:BS   BTS:PHASe[:UPPer][:DATA] <angle> . . . . .	2-4
:CALCulate:CDPower:LIMit:<standard>:BS   BTS:PHASe[:UPPer][:DATA]? . . . . .	2-4
:CALCulate:CDPower:LIMit:<standard>:BS   BTS:TIMing[:UPPer][:DATA] <time> . . . . .	2-5
:CALCulate:CDPower:LIMit:<standard>:BS   BTS:TIMing[:UPPer][:DATA]? . . . . .	2-5
:CALCulate:CDPower:LIMit:ERHO:LOWer:STATe OFF   ON   0   1 . . . . .	2-2
:CALCulate:CDPower:LIMit:ERHO:LOWer:STATe? . . . . .	2-2
:CALCulate:CDPower:LIMit:PHASe[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-2
:CALCulate:CDPower:LIMit:PHASe[:UPPer]:STATe? . . . . .	2-2
:CALCulate:CDPower:LIMit:TIMing[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-6
:CALCulate:CDPower:LIMit:TIMing[:UPPer]:STATe? . . . . .	2-6
:CALCulate:CHPower:LIMit:<standard>:BS   BTS:CHPower:LOWer[:DATA] <power> . . . . .	2-7
:CALCulate:CHPower:LIMit:<standard>:BS   BTS:CHPower:LOWer[:DATA]? . . . . .	2-7
:CALCulate:CHPower:LIMit:<standard>:BS   BTS:CHPower[:UPPer][:DATA] <power> . . . . .	2-8
:CALCulate:CHPower:LIMit:<standard>:BS   BTS:CHPower[:UPPer][:DATA]? . . . . .	2-8
:CALCulate:CHPower:LIMit:CHPower:LOWer:STATe OFF   ON   0   1 . . . . .	2-6
:CALCulate:CHPower:LIMit:CHPower:LOWer:STATe? . . . . .	2-6
:CALCulate:CHPower:LIMit:CHPower[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-6
:CALCulate:CHPower:LIMit:CHPower[:UPPer]:STATe? . . . . .	2-6
:CALCulate:CLIMits:FAIL? . . . . .	2-9
:CALCulate:CSPur:LIMit:SOURce STANdard   FILE . . . . .	2-9
:CALCulate:CSPur:LIMit:SOURce STANdard   FILE? . . . . .	2-9
:CALCulate:CSPur:LIMit:STATe OFF   ON   0   1 . . . . .	2-9
:CALCulate:CSPur:LIMit:STATe? . . . . .	2-9
:CALCulate:HARMonics:LIMit:<standard>:BS   BTS:ABSolute[:UPPer][:DATA] <power> . . . . .	2-10
:CALCulate:HARMonics:LIMit:<standard>:BS   BTS:ABSolute[:UPPer][:DATA]? . . . . .	2-10
:CALCulate:HARMonics:LIMit:<standard>:BS   BTS:RELative[:UPPer][:DATA] <rel_power> . . . . .	2-11
:CALCulate:HARMonics:LIMit:<standard>:BS   BTS:RELative[:UPPer][:DATA]? . . . . .	2-11
:CALCulate:HARMonics:LIMit:ABSolute[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-12
:CALCulate:HARMonics:LIMit:ABSolute[:UPPer]:STATe? . . . . .	2-12

---

# Commands

## Alphabetical Listing

:CALCulate:HARMonics:LIMit:RELative[:UPPer]:STATe OFF   ON   0   1	2-12
:CALCulate:HARMonics:LIMit:RELative[:UPPer]:STATe?	2-12
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS:EBWidth:LOWer[:DATA] <frequency>	2-12
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS:EBWidth:LOWer[:DATA]?	2-12
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS:EBWidth[:UPPer][:DATA] <frequency>	2-14
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS:EBWidth[:UPPer][:DATA]?	2-14
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS[:OBWidth]:LOWer[:DATA] <frequency>	2-15
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS[:OBWidth]:LOWer[:DATA]?	2-15
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS[:OBWidth][:UPPer][:DATA] <frequency>	2-16
:CALCulate:OBWidth:LIMit:<standard>:BS   BTS[:OBWidth][:UPPer][:DATA]?	2-16
:CALCulate:OBWidth:LIMit:EBWidth:LOWer:STATe OFF   ON   0   1	2-13
:CALCulate:OBWidth:LIMit:EBWidth:LOWer:STATe?	2-13
:CALCulate:OBWidth:LIMit:EBWidth[:UPPer]:STATe OFF   ON   0   1	2-15
:CALCulate:OBWidth:LIMit:EBWidth[:UPPer]:STATe?	2-15
:CALCulate:OBWidth:LIMit[:OBWidth]:LOWer:STATe OFF   ON   0   1	2-16
:CALCulate:OBWidth:LIMit[:OBWidth]:LOWer:STATe?	2-16
:CALCulate:OBWidth:LIMit[:OBWidth][:UPPer]:STATe OFF   ON   0   1	2-17
:CALCulate:OBWidth:LIMit[:OBWidth][:UPPer]:STATe?	2-17
:CALCulate:OOBSpur:LIMit:TABLE:ABSolute[:UPPer][:DATA] <power1, power2, ..., powerN>	2-18
:CALCulate:OOBSpur:LIMit:TABLE:ABSolute[:UPPer][:DATA]?	2-18
:CALCulate:OOBSpur:LIMit:TABLE:RELative[:UPPer][:DATA] <rel_power1, rel_power2, ..., rel_powerN>	2-18
:CALCulate:OOBSpur:LIMit:TABLE:RELative[:UPPer][:DATA]?	2-18
:CALCulate:OOBSpur:LIMit:TABLE:TYPE <value1, value2, ..., valueN>	2-19
:CALCulate:OOBSpur:LIMit:TABLE:TYPE?	2-19
:CALCulate:RCHPower:LIMit:<standard>:BS   BTS:RCHPower LOWer[:DATA] <value>	2-20
:CALCulate:RCHPower:LIMit:<standard>:BS   BTS:RCHPower LOWer[:DATA]?	2-20
:CALCulate:RCHPower:LIMit:<standard>:BS   BTS:RCHPower UPPer[:DATA] <value>	2-21
:CALCulate:RCHPower:LIMit:<standard>:BS   BTS:RCHPower UPPer[:DATA]?	2-21
:CALCulate:RCHPower:LIMit:RCHPower:LOWer:STATe OFF   ON   0   1	2-19
:CALCulate:RCHPower:LIMit:RCHPower:LOWer:STATe?	2-19

---

# Commands

## Alphabetical Listing

:CALCulate:RCHPower:LIMit:RCHPower[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-19
:CALCulate:RCHPower:LIMit:RCHPower[:UPPer]:STATe? . . . . .	2-19
:CALCulate:RHO:LIMit:<standard>:BS   BTS:CFTHrough[:UPPer][:DATA] <rel_power> . . . . .	2-24
:CALCulate:RHO:LIMit:<standard>:BS   BTS:CFTHrough[:UPPer][:DATA]? . . . . .	2-24
:CALCulate:RHO:LIMit:<standard>:BS   BTS:EVM[:UPPer][:DATA] <percentage> . . . . .	2-25
:CALCulate:RHO:LIMit:<standard>:BS   BTS:EVM[:UPPer][:DATA]? . . . . .	2-25
:CALCulate:RHO:LIMit:<standard>:BS   BTS:FERRor[:UPPer][:DATA] <frequency> . . . . .	2-26
:CALCulate:RHO:LIMit:<standard>:BS   BTS:FERRor[:UPPer][:DATA]? . . . . .	2-26
:CALCulate:RHO:LIMit:<standard>:BS   BTS:MAGNitude[:UPPer][:DATA] <percentage> . . . . .	2-27
:CALCulate:RHO:LIMit:<standard>:BS   BTS:MAGNitude[:UPPer][:DATA]? . . . . .	2-27
:CALCulate:RHO:LIMit:<standard>:BS   BTS:PHASe[:UPPer][:DATA] <angle> . . . . .	2-28
:CALCulate:RHO:LIMit:<standard>:BS   BTS:PHASe[:UPPer][:DATA]? . . . . .	2-28
:CALCulate:RHO:LIMit:<standard>:BS   BTS:RHO:LOWer[:DATA] <parameter> . . . . .	2-29
:CALCulate:RHO:LIMit:<standard>:BS   BTS:RHO:LOWer[:DATA]? . . . . .	2-29
:CALCulate:RHO:LIMit:<standard>:BS   BTS:TOFFset[:UPPer][:DATA] <time> . . . . .	2-29
:CALCulate:RHO:LIMit:<standard>:BS   BTS:TOFFset[:UPPer][:DATA]? . . . . .	2-29
:CALCulate:RHO:LIMit:CFTHrough[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-22
:CALCulate:RHO:LIMit:CFTHrough[:UPPer]:STATe? . . . . .	2-22
:CALCulate:RHO:LIMit:EVM[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-22
:CALCulate:RHO:LIMit:EVM[:UPPer]:STATe? . . . . .	2-22
:CALCulate:RHO:LIMit:FERRor[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-22
:CALCulate:RHO:LIMit:FERRor[:UPPer]:STATe? . . . . .	2-22
:CALCulate:RHO:LIMit:MAGNitude[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-23
:CALCulate:RHO:LIMit:MAGNitude[:UPPer]:STATe? . . . . .	2-23
:CALCulate:RHO:LIMit:PHASe[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-23
:CALCulate:RHO:LIMit:PHASe[:UPPer]:STATe? . . . . .	2-23
:CALCulate:RHO:LIMit:RHO:LOWer:STATe OFF   ON   0   1 . . . . .	2-23
:CALCulate:RHO:LIMit:RHO:LOWer:STATe? . . . . .	2-23
:CALCulate:RHO:LIMit:TOFFset[:UPPer]:STATe OFF   ON   0   1 . . . . .	2-30
:CALCulate:RHO:LIMit:TOFFset[:UPPer]:STATe? . . . . .	2-30
:CALCulate:RSPur:LIMit:<standard>:BS   BTS:RECeive[:UPPer][:DATA] <power> . . . . .	2-31



---

# Commands

## Alphabetical Listing

:CALCulate:RSPur:LIMit:<standard>:BS   BTS:RECeive[:UPPer][:DATA]? .....	2-31
:CALCulate:RSPur:LIMit:<standard>:BS   BTS:TRANsmit[:UPPer][:DATA] <power> .....	2-32
:CALCulate:RSPur:LIMit:<standard>:BS   BTS:TRANsmit[:UPPer][:DATA]? .....	2-32
:CALCulate:RSPur:LIMit:RECeive[:UPPer]:STATe OFF   ON   0   1 .....	2-32
:CALCulate:RSPur:LIMit:RECeive[:UPPer]:STATe? .....	2-32
:CALCulate:RSPur:LIMit:TRANsmit[:UPPer]:STATe OFF   ON   0   1 .....	2-33
:CALCulate:RSPur:LIMit:TRANsmit[:UPPer]:STATe? .....	2-33
:CONFigure:<measurement> .....	2-34
:CONFigure:<measurement> .....	2-43
:CONFigure:ACP .....	2-45
:CONFigure:CDPower .....	2-47
:CONFigure:CHPower .....	2-50
:CONFigure:CSPur .....	2-51
:CONFigure:HARMonics .....	2-60
:CONFigure:MONitor .....	2-52
:CONFigure:OBW .....	2-53
:CONFigure:OOBSpur .....	2-54
:CONFigure:RCHPower .....	2-55
:CONFigure:RHO .....	2-56
:CONFigure:RSPur .....	2-59
:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision <rel_ampl> .....	2-35
:DISPlay:WINDow:TRACe:Y[:SCALe]:PDIVision? .....	2-35
:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel <ampl> .....	2-35
:DISPlay:WINDow:TRACe:Y[:SCALe]:RLEVel? .....	2-35
:FETCh:<measurement>[n]? .....	2-37
:FETCh:<measurement>[n]? .....	2-44
:FETCh:ACP[n]? .....	2-45
:FETCh:CDPower[n]? .....	2-47
:FETCh:CHPower[n]? .....	2-50
:FETCh:CSPur[n]? .....	2-51
:FETCh:HARMonics[n]? .....	2-60

---

# Commands

## Alphabetical Listing

:FETCh:MONitor[n]	2-52
:FETCh:OBW[n]?	2-53
:FETCh:OOBSpur[n]?	2-54
:FETCh:RCHPower[n]?	2-55
:FETCh:RHO[n]?	2-56
:FETCh:RSPur[n]?	2-59
:INITiate:CONTinuous OFF   ON   0   1	2-38
:INITiate:CONTinuous?	2-38
:INITiate:PAUSe	2-38
:INITiate:REStart	2-39
:INITiate:RESume	2-39
:INSTrument:NSElect <integer>	2-40
:INSTrument:NSElect?	2-40
:INSTrument[:SElect] SA   CDMA   GSM	2-41
:INSTrument[:SElect]?	2-41
:MEASure:<measurement>[n]?	2-42
:MEASure:ACP[n]?	2-45
:MEASure:CDPower[n]?	2-47
:MEASure:CHPower[n]?	2-50
:MEASure:CSPur[n]?	2-51
:MEASure:HARMonics[n]?	2-60
:MEASure:MONitor[n]	2-52
:MEASure:OBW[n]?	2-53
:MEASure:OOBSpur[n]?	2-54
:MEASure:RCHPower[n]?	2-55
:MEASure:RHO[n]?	2-56
:MEASure:RSPur[n]?	2-59
:MMEMory:STORe:RESults filename.csv	2-61
:READ:<measurement>[n]?	2-44
:READ:<measurement>[n]?	2-62
:READ:ACP[n]?	2-45

---

# Commands

## Alphabetical Listing

:READ:CDPower[n]? .....	2-47
:READ:CHPower[n]? .....	2-50
:READ:CSPur[n]? .....	2-51
:READ:HARMonics[n]? .....	2-60
:READ:MONitor[n] .....	2-52
:READ:OBW[n]? .....	2-53
:READ:OOBSpur[n]? .....	2-54
:READ:RCHPower[n]? .....	2-55
:READ:RHO[n]? .....	2-56
:READ:RSPur[n]? .....	2-59
:STATus:OPERation:CONDition? .....	2-142
:STATus:OPERation:ENABle <number> .....	2-142
:STATus:OPERation:ENABle? .....	2-142
:STATus:OPERation:NTRansition <number> .....	2-143
:STATus:OPERation:NTRansition? .....	2-143
:STATus:OPERation:PTRansition <number> .....	2-143
:STATus:OPERation:PTRansition? .....	2-143
:STATus:OPERation[:EVENT]? .....	2-143
:SYSTem:CONFigure:MODE? .....	2-144
:TRIGger[:SEQuence]:EXTernal:DELay <time> .....	2-145
:TRIGger[:SEQuence]:EXTernal:DELay? .....	2-145
:TRIGger[:SEQuence]:EXTernal:SLOPe NEGative   POSitive .....	2-145
:TRIGger[:SEQuence]:EXTernal:SLOPe? .....	2-145
:TRIGger[:SEQuence]:FRAMe:DELay <time> .....	2-146
:TRIGger[:SEQuence]:FRAMe:DELay? .....	2-146
:TRIGger[:SEQuence]:FRAMe:PERiod <time> .....	2-146
:TRIGger[:SEQuence]:FRAMe:PERiod? .....	2-146
:TRIGger[:SEQuence]:RFBurst:DELay <time> .....	2-147
:TRIGger[:SEQuence]:RFBurst:DELay? .....	2-147
:TRIGger[:SEQuence]:RFBurst:LEVel <rel_power> .....	2-147
:TRIGger[:SEQuence]:RFBurst:LEVel? .....	2-147

---

# Commands

## Alphabetical Listing

[:SENSe]:ACP:AVERAge:COUNT <integer> . . . . .	2-63
[:SENSe]:ACP:AVERAge:COUNT? . . . . .	2-63
[:SENSe]:ACP:AVERAge:TCONtrol EXPONential   REPeat . . . . .	2-64
[:SENSe]:ACP:AVERAge:TCONtrol? . . . . .	2-64
[:SENSe]:ACP:AVERAge[:STATe] OFF   ON   0   1 . . . . .	2-64
[:SENSe]:ACP:AVERAge[:STATe]? . . . . .	2-64
[:SENSe]:ACP:BANDwidth   BWIDth:INTegration <freq>. . . . .	2-64
[:SENSe]:ACP:BANDwidth   BWIDth:INTegration? . . . . .	2-64
[:SENSe]:ACP:BANDwidth   BWIDth[:RESolution] <freq> . . . . .	2-65
[:SENSe]:ACP:BANDwidth   BWIDth[:RESolution]? . . . . .	2-65
[:SENSe]:ACP:CSPacing <freq> . . . . .	2-66
[:SENSe]:ACP:CSPacing? . . . . .	2-66
[:SENSe]:ACP:MIXer:RANGe[:UPPer] <power> . . . . .	2-66
[:SENSe]:ACP:MIXer:RANGe[:UPPer]? . . . . .	2-66
[:SENSe]:ACP:OFFSet:LIST:ABSolute <power>,<power>,<power>,<power>,<power> . . . . .	2-66
[:SENSe]:ACP:OFFSet:LIST:ABSolute? . . . . .	2-66
[:SENSe]:ACP:OFFSet:LIST:BANDwidth   BWIDth? . . . . .	2-67
[:SENSe]:ACP:OFFSet:LIST:BANDwidth   BWIDth[:INTegration] <bw>,<bw>,<bw>, <bw>,<bw> . . . . .	2-67
[:SENSe]:ACP:OFFSet:LIST:RCARrier <rel_power>,<rel_power>,<rel_power>, <rel_power>,<rel_power>. . . . .	2-68
[:SENSe]:ACP:OFFSet:LIST:RCARrier? . . . . .	2-68
[:SENSe]:ACP:OFFSet:LIST:RPSDensity <rel_power>,<rel_power>,<rel_power>, <rel_power>,<rel_power>. . . . .	2-69
[:SENSe]:ACP:OFFSet:LIST:RPSDensity? . . . . .	2-69
[: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 . . . . .	2-70
[:SENSe]:ACP:OFFSet:LIST:STATe? . . . . .	2-70
[:SENSe]:ACP:OFFSet:LIST:TEST ABSolute   AND   OR   RELative   OFF, ABSolute   AND   OR   REative   OFF, ABSolute   AND   OR   RELative   OFF, ABSolute   AND   OR   RELative   OFF, ABSolute   AND   OR   RELative . . . . .	2-71
[:SENSe]:ACP:OFFSet:LIST:TEST? . . . . .	2-71
[:SENSe]:ACP:OFFSet:LIST[:FREQuency] <f_offset>,<f_offset>,<f_offset>,<f_offset>, <f_offset>. . . . .	2-68

---

# Commands

## Alphabetical Listing

[:SENSe]:ACP:OFFSet:LIST[:FREQuency]? .....	2-68
[:SENSe]:ACP:POINts <integer> .....	2-72
[:SENSe]:ACP:POINts? .....	2-72
[:SENSe]:ACP:TRIGger:SOURce EXTernal   IMMEDIATE .....	2-72
[:SENSe]:ACP:TRIGger:SOURce? .....	2-72
[:SENSe]:ACP:TYPE PSDRef   TPRef .....	2-72
[:SENSe]:ACP:TYPE? .....	2-72
[:SENSe]:CDPower:ASET:THReshold <rel_power> .....	2-75
[:SENSe]:CDPower:ASET:THReshold? .....	2-75
[:SENSe]:CDPower:AVERage:COUNt <integer> .....	2-74
[:SENSe]:CDPower:AVERage:COUNt? .....	2-74
[:SENSe]:CDPower:AVERage:TCONtrol EXPonential   REPeat .....	2-74
[:SENSe]:CDPower:AVERage:TCONtrol? .....	2-74
[:SENSe]:CDPower:AVERage[:STATe] OFF   ON   0   1 .....	2-74
[:SENSe]:CDPower:AVERage[:STATe]? .....	2-74
[:SENSe]:CDPower:METHod POWER   TPHase .....	2-76
[:SENSe]:CDPower:METHod? .....	2-76
[:SENSe]:CDPower:MIXer:RANGe[:UPPer] <power> .....	2-75
[:SENSe]:CDPower:MIXer:RANGe[:UPPer]? .....	2-75
[:SENSe]:CDPower:SPECTrum INVert   NORMal .....	2-76
[:SENSe]:CDPower:SPECTrum? .....	2-76
[:SENSe]:CDPower:SWEep:TIME <time> .....	2-76
[:SENSe]:CDPower:SWEep:TIME? .....	2-76
[:SENSe]:CHANnel:PNOFfset <integer> .....	2-77
[:SENSe]:CHANnel:PNOFfset? .....	2-77
[:SENSe]:CHANnel:RFCHannel:FREQuency <freq> .....	2-77
[:SENSe]:CHANnel:RFCHannel:FREQuency? .....	2-77
[:SENSe]:CHANnel:RFCHannel[:NUMBer] <integer> .....	2-78
[:SENSe]:CHANnel:RFCHannel[:NUMBer]? .....	2-78
[:SENSe]:CHPower:AVERage:COUNt <integer> .....	2-79
[:SENSe]:CHPower:AVERage:COUNt? .....	2-79

---

# Commands

## Alphabetical Listing

[:SENSe]:CHPower:AVERAge:TCONtrol EXPonential   REPeat	2-80
[:SENSe]:CHPower:AVERAge:TCONtrol?	2-80
[:SENSe]:CHPower:AVERAge[:STATe] OFF   ON   0   1	2-79
[:SENSe]:CHPower:AVERAge[:STATe]?	2-79
[:SENSe]:CHPower:BANDwidth   BWIDth:INTegration <freq>	2-80
[:SENSe]:CHPower:BANDwidth   BWIDth:INTegration?	2-80
[:SENSe]:CHPower:BANDwidth   BWIDth[:RESolution] <freq>	2-81
[:SENSe]:CHPower:BANDwidth   BWIDth[:RESolution]:AUTO OFF   ON   0   1	2-65
[:SENSe]:CHPower:BANDwidth   BWIDth[:RESolution]:AUTO OFF   ON   0   1	2-81
[:SENSe]:CHPower:BANDwidth   BWIDth[:RESolution]:AUTO?	2-65
[:SENSe]:CHPower:BANDwidth   BWIDth[:RESolution]:AUTO?	2-81
[:SENSe]:CHPower:BANDwidth   BWIDth[:RESolution]?	2-81
[:SENSe]:CHPower:CORRection:NOISe[:AUTO] OFF   ON   0   1	2-82
[:SENSe]:CHPower:CORRection:NOISe[:AUTO]?	2-82
[:SENSe]:CHPower:FREQUency:SPAN <freq>	2-81
[:SENSe]:CHPower:FREQUency:SPAN?	2-81
[:SENSe]:CHPower:MIXer:RANGe[:UPPer] <power>	2-82
[:SENSe]:CHPower:MIXer:RANGe[:UPPer]?	2-82
[:SENSe]:CHPower:TRIGger:SOURce EXTernalIMMediate	2-83
[:SENSe]:CHPower:TRIGger:SOURce?	2-83
[:SENSe]:CORRection:BS[:RF]:LOSS <rel_power>	2-84
[:SENSe]:CORRection:BS[:RF]:LOSS?	2-84
[:SENSe]:CORRection:MS:LOSS <rel_power>	2-85
[:SENSe]:CORRection:MS:LOSS?	2-85
[:SENSe]:CORRection:MS[:RF]:GAIN <rel_power>	2-84
[:SENSe]:CORRection:MS[:RF]:GAIN?	2-84
[:SENSe]:CORRection:NOISe:THReshold <rel_power>	2-86
[:SENSe]:CORRection:NOISe:THReshold?	2-86
[:SENSe]:CSPur:AVERAge:COUNt <integer>	2-87
[:SENSe]:CSPur:AVERAge:COUNt?	2-87
[:SENSe]:CSPur:AVERAge:TCONtrol EXPonential   REPeat	2-88

---

# Commands

## Alphabetical Listing

[:SENSe]:CSPur:AVERAge:TCONtrol? . . . . .	2-88
[:SENSe]:CSPur:AVERAge[:STATe] OFF   ON   0   1 . . . . .	2-87
[:SENSe]:CSPur:AVERAge[:STATe]? . . . . .	2-87
[:SENSe]:CSPur:BANDwidth   BWIDth:VIDeo <freq> . . . . .	2-90
[:SENSe]:CSPur:BANDwidth   BWIDth:VIDeo?. . . . .	2-90
[:SENSe]:CSPur:BANDwidth   BWIDth[:RESolution] <freq> . . . . .	2-89
[:SENSe]:CSPur:BANDwidth   BWIDth[:RESolution]? . . . . .	2-89
[:SENSe]:CSPur:DETEctor[:FUNction] POSitive   NEGative   SAMPlE . . . . .	2-90
[:SENSe]:CSPur:DETEctor[:FUNction]? . . . . .	2-90
[:SENSe]:CSPur:MIXer:RANGe[:UPPer] <power> . . . . .	2-90
[:SENSe]:CSPur:MIXer:RANGe[:UPPer]? . . . . .	2-90
[:SENSe]:CSPur:TRIGger:SOURce EXTernal   IMMEDIATE . . . . .	2-91
[:SENSe]:CSPur:TRIGger:SOURce? . . . . .	2-91
[:SENSe]:CSPur:TYPE EXAMine   FULL . . . . .	2-88
[:SENSe]:CSPur:TYPE?. . . . .	2-88
[:SENSe]:DEMod:SYNc ESEC   NONE . . . . .	2-92
[:SENSe]:DEMod:SYNc?. . . . .	2-92
[:SENSe]:DEMod:TRIGger:SOURce EXTernal   FRAMe   IMMEDIATE   RFBurst . . . . .	2-92
[:SENSe]:DEMod:TRIGger:SOURce? . . . . .	2-92
[:SENSe]:DIALog:PAMPlifier[:STATe] OFF   ON   0   1 . . . . .	2-93
[:SENSe]:DIALog:PAMPlifier[:STATe]? . . . . .	2-93
[:SENSe]:FREQuency:CENTer:STEP:AUTO OFF   ON   0   1 . . . . .	2-93
[:SENSe]:FREQuency:CENTer:STEP:AUTO? . . . . .	2-93
[:SENSe]:FREQuency:CENTer:STEP[:INCRement] <freq> . . . . .	2-93
[:SENSe]:FREQuency:CENTer:STEP[:INCRement]? . . . . .	2-93
[:SENSe]:FREQuency:CENTer:TEMPorary <freq> . . . . .	2-94
[:SENSe]:FREQuency:CENTer:TEMPorary? . . . . .	2-94
[:SENSe]:HARMonics:AVERAge:COUNT <integer> . . . . .	2-95
[:SENSe]:HARMonics:AVERAge:COUNT? . . . . .	2-95
[:SENSe]:HARMonics:AVERAge:TCONtrol EXPonential   REPeat . . . . .	2-96
[:SENSe]:HARMonics:AVERAge:TCONtrol? . . . . .	2-96

---

# Commands

## Alphabetical Listing

[:SENSe]:HARMonics:AVERage[:STATe] OFF   ON   0   1	2-95
[:SENSe]:HARMonics:AVERage[:STATe]?	2-95
[:SENSe]:HARMonics:BANDwidth   :BWIDth:RESolution <freq>	2-96
[:SENSe]:HARMonics:BANDwidth   :BWIDth:RESolution?	2-96
[:SENSe]:HARMonics:BANDwidth   :BWIDth:VIDeo <freq>	2-97
[:SENSe]:HARMonics:BANDwidth   :BWIDth:VIDeo?	2-97
[:SENSe]:HARMonics:BANDwidth   BWIDth:VIDeo:AUTO OFF   ON   0   1	2-97
[:SENSe]:HARMonics:BANDwidth   BWIDth:VIDeo:AUTO?	2-97
[:SENSe]:HARMonics:DETEctor[:FUNCTion] POSitive   NEGative   SAMPlE	2-97
[:SENSe]:HARMonics:DETEctor[:FUNCTion]?	2-97
[:SENSe]:HARMonics:MIXer:RANGe[:UPPer] <power>	2-98
[:SENSe]:HARMonics:MIXer:RANGe[:UPPer]?	2-98
[:SENSe]:HARMonics:NUMBer <integer>	2-98
[:SENSe]:HARMonics:NUMBer?	2-98
[:SENSe]:HARMonics:SWEEp:TIME <time>	2-99
[:SENSe]:HARMonics:SWEEp:TIME?	2-99
[:SENSe]:HARMonics:TRIGger:SOURce EXTErnal   IMMEDIATE	2-99
[:SENSe]:HARMonics:TRIGger:SOURce?	2-99
[:SENSe]:MONitor:AVERage:COUNt <integer>	2-100
[:SENSe]:MONitor:AVERage:COUNt?	2-100
[:SENSe]:MONitor:AVERage:TCONtrol EXPONential   REPEAT	2-101
[:SENSe]:MONitor:AVERage:TCONtrol?	2-101
[:SENSe]:MONitor:AVERage[:STATe] OFF   ON   0   1	2-100
[:SENSe]:MONitor:AVERage[:STATe]?	2-100
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth:VIDeo <freq>	2-102
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth:VIDeo:AUTO OFF   ON   0   1	2-103
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth:VIDeo:AUTO?	2-103
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth:VIDeo?	2-102
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth[:RESolution] <freq>	2-101
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth[:RESolution]:AUTO OFF   ON   0   1	2-102
[:SENSe]:MONitor:BAND:BANDwidth   BWIDth[:RESolution]:AUTO?	2-102



---

# Commands

## Alphabetical Listing

[:SENSe]:MONitor:BAND:BANDwidth   BWIDth[:RESolution]?	2-101
[:SENSe]:MONitor:BAND:BLOCK <integer>	2-103
[:SENSe]:MONitor:BAND:BLOCK?	2-103
[:SENSe]:MONitor:BAND:DETEctor[:FUNCTion] POSitive   SAMPLe   NEGative	2-104
[:SENSe]:MONitor:BAND:DETEctor[:FUNCTion]?	2-104
[:SENSe]:MONitor:BAND:MAXHold[:STATe] OFF   ON   0   1	2-104
[:SENSe]:MONitor:BAND:MAXHold[:STATe]?	2-104
[:SENSe]:MONitor:BAND:PRGain[:STATe] OFF   ON   0   1	2-105
[:SENSe]:MONitor:BAND:PRGain[:STATe]?	2-105
[:SENSe]:MONitor:BAND:SPAN <freq>	2-105
[:SENSe]:MONitor:BAND:SPAN?	2-105
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth:VIDeo <freq>	2-107
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth:VIDeo AUTO OFF   ON   0   1	2-107
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth:VIDeo AUTO?	2-107
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth:VIDeo?	2-107
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth[:RESolution] <freq>	2-106
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth[:RESolution] AUTO OFF   ON   0   1	2-106
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth[:RESolution] AUTO?	2-106
[:SENSe]:MONitor:CHANnel:BANDwidth   BWIDth[:RESolution]?	2-106
[:SENSe]:MONitor:CHANnel:DETEctor[:FUNCTion] POSitive   SAMPLe   NEGative	2-108
[:SENSe]:MONitor:CHANnel:DETEctor[:FUNCTion]?	2-108
[:SENSe]:MONitor:CHANnel:MAXHold[:STATe] OFF   ON   0   1	2-108
[:SENSe]:MONitor:CHANnel:MAXHold[:STATe]?	2-108
[:SENSe]:MONitor:CHANnel:PRGain[:STATe] OFF   ON   0   1	2-108
[:SENSe]:MONitor:CHANnel:PRGain[:STATe]?	2-108
[:SENSe]:MONitor:CHANnel:SPAN <freq>	2-109
[:SENSe]:MONitor:CHANnel:SPAN?	2-109
[:SENSe]:MONitor:FBAND TRANsmit   RECeive	2-105
[:SENSe]:MONitor:FBAND?	2-105
[:SENSe]:MONitor:METHod CHANnel   BAND	2-109
[:SENSe]:MONitor:METHod?	2-109

---

# Commands

## Alphabetical Listing

[:SENSe]:OBWidth:AVERage:COUNT <integer> .....	2-110
[:SENSe]:OBWidth:AVERage:COUNT? .....	2-110
[:SENSe]:OBWidth:AVERage:TCONtrol EXPonential   REPeat .....	2-111
[:SENSe]:OBWidth:AVERage:TCONtrol? .....	2-111
[:SENSe]:OBWidth:AVERage[:STATe] OFF   ON   0   1 .....	2-110
[:SENSe]:OBWidth:AVERage[:STATe]? .....	2-110
[:SENSe]:OBWidth:BANDwidth   BWIDth:VIDeo <freq> .....	2-112
[:SENSe]:OBWidth:BANDwidth   BWIDth:VIDeo? .....	2-112
[:SENSe]:OBWidth:BANDwidth   BWIDth[:RESolution] <freq> .....	2-111
[:SENSe]:OBWidth:BANDwidth   BWIDth[:RESolution]? .....	2-111
[:SENSe]:OBWidth:DETEctor[:FUNctIon] POSitive   NEGative   SAMPlE .....	2-112
[:SENSe]:OBWidth:DETEctor[:FUNctIon]? .....	2-112
[:SENSe]:OBWidth:EBWidth:XDB <rel_power> .....	2-112
[:SENSe]:OBWidth:EBWidth:XDB? .....	2-112
[:SENSe]:OBWidth:FREQuency:SPAN <freq> .....	2-113
[:SENSe]:OBWidth:FREQuency:SPAN? .....	2-113
[:SENSe]:OBWidth:MAXHold[:STATe] OFF   ON   0   1 .....	2-113
[:SENSe]:OBWidth:MAXHold[:STATe]? .....	2-113
[:SENSe]:OBWidth:PERCent <number> .....	2-113
[:SENSe]:OBWidth:PERCent? .....	2-113
[:SENSe]:OBWidth:TRIGger:SOURce EXTernal   IMMEDIATE .....	2-114
[:SENSe]:OBWidth:TRIGger:SOURce? .....	2-114
[:SENSe]:OOBSpur:AVERage:COUNT <integer> .....	2-115
[:SENSe]:OOBSpur:AVERage:COUNT? .....	2-115
[:SENSe]:OOBSpur:AVERage:TCONtrol EXPonential   REPeat .....	2-116
[:SENSe]:OOBSpur:AVERage:TCONtrol? .....	2-116
[:SENSe]:OOBSpur:AVERage[:STATe] OFF   ON   0   1 .....	2-115
[:SENSe]:OOBSpur:AVERage[:STATe]? .....	2-115
[:SENSe]:OOBSpur:BANDwidth[:RESolution] <freq> .....	2-118
[:SENSe]:OOBSpur:BANDwidth[:RESolution]? .....	2-118
[:SENSe]:OOBSpur:MIXer:RANGe[:UPPer] <power> .....	2-116

---

# Commands

## Alphabetical Listing

<code>[:SENSe]:OOBSpur:MIXer:RANGe[:UPPer]?</code> .....	2-116
<code>[:SENSe]:OOBSpur:OVRsweep:FACTor &lt;value&gt;</code> .....	2-117
<code>[:SENSe]:OOBSpur:OVRsweep:FACTor?</code> .....	2-117
<code>[:SENSe]:OOBSpur:OVRsweep[:STATe] OFF   ON   0   1</code> .....	2-117
<code>[:SENSe]:OOBSpur:OVRsweep[:STATe]?</code> .....	2-117
<code>[:SENSe]:OOBSpur:SPRange &lt;integer&gt;</code> .....	2-117
<code>[:SENSe]:OOBSpur:SPRange?</code> .....	2-117
<code>[:SENSe]:OOBSpur:TABLE:BANDwidth   BWIDth:RESolution &lt;bw1, bw2, ..., bwN&gt;</code> .....	2-118
<code>[:SENSe]:OOBSpur:TABLE:BANDwidth   BWIDth:RESolution?</code> .....	2-118
<code>[:SENSe]:OOBSpur:TABLE:BANDwidth   BWIDth:VIDeo &lt;bw1, bw2, ..., bwN&gt;</code> .....	2-118
<code>[:SENSe]:OOBSpur:TABLE:BANDwidth   BWIDth:VIDeo?</code> .....	2-118
<code>[:SENSe]:OOBSpur:TABLE:CFRequency &lt;freq1, freq2, ..., freqN&gt;</code> .....	2-119
<code>[:SENSe]:OOBSpur:TABLE:CFRequency?</code> .....	2-119
<code>[:SENSe]:OOBSpur:TABLE:DETEctor POSitive   SAMPlE   NEGative</code> .....	2-119
<code>[:SENSe]:OOBSpur:TABLE:DETEctor?</code> .....	2-119
<code>[:SENSe]:OOBSpur:TABLE:FREQuency:SPAN &lt;freq1, freq2, ..., freqN&gt;</code> .....	2-120
<code>[:SENSe]:OOBSpur:TABLE:FREQuency:SPAN?</code> .....	2-120
<code>[:SENSe]:OOBSpur:TRIGger:SOURce EXTernal   IMMEDIATE</code> .....	2-120
<code>[:SENSe]:OOBSpur:TRIGger:SOURce?</code> .....	2-120
<code>[:SENSe]:OPTion:ROSCillator:EXTernal:FREQuency &lt;freq&gt;</code> .....	2-121
<code>[:SENSe]:OPTion:ROSCillator:EXTernal:FREQuency?</code> .....	2-121
<code>[:SENSe]:OPTion:ROSCillator:OUTPut?</code> .....	2-121
<code>[:SENSe]:OPTion:ROSCillator:OUTPut[:STATe] OFF   ON   0   1</code> .....	2-121
<code>[:SENSe]:OPTion:ROSCillator:SOURce INTernal   EXTernal</code> .....	2-121
<code>[:SENSe]:OPTion:ROSCillator:SOURce?</code> .....	2-121
<code>[:SENSe]:POWER:CARRier:STATe OFF   ON   0   1</code> .....	2-123
<code>[:SENSe]:POWER:CARRier:STATe?</code> .....	2-123
<code>[:SENSe]:POWER:CTHReshold &lt;power&gt;</code> .....	2-123
<code>[:SENSe]:POWER:CTHReshold?</code> .....	2-123
<code>[:SENSe]:POWER:LEVel:MINimum &lt;power&gt;</code> .....	2-124
<code>[:SENSe]:POWER:LEVel:MINimum?</code> .....	2-124

---

# Commands

## Alphabetical Listing

[:SENSe]:POWer[:RF]:ATTenuation <rel_power> .....	2-125
[:SENSe]:POWer[:RF]:ATTenuation? .....	2-125
[:SENSe]:POWer[:RF]:RANGe:AUTO OFF   ON   0   1 .....	2-125
[:SENSe]:POWer[:RF]:RANGe:AUTO? .....	2-125
[:SENSe]:POWer[:RF]:RANGe[:UPPer] <power> .....	2-125
[:SENSe]:POWer[:RF]:RANGe[:UPPer]? .....	2-125
[:SENSe]:RADio:BANDwidth   BWIDth <freq> .....	2-126
[:SENSe]:RADio:BANDwidth   BWIDth? .....	2-126
[:SENSe]:RADio:DEVice BS   MS .....	2-127
[:SENSe]:RADio:DEVice? .....	2-127
[:SENSe]:RADio:STANdard:BAND ARIBT53   C95B   C95C   CKOR   IS95A   JSTD8   P95B   P95C   PKOR .....	2-127
[:SENSe]:RADio:STANdard:BAND? .....	2-127
[:SENSe]:RCHPower:AVERAge:COUNT <integer> .....	2-128
[:SENSe]:RCHPower:AVERAge:COUNT? .....	2-128
[:SENSe]:RCHPower:AVERAge:TCONtrol EXPONential   REPeat .....	2-129
[:SENSe]:RCHPower:AVERAge:TCONtrol? .....	2-129
[:SENSe]:RCHPower:AVERAge[:STATe] OFF   ON   0   1 .....	2-128
[:SENSe]:RCHPower:AVERAge[:STATe]? .....	2-128
[:SENSe]:RCHPower:BANDwidth   BWIDth:INTegration <freq> .....	2-129
[:SENSe]:RCHPower:BANDwidth   BWIDth:INTegration? .....	2-129
[:SENSe]:RCHPower:BANDwidth   BWIDth[:RESolution] <freq> .....	2-130
[:SENSe]:RCHPower:BANDwidth   BWIDth[:RESolution]? .....	2-130
[:SENSe]:RCHPower:CORRection:NOISe[:AUTO] OFF   ON   0   1 .....	2-130
[:SENSe]:RCHPower:CORRection:NOISe[:AUTO]? .....	2-130
[:SENSe]:RCHPower:FREQuency:SPAN <freq> .....	2-131
[:SENSe]:RCHPower:FREQuency:SPAN? .....	2-131
[:SENSe]:RCHPower:MIXer:RANGe[:UPPer] <power> .....	2-131
[:SENSe]:RCHPower:MIXer:RANGe[:UPPer]? .....	2-131
[:SENSe]:RCHPower:PRGain[:STATe] OFF   ON   0   1 .....	2-132
[:SENSe]:RCHPower:PRGain[:STATe]? .....	2-132

---

# Commands

## Alphabetical Listing

[:SENSe]:RCHPower:TRIGger:SOURce EXTernal   IMMEDIATE	2-132
[:SENSe]:RCHPower:TRIGger:SOURce?	2-132
[:SENSe]:RHO:AVERAge:COUNT <integer>	2-133
[:SENSe]:RHO:AVERAge:COUNT?	2-133
[:SENSe]:RHO:AVERAge:TCONtrol EXPonential   REPeat	2-134
[:SENSe]:RHO:AVERAge:TCONtrol?	2-134
[:SENSe]:RHO:AVERAge[:STATe] OFF   ON   0   1	2-133
[:SENSe]:RHO:AVERAge[:STATe]?	2-133
[:SENSe]:RHO:DISPlay:DOTS OFF   ON   0   1	2-134
[:SENSe]:RHO:DISPlay:DOTS?	2-134
[:SENSe]:RHO:DISPlay:LENGth <value>	2-134
[:SENSe]:RHO:DISPlay:LENGth?	2-134
[:SENSe]:RHO:MIXer:RANGe[:UPPer] <power>	2-135
[:SENSe]:RHO:MIXer:RANGe[:UPPer]?	2-135
[:SENSe]:RHO:NSPC ONE   TWO   FOUR	2-135
[:SENSe]:RHO:NSPC?	2-135
[:SENSe]:RHO:SPECTrum INVert   NORMal	2-136
[:SENSe]:RHO:SPECTrum?	2-136
[:SENSe]:RHO:SWEep:TIME <time>	2-136
[:SENSe]:RHO:SWEep:TIME?	2-136
[:SENSe]:RSPur:AVERAge:COUNT <integer>	2-137
[:SENSe]:RSPur:AVERAge:COUNT?	2-137
[:SENSe]:RSPur:AVERAge:TCONtrol EXPonential   REPeat	2-138
[:SENSe]:RSPur:AVERAge:TCONtrol?	2-138
[:SENSe]:RSPur:AVERAge[:STATe] OFF   ON   0   1	2-137
[:SENSe]:RSPur:AVERAge[:STATe]?	2-137
[:SENSe]:RSPur:BANDwidth   BWIDth:VIDeo <freq>	2-139
[:SENSe]:RSPur:BANDwidth   BWIDth:VIDeo?	2-139
[:SENSe]:RSPur:BANDwidth   BWIDth[:RESolution] <freq>	2-138
[:SENSe]:RSPur:BANDwidth   BWIDth[:RESolution]?	2-138
[:SENSe]:RSPur:BLOCK <value> (Tuning Plan Dependent)	2-139

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# Commands

## Alphabetical Listing

[:SENSe]:RSPur:BLOCK? .....	2-139
[:SENSe]:RSPur:DETECTOR[:FUNCTION] POSitive   NEGative   SAMPlE .....	2-140
[:SENSe]:RSPur:DETECTOR[:FUNCTION]? .....	2-140
[:SENSe]:RSPur:FBANd TRANsmit   RECeive .....	2-139
[:SENSe]:RSPur:FBANd? .....	2-139
[:SENSe]:RSPur:MIXer:RANGe[:UPPer] <power> .....	2-140
[:SENSe]:RSPur:MIXer:RANGe[:UPPer]? .....	2-140
[:SENSe]:RSPur:PRGain[:STATe] OFF   ON   0   1 .....	2-141
[:SENSe]:RSPur:PRGain[:STATe]? .....	2-141
[:SENSe]:RSPur:TRIGger:SOURce EXTernal   IMMEDIATE .....	2-141
[:SENSe]:RSPur:TRIGger:SOURce? .....	2-141

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**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]:OBSpur: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]:OBSpur: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



<b>Function Category</b>	<b>SCPI Subsection or Subsystem</b>
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



## 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  $\mu$ s—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:OBSpur:LIMit:TABLE:TYPE
<value1, value2, ..., valueN>
```

```
:CALCulate:OBSpur: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  $\mu$ s

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

Language Reference  
**DISPlay Subsystem**

**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_amp1>`

**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.

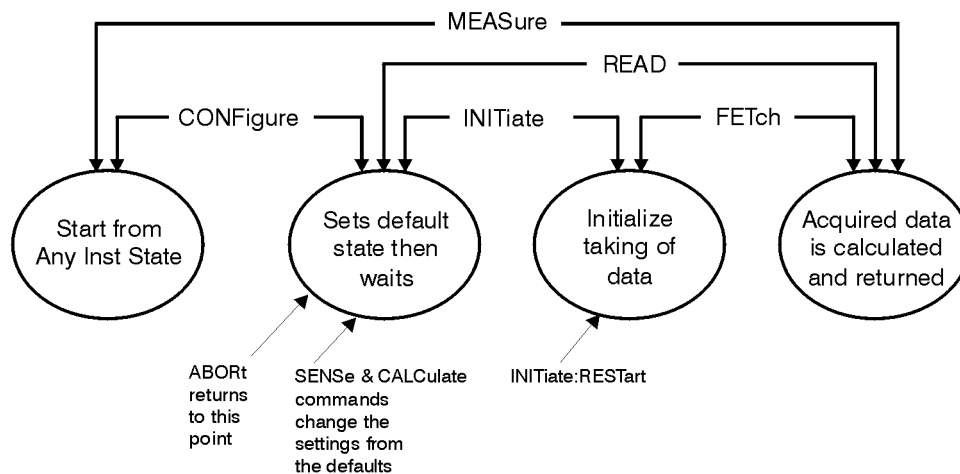
If the optional [n] value is not included, or is set to 1, the scalar measurement results will be returned. If the [n] value is set to a value other than 1, the selected trace data results will be returned. See each command for details of what types of scalar results or trace data results are available.

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**



ca81a

## 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 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. The binary data formats should be used for handling large blocks of data since they are smaller and faster than 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 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. The binary data formats should be used when handling large blocks of data since they are smaller and faster than 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: <ol style="list-style-type: none"> <li>1. Center frequency - relative power (dB)</li> <li>2. Center frequency - absolute power (dBm)</li> <li>3. Center frequency - relative power (dB)</li> <li>4. Center frequency - absolute power (dBm)</li> <li>5. Negative offset frequency (1) - relative power (dB),</li> <li>6. Negative offset frequency (1) - absolute power (dBm)</li> <li>7. Positive offset frequency (1) - relative power (dB)</li> <li>8. Positive offset frequency (1) - absolute power (dBm)</li> </ol> <p style="text-align: center;">. . .</p> <ol style="list-style-type: none"> <li>23. Positive offset frequency (5) - relative power (dB)</li> <li>24. Positive offset frequency (5) - absolute power (dBm)</li> </ol> <hr/> <p><b>NOTE</b> Center frequency relative power is relative to the center frequency absolute power and therefore, is always equal to 0.00 dB.</p> <hr/>

<b>Measurement Type</b>	<b>n</b>	<b>Results Returned</b>
Power spectral density reference	not specified or n=1  cdmaOne mode	<p>Returns 24 comma-separated scalar results, in the following order:</p> <ol style="list-style-type: none"> <li>1. Center frequency - relative power (dB)</li> <li>2. Center frequency - absolute power (dBm/Hz)</li> <li>3. Center frequency - relative power (dB)</li> <li>4. Center frequency - absolute power (dBm/Hz)</li> <li>5. Negative offset frequency (1) - relative power (dB)</li> <li>6. Negative offset frequency (1) - absolute power (dBm/Hz)</li> <li>7. Positive offset frequency (1) - relative power (dB)</li> <li>8. Positive offset frequency (1) - absolute power (dBm/Hz)</li> </ol> <p style="text-align: center;">. . .</p> <ol style="list-style-type: none"> <li>23. Positive offset frequency (5) - relative power (dB)</li> <li>24. Positive offset frequency (5) - absolute power (dBm/Hz)</li> </ol> <hr/> <p><b>NOTE</b> Center frequency relative power is relative to the center frequency absolute power and therefore, is always equal to 0.00 dB.</p> <hr/>

## 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



<b>n</b>	<b>Results Returned</b>
not specified or n=1	<p>Returns the following comma-separated scalar results:</p> <ol style="list-style-type: none"> <li>1. <b>Time offset</b> 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 <math>2 \times 52.0833e-6</math>).</li> <li>2. <b>Frequency error</b> 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.</li> <li>3. <b>Carrier feedthrough</b> is a floating point number (in dB) of the dc offset, of I and Q, from the origin.</li> <li>4. <b>Pilot power</b> 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.</li> <li>5. <b>Paging power</b> 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.</li> <li>6. <b>Sync power</b> 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.</li> <li>7. <b>Average traffic power</b> 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.</li> <li>8. <b>Maximum inactive traffic power</b> 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.</li> <li>9. <b>Average inactive traffic power</b> 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.</li> <li>10. <b>RHO (estimated)</b> 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).</li> </ol>

<b>n</b>	<b>Results Returned</b>
2	<p>Power trace - Returns comma-separated floating point numbers that are the trace data of the code domain <i>power</i> 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.</p>
3	<p>Timing trace - Returns comma-separated floating point numbers that are the trace data of the code domain <i>timing</i> 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.</p> <hr/> <p><b>NOTE</b>                      The default method is to measure the power only. CONFIG and MEAS reset the method parameter to <b>Power</b>. If you use this subopcode with the method left as Power, invalid data will be returned. Set Method to <b>Timing/Phase</b> for proper results.</p>
4	<p>Phase trace - Returns comma-separated floating point numbers that are the trace data of the code domain <i>phase</i> 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.</p> <hr/> <p><b>NOTE</b>                      The default method is to measure the power only. CONFIG and MEAS reset the method parameter to <b>Power</b>. If you use this subopcode with the method left as Power, invalid data will be returned. Set Method to <b>Timing/Phase</b> for proper results.</p>

## 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

<b>n</b>	<b>Results Returned</b>
not specified or n=1	Returns 2 comma-separated scalar results: <ol style="list-style-type: none"><li data-bbox="479 1148 1339 1211">1. <b>Channel Power</b> is a floating point number representing the total channel power in the specified integration bandwidth.</li><li data-bbox="479 1226 1356 1289">2. <b>Power Spectral Density</b> is the power (in dBm/Hz) in the specified integration bandwidth.</li></ol>

## 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

<b>n</b>	<b>Results Returned</b>
not specified or n=1	<p>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:</p> <ol style="list-style-type: none"> <li>1. The spur frequency difference from channel center frequency (in Hz)</li> <li>2. The spur amplitude difference from the limit (in dB)</li> <li>3. The spur amplitude difference from channel power (in dBc)</li> </ol>
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

<b>n</b>	<b>Results Returned</b>
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

<b>n</b>	<b>Results Returned</b>
not specified or n=1	Returns 3 comma-separated scalar results, in the following order: <ol style="list-style-type: none"> <li>1. Occupied bandwidth - Hz</li> <li>2. Emissions bandwidth- Hz</li> <li>3. Transmit frequency error - Hz</li> </ol>

## 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

<b>n</b>	<b>Results Returned</b>
not specified or n=1 cdmaOne mode	<p>Returns the following two components:</p> <p>First—the number of ranges that were measured (1 - 20)</p> <p>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:</p> <ol style="list-style-type: none"> <li>1. Range number</li> <li>2. Spur number</li> <li>3. Center frequency</li> <li>4. Amplitude</li> <li>5. Delta absolute limit</li> <li>6. Delta relative limit</li> <li>7. Pass/Fail results</li> </ol>

## 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

<b>n</b>	<b>Results Returned</b>
not specified or n=1	Returns 2 comma-separated scalar results: <ol style="list-style-type: none"> <li>1. <b>Channel Power</b> is a floating point number representing the total channel power in the specified integration bandwidth.</li> <li>2. <b>Power Spectral Density</b> is the power (in dBm/Hz) in the specified integration bandwidth.</li> </ol>



## 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	<p>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.</p> <p>The standard sample rate is 4.9152 MHz and the trace length is determined by the current measurement interval.</p> <p>The number of trace points depends on the current measurement interval and points per chip settings.</p> <p>The numbers are sent in the following order:</p> <p style="padding-left: 40px;">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            ...</p> <p>The trace can be interpolated to 1, 2, 4 points/chip selected with the display Points/Chip softkey or the NSPC remote command.</p> <p>The <b>Points/Chip</b> soft key controls number of points between decision points in the trace, changing the number of I/Q pairs sent for each decision point.</p> <p style="padding-left: 40px;">1=only the decision points            2=the decision points with one point between them            4=the decision points with three points between them</p>

<b>n</b>	<b>Results Returned</b>
not specified or n=1 cdmaOne mode	<p>Returns 7 comma-separated floating point numbers, in the following order:</p> <ol style="list-style-type: none"> <li>1. <b>Rho</b> (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.</li> <li>2. <b>Time offset</b> (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.</li> <li>3. <b>Frequency error</b> of the measured signal, with units of Hz. This is based on the linear best fit of the uncorrected measured phase.</li> <li>4. <b>Carrier feedthrough</b> has units of dB and is the dc error offset of I and Q, from the origin.</li> <li>5. <b>EVM</b> 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.</li> <li>6. <b>Magnitude error</b> (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.</li> <li>7. <b>Phase error</b> (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.</li> </ol>
2	<p>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.</p>
3	<p>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.</p>
4	<p>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.</p>

<b>n</b>	<b>Results Returned</b>
6	<p>Reference IQ Data – returns a series of floating point numbers that alternately represent I and Q pairs of the reference trace data.</p> <p>The number of trace points depends on the current measurement interval and points per chip settings.</p> <p>The numbers are sent in the following order:</p> <ul style="list-style-type: none"> <li>In-phase (I) sample, of symbol 0 decision point</li> <li>Quadrature-phase (Q) sample, of symbol 0 decision point</li> <li>...</li> <li>In-phase (I) sample, of symbol 1 decision point</li> <li>Quadrature-phase (Q) sample, of symbol 1 decision point</li> <li>...</li> </ul> <p>The trace can be interpolated to 1, 2, 4 points/chip selected with the display Points/Chip softkey or the NSPC remote command.</p> <p>The <b>Points/Chip</b> soft key controls number of points between decision points in the trace, changing the number of I/Q pairs sent for each decision point.</p> <ul style="list-style-type: none"> <li>1=only the decision points</li> <li>2=the decision points with one point between them</li> <li>4=the decision points with three points between them</li> </ul>
6 cdma2000 or W-CDMA (3GPP) measurement	<p>Returns 4 comma-separated scalar values of the pass/fail (0=passed, or 1=failed) results determined by testing the EVM and Peak EVM.</p> <ol style="list-style-type: none"> <li>1. Test result of EVM</li> <li>2. Test result of Peak EVM</li> <li>3. Test result of Rho</li> <li>4. Test result of Peak Code Domain Error</li> </ol>

## 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

<b>n</b>	<b>Results Returned</b>
not specified or n=1	<p>Returns 9 comma-separated scalar results corresponding to the 3 worst spurs in the band starting with the worst:</p> <ol style="list-style-type: none"> <li>1. The worst spur's frequency (in Hz)</li> <li>2. The worst spur's amplitude (in dBm)</li> <li>3. The worst spur's amplitude difference from the limit (in dB)</li> <li>4. The second worst spur's frequency (in MHz)</li> <li>5. The second worst spur's amplitude (in dBm)</li> <li>6. The second worst spur's amplitude difference from the limit (in dB)</li> <li>7. The third worst spur's frequency (in Hz)</li> <li>8. The third worst spur's amplitude (in dBm)</li> <li>9. The third worst spur's amplitude difference from the limit (in dB)</li> </ol> <p>If no second or third spurs are found, a value of 999 is returned.</p>

## 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

<b>n</b>	<b>Results Returned</b>
not specified or n=1	<p>Returns 61 values. The channel power value and a 10 row by 6 column array of values. Each row contains the following values:</p> <ol style="list-style-type: none"> <li>1. Harmonic number</li> <li>2. Frequency (MHz)</li> <li>3. Absolute amplitude (dBm)</li> <li>4. Delta from the absolute limit</li> <li>5. Relative amplitude from the carrier (dBc)</li> <li>6. Delta from the relative limit</li> </ol>

## 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  $\mu$ s 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  $IBW \times 400$

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 Step

## **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  $\mu$ sec 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 ] :OBSpur :OVRsweep [ :STATe ] OFF | ON | 0 | 1

[ :SENSe ] :OBSpur :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 ] :OBSpur :OVRsweep :FACTor <value>

[ :SENSe ] :OBSpur :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 ] :OBSpur :SPRange <integer>

[ :SENSe ] :OBSpur :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:BAWdwidth|BWIDth <freq>`

`[ :SENSe ]:RADio:BAWdwidth|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  $\mu$ s 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:BAWidTh|BWIDTh:VIDeo <freq>

[ :SENSe ]:RSPur:BAWidTh|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 Preamp 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  $\mu$ s 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  $\mu$ s

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 $\Rightarrow$ , 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 $\Rightarrow$ , RF Burst Level

---

# Index

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## A

### ACP

- testing, 2-71, 2-72
- trigger source, 2-72

### ACPR

- testing choices, 2-71, 2-72

active channel threshold value, 2-75

adjacent channel power ratio measurement, 2-45, 2-63

See also ACPR

### amplitude

- input range, 2-125
- maximizing input signal, 2-125

amplitude scaling, 2-35

applications, selecting, 2-40, 2-41

ARIBT53, 2-127

### attenuation

- setting, 2-125

### average count

- receiver spurious, 2-137

### averaging

ACP, 2-63, 2-64

ACPR, 2-63, 2-64

CDPower, 2-74

CHPower, 2-79, 2-80, 2-110, 2-111

CSPur, 2-87, 2-88

HARMonics, 2-95, 2-96

modulation accuracy (rho), 2-133, 2-134

monitor band/channel, 2-100, 2-101, 2-104, 2-108

OBW, 2-110

occupied bandwidth, 2-113

out of band spurs, 2-115

RCHPower, 2-116, 2-128, 2-129

receiver spurious, 2-137, 2-138

traces, 2-66, 2-113

## B

### bandwidth

CHPower, 2-80

monitor band/channel, 2-102, 2-106, 2-107

occupied bandwidth, 2-65, 2-81, 2-97, 2-106, 2-107, 2-111

RCHPower, 2-129

receiver spurious, 2-138, 2-139

setting channel BW, 2-126

bandwidth, resolution, 2-101

HARMonics, 2-96

MONitor channel/band, 2-102, 2-103

bandwidth, video

HARMonics, 2-97

occupied bandwidth, 2-112

### base station

loss correction, 2-84

base station testing, 2-127

### block

MONitor channel/band, 2-103

RSPur, 2-139

### burst trigger

level, 2-147

bus configuration, 2-144

## C

### carrier

power, 2-123

### CDMA

PN offset number, 2-77

CDMA measurement, 2-50, 2-51,

2-54, 2-55, 2-59, 2-60, 2-63,

2-74, 2-79, 2-87, 2-128, 2-133

CDMA standards, 2-127

### cdmaOne

ACP measurement, 2-71, 2-72

trigger source, 2-91, 2-92, 2-99, 2-120, 2-141

cdmaOne measurement, 2-45,

2-47, 2-56

### CDP

limit testing, 2-2, 2-3, 2-4, 2-5, 2-6

### CDPower

active set threshold value, 2-75

measurement method, 2-76

selecting spectrum type, 2-76

sweep time, 2-76

center frequency step size, 2-93

### changing

instrument settings, 2-63

### channel bandwidth

setting, 2-126

### channel frequency

setting, 2-77

channel number, setting, 2-78

channel power measurement

See also CHPower

channel power measurement, 2-50, 2-79

### CHP

limit testing, 2-6, 2-7, 2-8

### CHPower

noise correction, 2-82

trigger source, 2-83

CKOR, 2-127

close spurs measurement, 2-51, 2-87

See also CSPur

code domain power measurement, 2-47, 2-74

See also CDPower

code domain power measurement method, 2-76

continuous vs. single measurement mode, 2-38

control measurement commands, 2-38

### correction

base station loss, 2-84

correction for MS RF port external attenuation, 2-85

correction for MS RF port external gain, 2-84

correction, gain

RSPur, 2-141

### CSP

limit testing, 2-9

### CSPur

trigger source, 2-91

CSPur, detector function

CSPur, 2-90

CSPur, resolution bandwidth

CSPur, 2-65, 2-81, 2-89, 2-130

CSPur, video bandwidth

CSPur, 2-90

## D

data from measurements, 2-42

default values for measurements, 2-43

### detector

monitor band/channel, 2-104, 2-108

occupied bandwidth, 2-112, 2-140

detector function, 2-90

HARMonics, 2-97

disk drive commands, 2-61

### display

reference level, 2-35

scaling, 2-35

display commands, 2-35

display, dots

RHO, 2-134, 2-135

display, length

RHO, 2-134

## E

### emissions bandwidth

occupied bandwidth, 2-112

error monitoring, 2-142

external reference, 2-121

external trigger

delay, 2-145

slope, 2-145

---

# Index

---

## F

frame trigger delay, 2-146  
frame trigger period, 2-146  
frequency  
  step size, 2-93  
  temporary center, 2-94  
frequency span  
  CHPower, 2-81  
  RCHPower, 2-131

## H

hardware status, 2-142  
HARM  
  limit testing, 2-10, 2-11, 2-12  
harmonics measurement, 2-60, 2-95  
  See also HARM

## I

input attenuation, 2-125  
input power  
  maximum, 2-125  
  range, 2-125  
inputs  
  configuration, 2-144  
inspect spur resolution bandwidth  
  out of band spurs, 2-118  
instrument configuration, 2-40  
instrument status, 2-142  
internal reference, 2-121  
IS-95A, 2-127  
IS-95B, 2-127  
IS-95C, 2-127

## J

JSTD8, 2-127

## L

limit line testing, 2-9  
limit testing  
  absolute, 2-10, 2-12  
  cdmaOne, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28, 2-29, 2-30, 2-31, 2-32, 2-33  
  CDP, 2-2, 2-3, 2-4, 2-5, 2-6  
  CFTH, 2-22, 2-24  
  CHP, 2-6, 2-7, 2-8  
  CSP, 2-9  
  EBW, 2-12, 2-13, 2-14, 2-15  
  ERHO, 2-2  
  EVM, 2-22, 2-25

FERR, 2-22, 2-26  
HARM, 2-10, 2-11, 2-12  
Limit Line Segments, 2-9  
MAGN, 2-23, 2-27  
OBW, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-19  
OOBS, 2-18, 2-19  
phase, 2-23, 2-28  
Phase, Relative, 2-2, 2-4  
RCHP, 2-19, 2-20, 2-21  
REC, 2-31, 2-32  
relative, 2-11, 2-12  
RHO, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28, 2-29, 2-30  
RSP, 2-31, 2-32, 2-33  
time offset, 2-29, 2-30  
Timing, Relative, 2-5, 2-6  
TRAN, 2-32, 2-33

## M

mass storage commands, 2-61  
maximum power to mixer, 2-66, 2-75, 2-82, 2-90, 2-98, 2-116, 2-131, 2-135, 2-140  
measurement  
  adjacent channel power ratio, 2-63  
  channel power, 2-79  
  close spurs, 2-87  
  code domain power, 2-74  
  control of, 2-38  
  harmonics, 2-95  
  modulation accuracy (rho), 2-133  
  monitor band/channel, 2-100  
  occupied BW, 2-110  
  out of band spurs, 2-115  
  receive channel power, 2-128  
  receiver spurious, 2-137  
  single/continuous, 2-38  
measurement modes  
  selecting, 2-40, 2-41  
measurements  
  adjacent channel power ratio, 2-45  
  channel power, 2-50  
  close spurs, 2-51  
  code domain power, 2-47  
  configuration, 2-42  
  getting results, 2-42  
  harmonics, 2-60  
  modulation accuracy, 2-56  
  monitor, 2-52  
  occupied BW, 2-53  
  out of band spurs, 2-54  
  receive channel power, 2-55  
  receiver spurs, 2-59

memory commands, 2-61  
method  
  monitor band/channel, 2-109  
minimum level  
  power, 2-124  
mixer  
  maximum input power, 2-66, 2-75, 2-82, 2-90, 2-98, 2-116, 2-131, 2-135, 2-140  
mixer power  
  RCHPower, 2-131  
mobile station RF port external  
  attenuation, 2-85  
mobile station RF port external  
  gain  
  correction, 2-84  
mobile station testing, 2-127  
modulation accuracy (rho)  
  measurement, 2-133  
  See also RHO  
modulation accuracy  
  measurement, 2-56  
monitor band/channel - averaging  
  state, 2-100  
monitor band/channel - average  
  count, 2-100  
monitor band/channel - averaging  
  termination control, 2-101  
monitor band/channel - band  
  method detector mode, 2-104  
monitor band/channel - band  
  method maximum hold trace,  
  2-104  
monitor band/channel - band  
  method resolution  
  bandwidth, 2-101  
monitor band/channel - band  
  method video bandwidth,  
  2-102  
monitor band/channel - channel  
  method detector mode, 2-108  
monitor band/channel - channel  
  method maximum hold trace  
  average state, 2-108  
monitor band/channel - channel  
  method resolution  
  bandwidth, 2-106  
monitor band/channel - channel  
  method video bandwidth,  
  2-107  
monitor band/channel - method  
  selection, 2-109  
monitor band/channel - transmit  
  or receive band selection,  
  2-105  
monitor band/channel  
  measurement, 2-100

---

# Index

---

- monitor band/channel
  - See also MON
- monitor measurement, 2-52
- monitoring instrument status, 2-142
- N**
- noise correction
  - CHPower, 2-82
  - RCHPower, 2-130
  - RF threshold, 2-86
- number
  - HARMonics, 2-98
- O**
- OBW
  - limit testing, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17
  - percent power, 2-113
  - trigger source, 2-114
- OBW averaging, 2-110
- occupied BW measurement, 2-53, 2-110
  - See also OBW
- OOBS
  - limit testing, 2-18, 2-19
- operation condition register, 2-142, 2-143
- operation status, 2-142
- out of band spurious - average count, 2-115
- out of band spurious - averaging state, 2-115
- out of band spurious - inspect spur resolution bandwidth, 2-118
- out of band spurs measurement, 2-54, 2-115
  - See also OOBS
- outputs
  - configuration, 2-144
- oversweep
  - OOBSpur, 2-117
- P**
- pass/fail test, 2-9
- pause
  - restart, 2-39
- pause measurement, 2-38
- percent power, OBW, 2-113
- personalities
  - selecting, 2-40, 2-41
- PKOR, 2-127
- PN offset number setting, 2-77
- power
  - % occupied power bandwidth, 2-113
- pre-amplifier
  - on/off, 2-93, 2-105, 2-108, 2-132
- R**
- RCHP
  - limit testing, 2-19, 2-20, 2-21
- RCHPower
  - integration bandwidth, 2-129
  - mixer power, 2-131
  - noise correction, 2-130
  - trigger source, 2-132
- rear panel external trigger delay, 2-145
- rear panel external trigger slope, 2-145
- receive channel power measurement
  - See also RCHPower
- receive channel power measurement, 2-55, 2-128
- receiver spurious
  - averaging termination control, 2-138
- receiver spurious - average count, 2-137
- receiver spurious - averaging state, 2-137
- receiver spurious - resolution bandwidth, 2-138
- receiver spurious - video bandwidth, 2-139
- receiver spurious measurement, 2-137
- receiver spurs measurement, 2-59
- reference
  - external, 2-121
  - internal, 2-121
- reference level, 2-35
- register
  - operation condition, 2-142, 2-143
- resolution bandwidth, 2-65, 2-81, 2-89, 2-130
- restart measurement, 2-39
- results from measurements, 2-42
- resume measurement, 2-39
- RF channel frequency, 2-77
- RF threshold
  - noise correction, 2-86
- RHO
  - limit testing, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28, 2-29, 2-30, 2-31, 2-32, 2-33
  - CFTH, 2-22, 2-24
  - EBW, 2-12, 2-13, 2-14, 2-15
  - ERHO, 2-2
  - EVM, 2-22, 2-25
  - FERR, 2-22, 2-26
  - Limit Line Segments, 2-9
  - MAGN, 2-23, 2-27
- S**
- saving traces, 2-61
- select, select
  - RSPur, 2-139
- setting default values, 2-43
- single vs. continuous measurement mode, 2-38
- span
  - CHPower, 2-81
  - MONitor channel/band, 2-105, 2-109
  - RCHPower, 2-131
- spectrum type
  - RHO, 2-136
- spur range
  - OOBSpur, 2-117
- standard, selecting for CDMA, 2-127
- start measurement, 2-39
- state
  - changing, 2-63
- status subsystem, 2-142
- storing
  - traces, 2-61
- sweep time
  - HARMonics, 2-99
  - RHO, 2-136
- system configuration, 2-144
- T**
- table
  - bandwidth
    - OOBSpur, 2-118
  - center frequency
    - OOBSpur, 2-119
  - detector
    - OOBSpur, 2-119
  - frequency span
    - OOBSpur, 2-120
  - temporary center frequency setting, 2-94
- test limits, 2-9
  - absolute, 2-10, 2-12
  - cdmaOne, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26, 2-27, 2-28, 2-29, 2-30, 2-31, 2-32, 2-33
  - CFTH, 2-22, 2-24
  - EBW, 2-12, 2-13, 2-14, 2-15
  - ERHO, 2-2
  - EVM, 2-22, 2-25
  - FERR, 2-22, 2-26
  - Limit Line Segments, 2-9
  - MAGN, 2-23, 2-27

---

# Index

---

OBW, [2-15](#), [2-16](#), [2-17](#), [2-19](#)  
phase, [2-23](#), [2-28](#)  
Phase, Relative, [2-2](#), [2-4](#)  
REC, [2-31](#), [2-32](#)  
relative, [2-11](#), [2-12](#)  
time offset, [2-29](#), [2-30](#)  
Timing, Relative, [2-5](#), [2-6](#)  
TRAN, [2-32](#), [2-33](#)  
threshold  
  power, [2-123](#)  
threshold value, CDPower, [2-75](#)  
trace averaging, [2-66](#), [2-113](#)  
traces  
  storing, [2-61](#)  
transmit/receive

  monitor band/channel, [2-105](#)  
trigger  
  burst level, [2-147](#)  
  commands, [2-145](#)  
  delay, [2-145](#)  
  external, [2-145](#)  
  frame delay, [2-146](#)  
  frame period, [2-146](#)  
  slope, [2-145](#)  
trigger source  
  ACP, [2-72](#)  
  cdmaOne, [2-92](#), [2-99](#), [2-120](#),  
    [2-141](#)  
  CSPur, [2-91](#)  
  demodulation, [2-92](#)

HARMonics, [2-99](#)  
OBW, [2-114](#)  
OOBSpurs, [2-120](#)  
RSPur, [2-141](#)  
triggering  
  CHPower, [2-83](#)  
  RCHPower, [2-132](#)

**V**  
video bandwidth, [2-90](#)  
view commands, [2-35](#)

**Y**  
y-axis scaling, [2-35](#)