User Manual

Tektronix

WCA230A & WCA280A Option 26
1xEV-DO Analysis Software

071-1371-00

This document supports software version 1.00 and above.

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Preface

This manual provides operating instructions for the WCA230A & WCA280A Portable Wireless Communication Analyzers Option 26 1xEV-DO analysis software.

About This Manual

This manual is composed of the following sections:

- *Getting Started* provides a product description.
- *Operating Basics* describes the measurement functions added by the option and explains how to set up the analyzer for each measurement mode.
- *Syntax and Commands* lists all command subsystems and describes all programming commands.
- *Appendices* provides additional information including specifications, factory default settings, and SCPI conformance information.

Related Manuals

The following related documents are also available:

- The *WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual* (Tektronix part number 071-1253-xx) contains a tutorial that describes how to operate the analyzer. It also includes an in-depth discussion on how to more completely use the analyzer features.
- The *WCA230A & WCA280A Portable Wireless Communication Analyzers Programmer Manual* (Tektronix part number 071-1255-xx) contains an alphabetical listing of the programming commands and other information related to controlling the analyzer over the GPIB interface.

Contacting Tektronix

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Getting Started

Getting Started

This section provides an overview of the product capabilities.

Product Description

The WCA230A & WCA280A Wireless Communication Analyzers Option 26 is an analysis software option that adds transmitter measurements capability for 1xEV-DO forward link (3GPP2 C.S0032) and reverse link (3GPP2 C.S0033) to the analyzers.

You can perform the following 1xEV-DO measurements:

- Modulation accuracy
- Code domain power
- Channel power
- OBW (occupied bandwidth)
- ACPR (Adjacent channel power ratio)
- Spectrum emission mask
- Gated output power (forward link only)
- Intermodulation
- CCDF
- Pilot to code channel

In addition, the option provides pre-defined measurement limits for the ACPR, spectrum emission mask, and gated output power measurements. Using these measurement limits, you can easily check that the input signal meets the specification.

Operating Basics

Functional Overview

This section provides an overview of the Option 26 measurement functions.

Figure 2-1 shows the measurement functions and how to access each measurement function from the front-panel menu key.

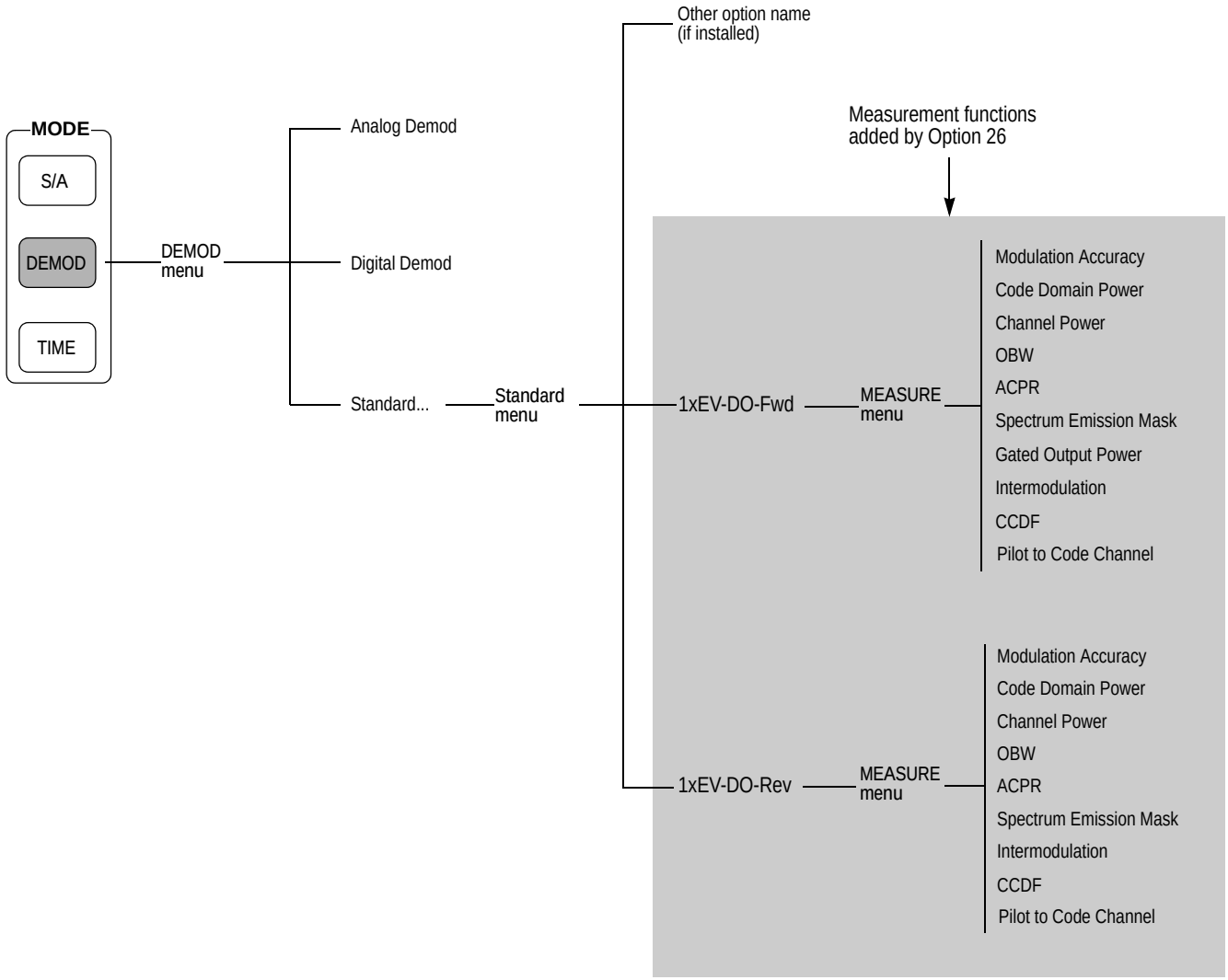

Figure 2-1: Menu diagram showing measurement functions available in Option 26

Accessing a Measurement Function

All of the measurement functions available in Option 26 can be selected from the DEMOD (demodulation) mode.

Perform the following procedure to access any of the measurement functions:

1. Press the **DEMOD** menu key to open the DEMOD menu.
2. Press the **Standard...** side key to open the Standard menu.
3. Press the **1xEV-DO Fwd** or **1xEV-DO Rev** side key to open the MEASURE menu for the standard.
4. Press one of the side keys to select the measurement that you want to perform. If the desired measurement is not displayed on the current MEASURE menu, press the **Go to page 2 (of 2)** side key to open the next page.
5. If needed, set frequency, span, and amplitude of the input signal.

   Refer to the *WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual* for information on how to set frequency, span, and amplitude.

1xEV-DO Forward Link Measurements

This section describes the functions and features of the 1xEV-DO forward link measurements. Each measurement description contains general information about the measurement, descriptions of the measurement displays and functions available through menu selections.

The information is divided into the following subsections:

- Modulation accuracy measurement
- Code domain power measurement
- Channel power measurement
- OBW measurement
- ACPR measurement
- Spectrum emission mask measurement
- Gated output power measurement
- Intermodulation measurement
- CCDF measurement
- Pilot to code channel measurement

NOTE. *If you are not familiar with the operation of the WCA230A/WCA280A, refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *before reading this section.*

Modulation Accuracy Measurement

The modulation accuracy measurement measures Rho (ratio of the correlated power to the total power), EVM (Error Vector Magnitude), magnitude error, phase error, frequency error, and origin offset. Figure 2-2 shows an example of the modulation accuracy measurement.

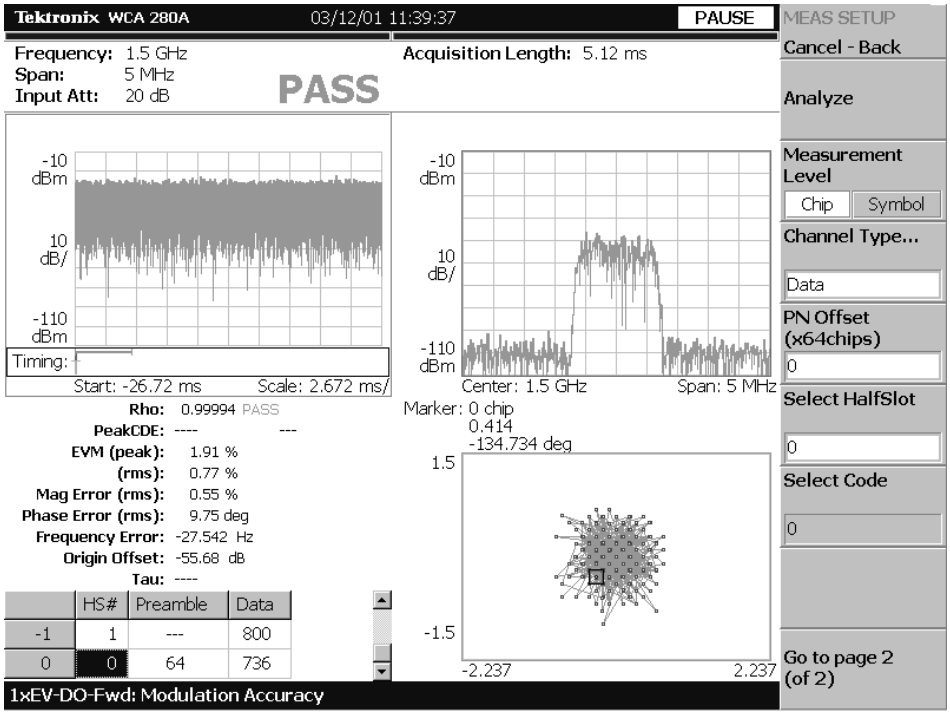

Figure 2-2: Modulation accuracy measurement

Display Elements

The following information is shown in the modulation accuracy measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Subview:** This view can contain spectrum, EVM, magnitude error, phase error, IQ power graph, and constellation.
- **Main view:** This view can contain modulation accuracy, EVM, magnitude error, phase error, and symbol table.

The display contents in each view can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-6 for more information about the VIEW DEFINE menu.

Setting the Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition (chips):** Sets the acquisition length in chips. The range depends on the acquisition memory size and the span setting.
- **Acquisition Length (s):** Displays the acquisition length in seconds.
- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Analysis Interval:** Sets the analysis interval in half slots. The range depends on the acquisition length setting.
- **Analysis Offset:** Sets the start point of the analysis with respect to the left end of the acquisition length in half slots.
- **Spectrum Length:** Displays the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the timing parameters.*

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Measurement Level:** Selects the measurement level for the measurement. You can select Chip (chip level) or Symbol (symbol level). When Overall is selected in the Channel Type menu item, you cannot select Symbol.
- **Channel Type...:** Select the channel type to be measured. When Symbol is selected in the Measurement Level menu item, you can select MAC, Pilot, Data, or Preamble. When Chip is selected in the Measurement Level menu item, you can select Overall, MAC, Pilot, Data, or Preamble.
- **PN Offset:** Sets the PN offset in units of 64 chips. You can set the value from 0 to 511.
- **Select HalfSlot:** Sets the half slot for the measurement.
- **Select Code:** Sets the code in the half slot for the measurement. This setting is only available when Measurement Level is set to Symbol.
- **Active Channel Threshold:** Sets the active channel threshold level (in dB from the pilot) used for deciding whether a code channel is active or inactive. You can set the value from -100 dB to 0 dB.

- **Measurement Filter...:** Selects the measurement filter to apply when calculating EVM and other modulation accuracy results. You can select None, cdma2000, or cdma2000+EQ (equalizer).
- **IQ Swap:** Sets whether to swap the I and Q data streams before demodulation.
- **Limits...:** Sets the pass/fail limits for the modulation accuracy measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the view contents in the overview, subview, and main view using the VIEW DEFINE menu. Press the View: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Selects the view style on the screen. You can select Single or Multi.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Subview Content...:** Selects a view to display in the subview:
  - **Spectrum:** Displays spectrum of the measured signal.
  - **EVM:** Displays changes of EVM (Error Vector Magnitude) over time.
  - **MagErr:** Displays changes of magnitude error over time.
  - **PhaseErr:** Displays changes of phase error over time.
  - **IQ Power Graph:** Displays changes of I and Q powers over time. Refer to *IQ Power Graph Display* on page 2-19.
  - **Constellation:** Displays the signal as an I-Q constellation.
- **Mainview Content...:** Selects a view to display in the main view. You can select Modulation Accuracy, EVM, MagErr, PhaseErr, or Symbol Table. Refer to *Scale and Format in the Main View* on page 2-7 for more information about the views.
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Scale and Format in the Main View

This subsection describes the scale settings and display format in the main view.

Modulation Accuracy Display. When you select Mainview Content from the VIEW DEFINE menu and then select Modulation Accuracy from the Mainview Content submenu, an IQ rectangular graph and the measured value for Rho, peak code domain error, rms and peak EVM, magnitude error, phase error, frequency error, IQ origin offset, and Tau (timing error) are displayed (see Figure 2-3).The peak code domain error is displayed only when the Measurement Level menu item is set to Symbol, and Tau is displayed only when an external trigger signal is applied.

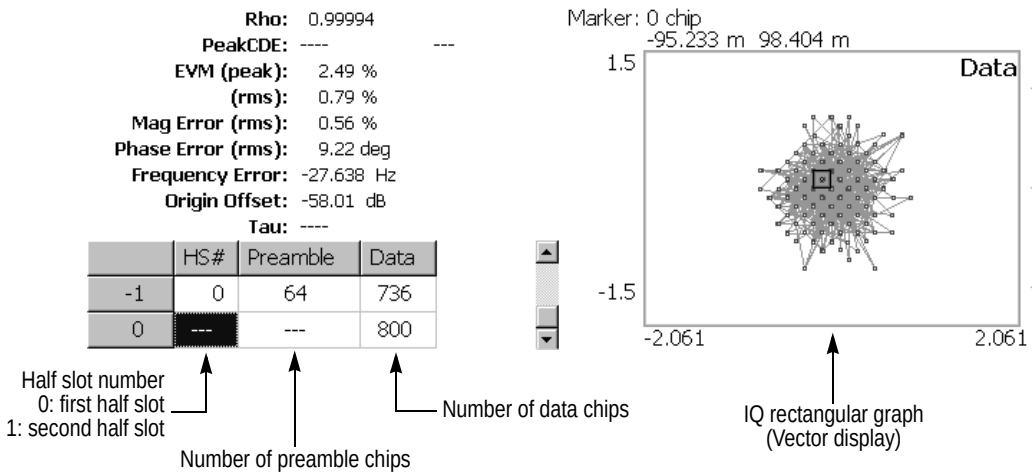

Figure 2-3: Modulation accuracy display

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Measurement Content...:** Selects vector or constellation display.

  Vector: Selects vector display. A signal represented with phase and amplitude is displayed in rectangular (I and Q) coordinates. The red point indicates the symbol position on the measured signal, and the yellow trace indicates the locus of the signal between symbols.

  Constellation: Selects constellation display. It is the same as the vector display, except that only symbols of the measured signal are indicated in red, and the locus between symbols is not shown. The cross marks indicate symbol positions of an ideal signal.

NOTE. *I and Q signals are normalized to prevent the scale from changing when signal attenuation changes.*

EVM Display. When you select Mainview Content from the VIEW DEFINE menu and then select EVM from the Mainview Content submenu, changes of EVM (Error Vector Magnitude) over time are displayed for each chip or symbol (see Figure 2-4).

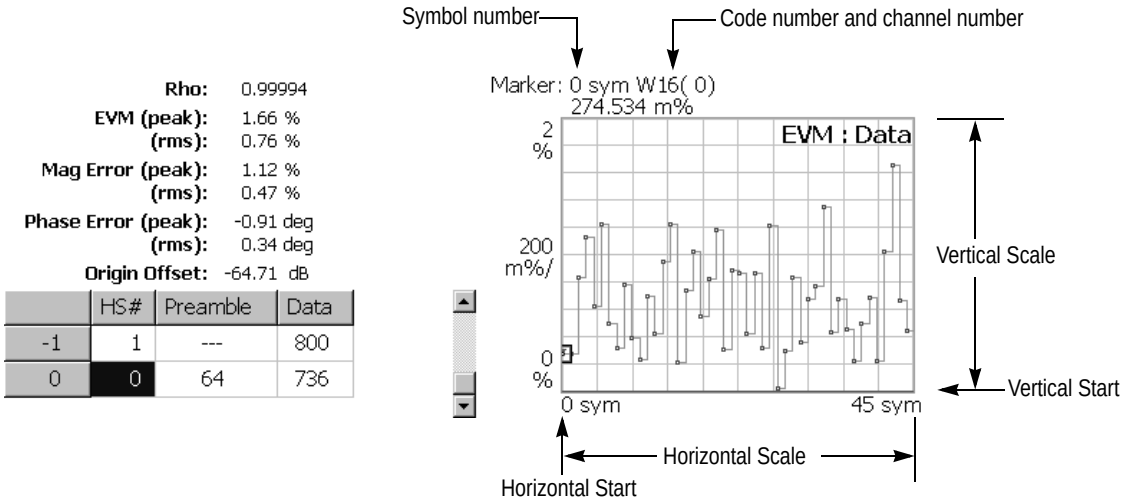

Figure 2-4: EVM display

You can set the scale of the display using the VIEW SCALE menu. Press the SCALE key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the chip number or symbol number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Start:** Sets the minimum (bottom) value of the vertical axis.
- **Full Scale:** Sets the scale of vertical axis to the default full-scale value.
- **Measurement Content...:** Selects the display content in the main view. You can select EVM, MagErr, or PhaseErr. This selection can also be made from Mainview Content in the VIEW DEFINE menu.

MagErr Display. When you select Mainview Content from the VIEW DEFINE menu and then select MagErr from the Mainview Content submenu, changes of magnitude error over time are displayed for each chip or symbol (see Figure 2-5).

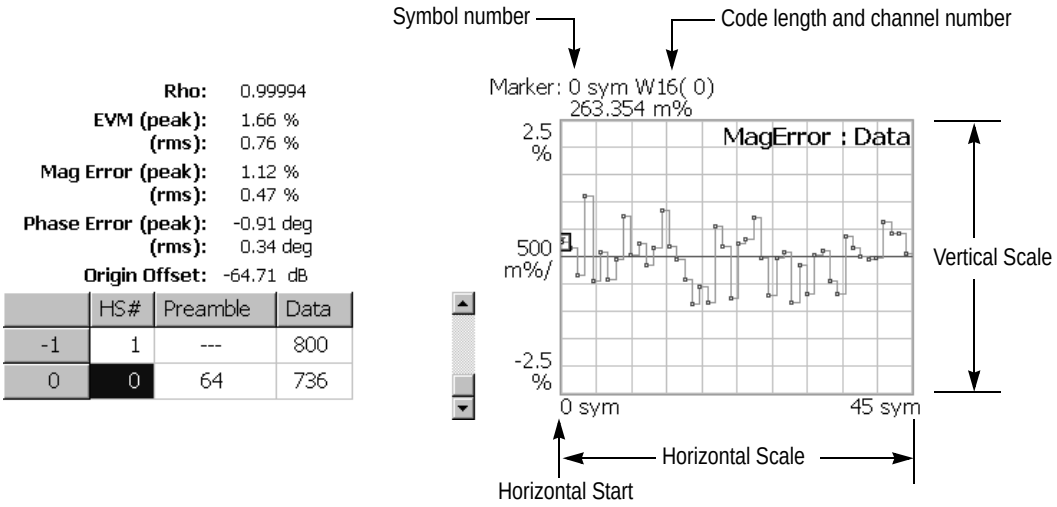

Figure 2-5: MagErr display

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis automatically to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the chip number or symbol number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Offset:** Sets the offset value of the vertical axis. You can set the value from -200% to 200%.
- **Full Scale:** Sets the scale of vertical axis to the default full-scale value.
- **Measurement Content...:** Selects the display content in the main view. You can select EVM, MagErr, or PhaseErr. This selection can also be made from Mainview Content in the VIEW DEFINE menu.

PhaseErr Display. When you select Mainview Content from the VIEW DEFINE menu and then select PhaseErr from the Mainview Content submenu, changes of phase error over time are displayed for each chip or symbol (see Figure 2-6).

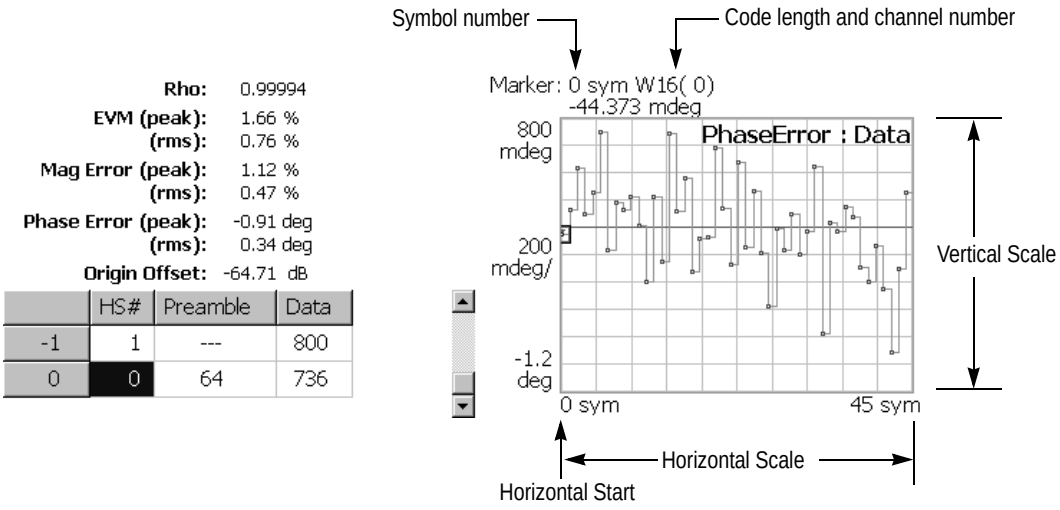

Figure 2-6: PhaseErr display

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis automatically to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the chip number or symbol number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Offset:** Sets the offset value of the vertical axis. You can set the value from -450 to 450 degrees.
- **Full Scale:** Sets the scale of vertical axis to the default full-scale value.
- **Measurement Content...:** Selects the display content in the main view. You can select EVM, MagErr, or PhaseErr. This selection can also be made from Mainview Content in the VIEW DEFINE menu.

Symbol Table Display. When you select Mainview Content from the VIEW DEFINE menu and then select Symbol Table from the Mainview Content

submenu, the symbol table is displayed (see Figure 2-7). This display is only available when the Measurement Level menu item is set to Symbol.

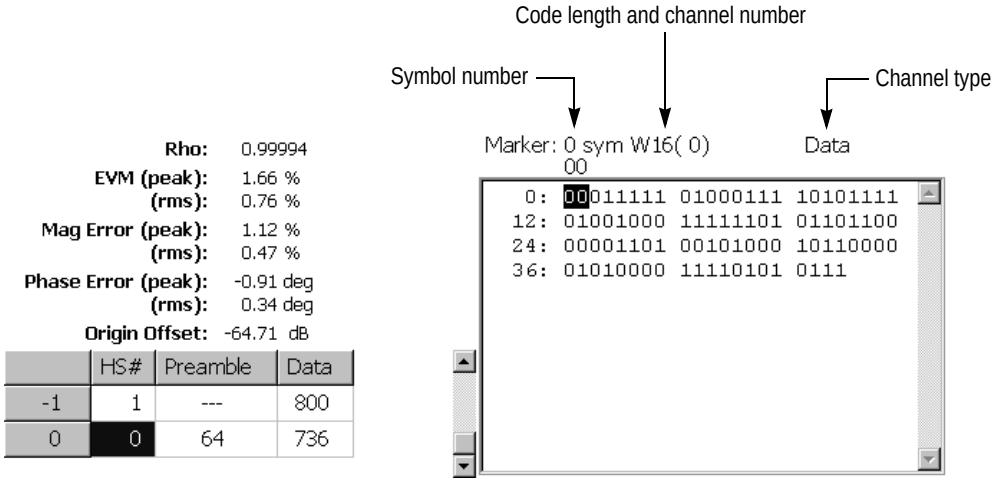

Figure 2-7: Symbol table display

You can set the radix for the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Radix...:** Sets the radix for displaying the table. You can select Hex (hexadecimal), Oct (octal), or Bin (binary).

Code Domain Power Measurement

The code domain power measurement measures the distribution of signal power across the set of code channels, normalized to the total signal power. This measurement allows you to verify that each code channel is operating at its proper level. Figure 2-8 shows an example of the code domain power measurement.

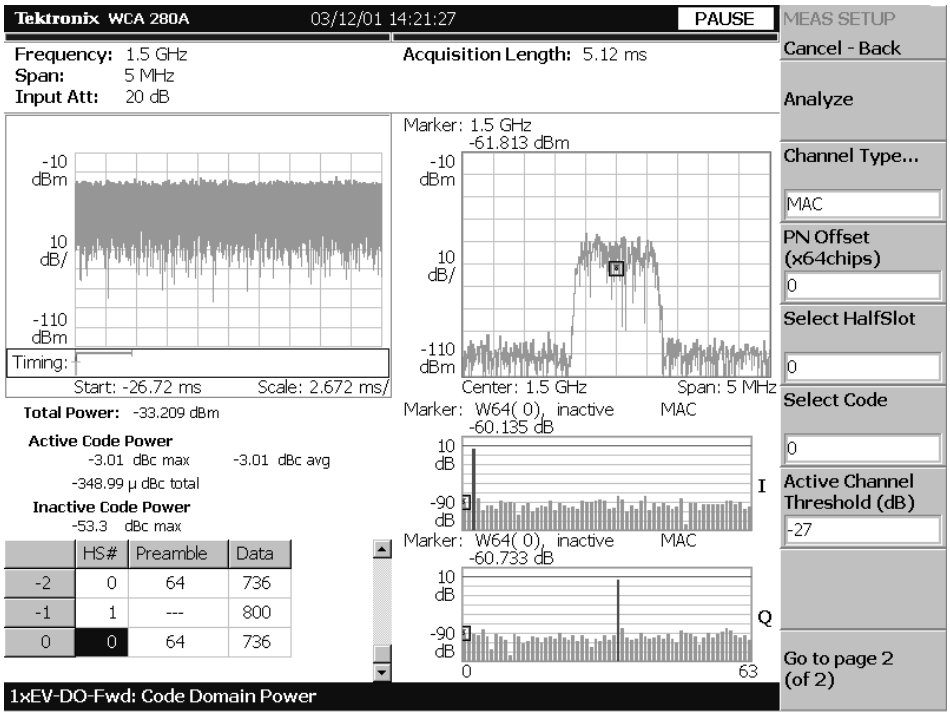

Figure 2-8: Code domain power measurement

Display Elements

The following information is shown in the code domain power measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Subview:** This view can contain spectrum, EVM, magnitude error, phase error, IQ power graph, and constellation.
- **Main view:** This view can contain code domain power, power codogram, and IQ power graph.

The display contents in each view can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-14 for more information about the VIEW DEFINE menu.

Setting the Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition Length (chips):** Sets the acquisition length in chips. The range depends on the acquisition memory size and the span setting.
- **Acquisition Length (s):** Displays the acquisition length in seconds.
- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Analysis Interval:** Sets the analysis interval in half slots. The range depends on the acquisition length setting.
- **Analysis Offset:** Sets the start point of the analysis with respect to the left end of the acquisition length in half slots.
- **Spectrum Length:** Display the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the timing parameters.*

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Measurement Level:** Selects the measurement level for the measurement. You can select Chip (chip level) or Symbol (symbol level). This setting is only available when Mainview Content in the VIEW DEFINE menu is set to IQ Power Graph.
- **Channel Type...:** Selects the channel type to be measured. You can select MAC, Pilot, Data, or Preamble.
- **PN Offset:** Sets the PN offset in units of 64 chips. You can set the value from 0 to 511.
- **Select HalfSlot:** Sets the half slot for the measurement.
- **Select Code:** Sets the code in the half slot for the measurement.
- **Active Channel Threshold:** Sets the active channel threshold level (in dB from the pilot) used for deciding whether a code channel is active or inactive. You can set the value from -100 dB to 0 dB.

- **Measurement Filter...:** Selects the measurement filter to apply when calculating code domain power results. You can select None, cdma2000, or cdma2000+EQ (equalizer).
- **IQ Swap:** Sets whether to swap the I and Q data streams before demodulation.
- **Limits...:** Sets the pass/fail limits for the code domain power measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the contents in the overview, subview, and main view using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Selects the view style on the screen. You can select Single or Multi.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Subview Content...:** Selects a view to display in the subview:
  - **Spectrum:** Displays spectrum of the input signal.
  - **EVM:** Displays changes of EVM (Error Vector Magnitude) over time.
  - **MagErr:** Displays changes of magnitude error over time.
  - **PhaseErr:** Displays changes of phase error over time.
  - **IQ Power Graph:** Displays changes I and Q powers over time. Refer to *IQ Power Graph Display* on page 2-19.
  - **Constellation:** Displays the signal as an I-Q constellation.
- **Mainview Content...:** Selects a view to display in the main view. You can select Code Domain Power, Power Codogram, or IQ Power Graph. Refer to *Scale and Format in the Main View* on page 2-15 for more information about the views.
- **Code Order...:** Sets the way that code channels are arranged on the display. You can select Hadamard or BitReverse.
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Scale and Format in the Main View

This subsection describes the scale settings and display format in the main view.

Code Domain Power Display. When you select Mainview Content from the VIEW DEFINE menu and then select Code Domain Power from the Mainview Content submenu, the code domain power for code channels is displayed (see Figure 2-9).

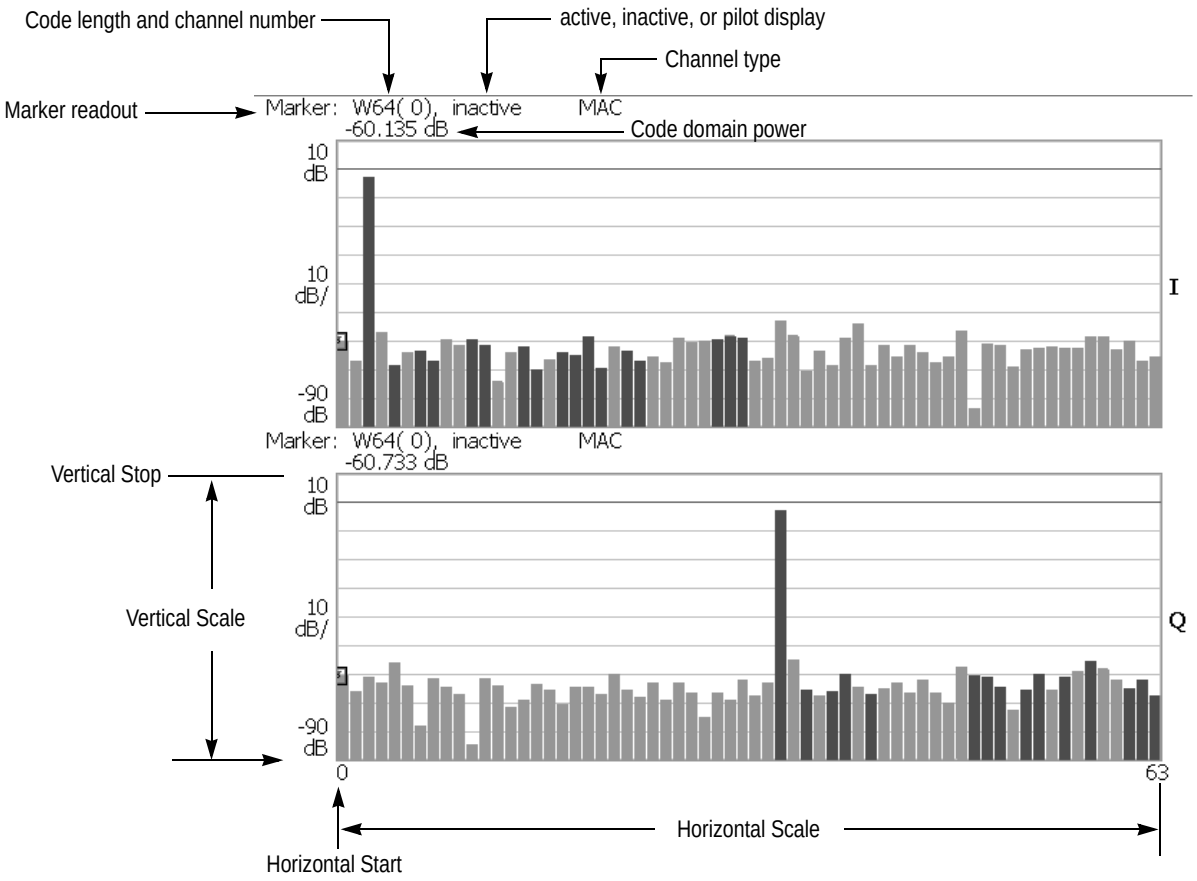

Figure 2-9: Code domain power display

In the code domain power display, the I and Q power bars are distinguished by using different colors as follows:

- Blue: pilot channel
- Red: active channel
- Yellow: inactive channel

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis automatically to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis. The range is dependent on the Channel Type setting.
- **Horizontal Start:** Sets the channel number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis. You can set the value from 100 μdB to 100 dB.
- **Vertical Stop:** Sets the maximum (top) value of the vertical axis. You can set the value from -100 dB to 100 dB.
- **Full Scale:** Sets the scale of the vertical axis to the default full-scale value.
- **Y Axis...:** Selects whether to represent the vertical (amplitude) axis with relative values or absolute values. When you select Relative, the vertical axis represents the power relative to the total power of all channels. When you select Absolute, the vertical axis represents the absolute power of each channel.
- **Graph Number:** Selects the number of graphs to be displayed in the screen. You can select 1 or 2.
- **View Data...:** Sets which channels to display when 1 is selected in the Graph Number menu item. You can select I, Q, or IandQ.

Power Codogram Display. When you select Mainview Content from the VIEW DEFINE menu and then select Power Codogram from the Mainview Content submenu, the code domain power is displayed in spectrogram (see Figure 2-10).

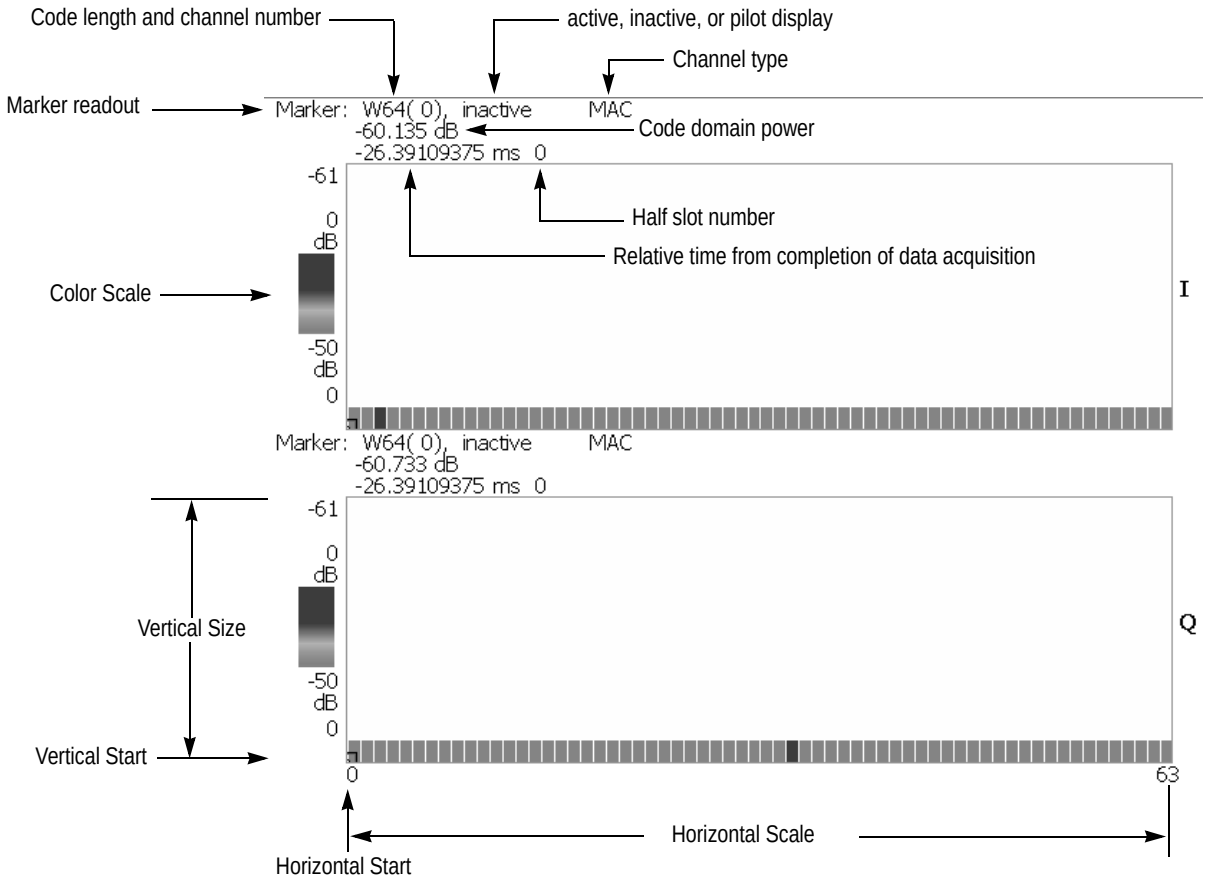

Figure 2-10: Power codogram display

You can set the scale of the display using the VIEW SCALE menu. Press the SCALE key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis. The range is dependent on the Channel Type setting.
- **Horizontal Start:** Sets the channel number of the first (left) value of the horizontal axis.
- **Vertical Size:** Sets the scale of the vertical axis.

- **Vertical Start:** Sets the frame value at the bottom of the vertical axis.
- **Color Scale:** Sets the scale (the value separating the minimum power value from the maximum power value) of the color axis. The choices are 5, 10, 20, and 50 dB.
- **Color Stop:** Sets the stop value of the color axis.
- **Full Scale:** Sets the maximum value of the color axis to the reference level.
- **Y Axis...:** Selects whether to represent the Y (color) axis with relative values or absolute values. When you select Relative, the Y axis represents the power relative to the total power of all channels. When you select Absolute, the Y axis represents the absolute power of each channel.
- **Graph Number:** Selects the number of graphs to be displayed in the screen. You can select 1 or 2.
- **View Data...:** Sets which channels to display when 1 is selected in the Graph Number menu item. You can select I, Q, or IandQ.

IQ Power Graph Display. When you select Mainview Content from the VIEW DEFINE menu and then select IQ Power Graph from the Mainview Content submenu, I and Q powers over time are displayed for each chip or symbol (see Figure 2-11).

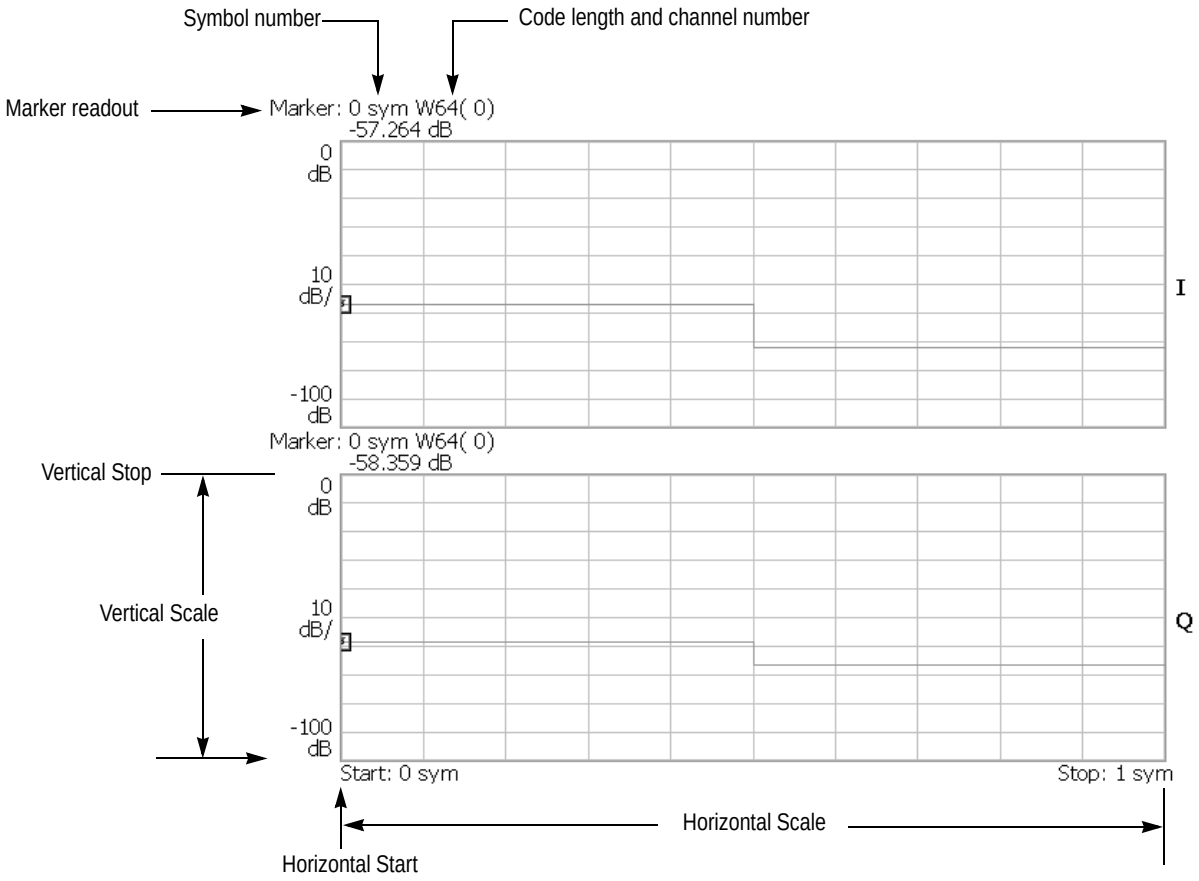

Figure 2-11: IQ power graph display

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis automatically to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the start chip or symbol number of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis. You can set the value from 100 µdB to 100 dB.

- **Vertical Stop:** Sets the stop value of the vertical axis. You can set the value from -100 dB to 100 dB.
- **Full Scale:** Sets the scale of the vertical axis to the default full scale value.
- **Y Axis...:** Selects whether to represent the vertical (amplitude) axis with relative values or absolute values. When you select Relative, the vertical axis represents the power relative to the total power of all channels. When you select Absolute, the vertical axis represents the absolute power of each channel.
- **Graph Number:** Selects the number of graphs to be displayed in the screen. You can select 1 or 2.
- **View Data...:** Sets which channels to display when 1 is selected in the Graph Number menu item. You can select I, Q, or IandQ.

Channel Power Measurement

The channel power measurement measures the channel power within a specified bandwidth and the power spectral density in dBm/Hz. Figure 2-12 shows an example of the channel power measurement.

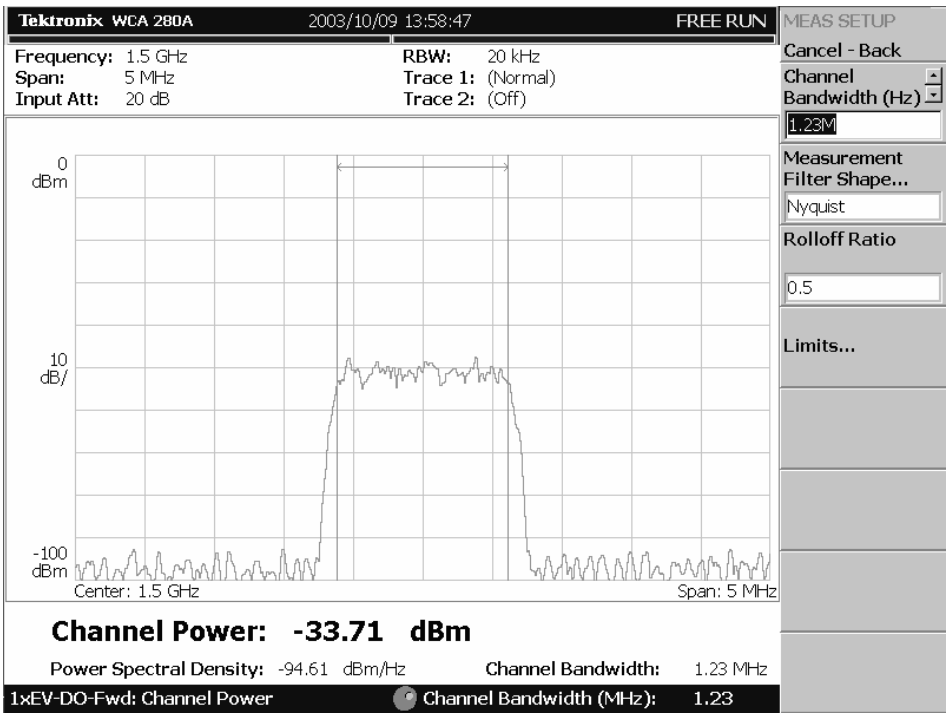

Figure 2-12: Channel power measurement

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Channel Bandwidth**: Sets the frequency range for the measurement.
- **Measurement Filter Shape**: Sets the filter to be used for the measurement. You can select Rect (Rectangular), Gaussian, Nyquist, or Root Nyquist.
- **Rolloff Ratio**: Enters the rolloff ratio when the Nyquist or Root Nyquist filter is selected. You can set the value from 0.0001 to 1. The default value is 0.5.
- **Limits...**: Sets the pass/fail limit for the channel power measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for information about the scale settings for the display.*

OBW Measurement

The OBW (Occupied Bandwidth) measurement measures the frequency bandwidth, using the ratio you specify for carrier signal power/power within the span setting. Figure 2-13 shows an example of the OBW measurement.

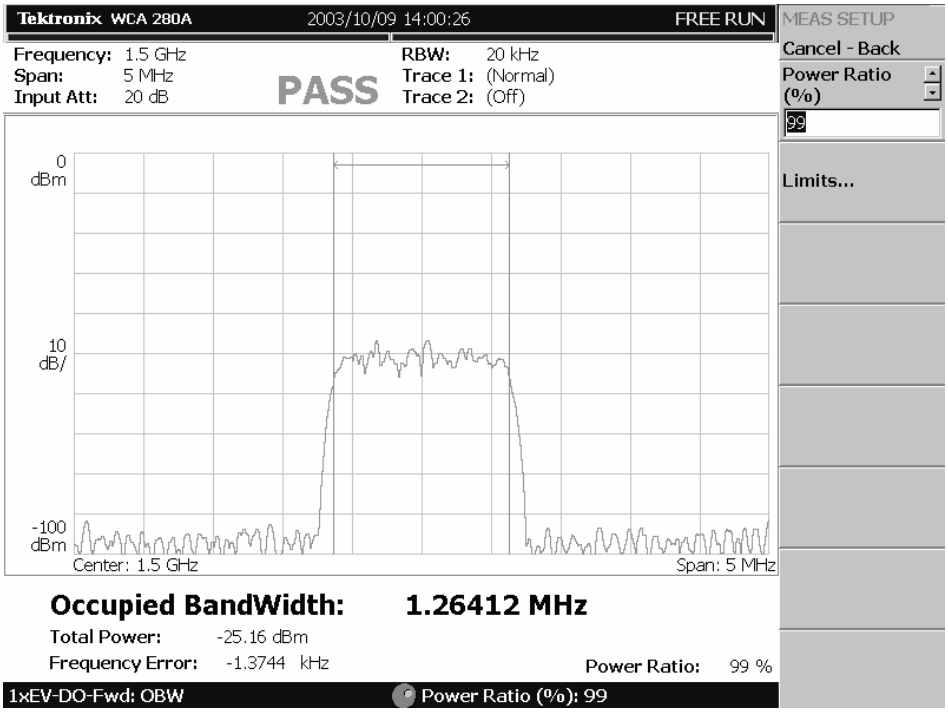

Figure 2-13: OBW measurement

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Power Ratio**: Specifies the power ratio of the carrier and span regions for calculating OBW. You can set the value from 80 to 99.99%. The default value is 99%.
- **Limits...**: Sets the pass/fail limits for the OBW measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for information about the scale settings for the display.*

ACPR Measurement

The ACPR (Adjacent Channel Power Ratio) measurement measures the ratio of carrier signal power to the signal power in channels specified by limits. Figure 2-14 shows an example of the ACPR measurement.

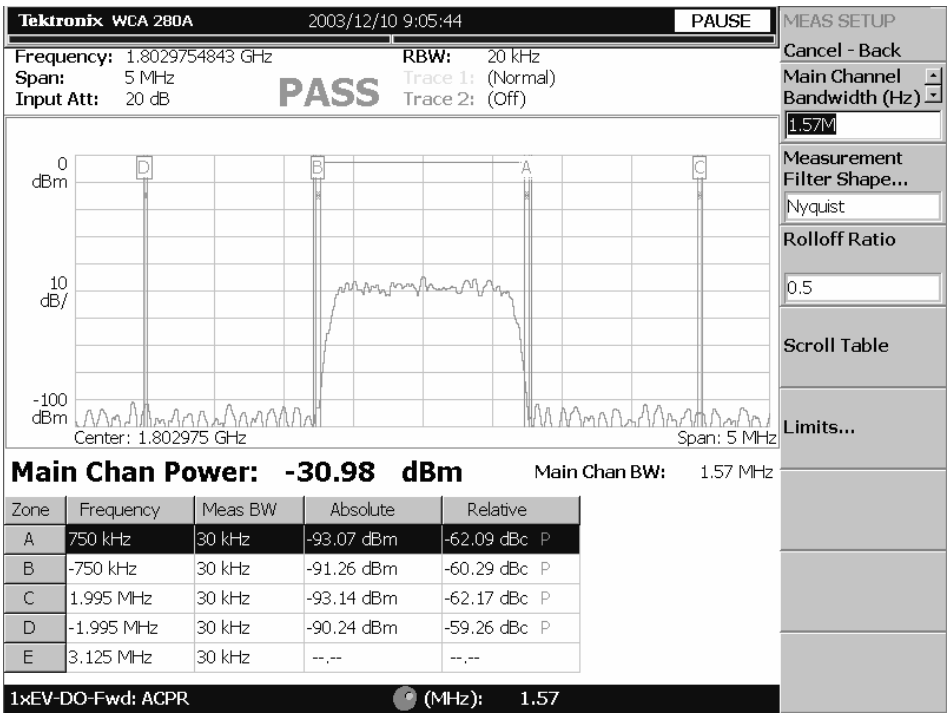

Figure 2-14: ACPR measurement

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Main Channel Bandwidth**: Sets the bandwidth of the main channel.
- **Measurement Filter Shape...:** Sets the filter to be used for the measurement. You can select Rect (Rectangular), Gaussian, Nyquist, or Root Nyquist.
- **Scroll Table**: Scrolls the table displayed in the view.
- **Limits:** Sets the pass/fail limit for the ACPR measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for information about the scale settings for the display.*

Spectrum Emission Mask Measurement

The spectrum emission mask measurement verifies that the base station is not transmitting excessive power outside of its designated channel. Since the Option 26 provides the pre-defined measurement limits for each band class, you can perform pass/fail evaluations easily. Figure 2-15 shows an example of the spectrum emission mask measurement.

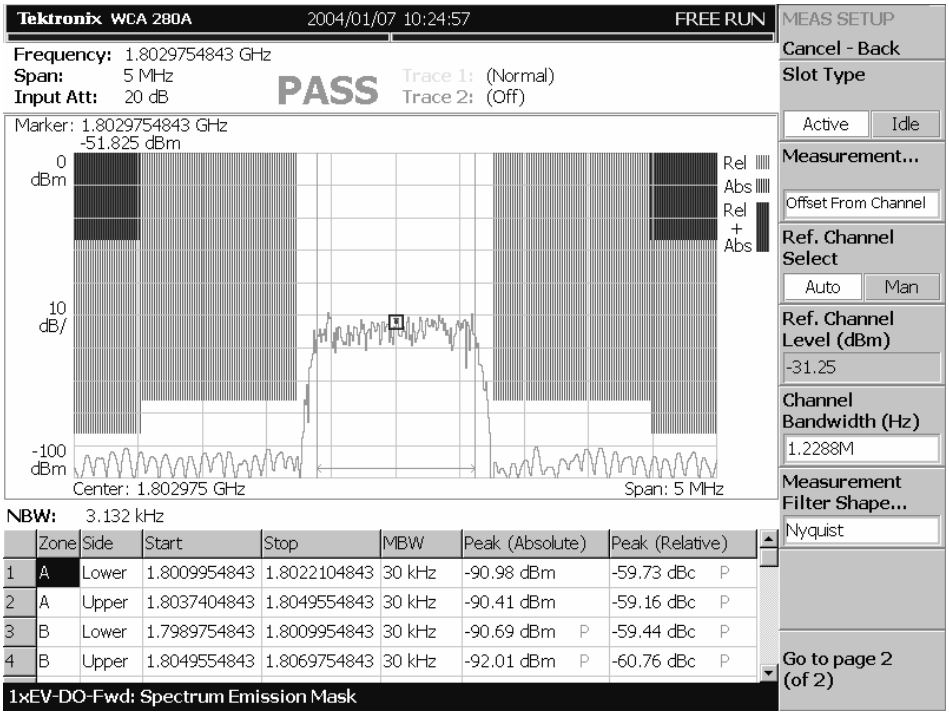

Figure 2-15: Spectrum emission mask measurement

NOTE. *When performing this measurement, be sure to apply a continuous active slot signal or a continuous idle slot signal.*

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Slot Type**: Selects the slot type to be measured. You can select Active or Idle. For Active, the total power of the Pilot, MAC, and Data channels is measured. For Idle, the burst power of the Pilot and MAC channels is measured.

  The displayed menu items change depending on which slot type is selected.

When Active is selected:

- **Measurement...:** Sets the limit table used for limit testing. You can select Offset From Channel or Inband Spurious. For Offset From Channel, frequency zones are specified by the difference from the center frequency. For Inband Spurious, frequency zones are specified by the absolute frequency values.
- **Ref. Channel Select:** Selects the reference mode used to measure the spectrum emission level. You can select Auto or Man (manual). For Auto, the reference channel level is measured from the input signal for the specified channel bandwidth. For Man, you can set the reference channel level in the Ref. Channel Level menu item.
- **Ref. Channel Level:** Sets the reference channel level used to measure the spectrum emission level. You can set the value from -150 dBm to 30 dBm. This setting is only available when Ref. Channel Select is set to Man (manual).
- **Channel Bandwidth:** Sets the channel bandwidth for the measurement.
- **Measurement Filter Shape...:** Sets the filter to be used for the measurement. You can select Rect (Rectangular), Gaussian, Nyquist, or Root Nyquist. This setting is only available when Ref. Channel Select is set to Auto.
- **Rolloff Ratio:** Enters the rolloff ratio when the Nyquist or Root Nyquist filter is selected. You can set the value from 0.0001 to 1. The default value is 0.5. This setting is only available when Ref. Channel Select is set to Auto.
- **Limits...:** Sets the pass/fail limits for the spectrum emission mask measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.
- **Scroll Table:** Scrolls the table displayed in the view.

When Idle is selected:

NOTE. *In this measurement, you cannot edit a frequency mask for trigger.*

- **Measurement...:** Sets the limit table used for limit testing. You can select Offset From Channel or Inband Spurious. For Offset From Channel, frequency zones are specified by the difference from the center frequency. For Inband Spurious, frequency zones are specified by the absolute frequency values.
- **Gate Length:** Sets the gate length to be measured. You can set the value from 180 µs to 840 µs.
- **Burst Sync...:** Sets the burst point to be measured. You can select Rising Edge, Mid Point, or Trigger Position. This setting is only available when Slot Type is set to Idle.

- **Ref. Channel Select:** Selects the reference mode used to measure the spectrum emission level. You can select Auto or Man (manual). For Auto, the reference channel level is measured from the input signal for the specified channel bandwidth. For Man, you can set the reference level in the Ref. Channel Level menu item.
- **Ref. Channel Level:** Sets the reference channel level used to measure the spectrum emission level. You can set the value from -150 dBm to 30 dBm. This setting is only available when Ref. Channel Select is set to Man (manual).
- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Limits...:** Sets the pass/fail limits for the spectrum emission mask measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.
- **Scroll Table:** Scrolls the table displayed in the view.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for information about the scale settings for the display.*

Setting the Timing Parameters

When Idle is selected as the slot type, you can set the following timing parameter using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition History:** Specifies the block number to be analyzed. Block number “0” corresponds to the latest block.

Display Elements

When Idle is selected as the slot type, the following information is shown in the spectrum emission measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Main view:** This view can contain spectrum.

The display content in the overview can be changed using the VIEW DEFINE menu. Refer to the next subsection for more information about the VIEW DEFINE menu.

Changing the View Contents

When Idle is selected as the slot type, you can change the contents in the overview using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Sets the view style on the screen. You can select Single or Multi.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (spectrum).
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Gated Output Power Measurement

The Gated Output power measurement measures the total RF power in a selected channel. Figure 2-16 shows an example of the gated output power measurement.

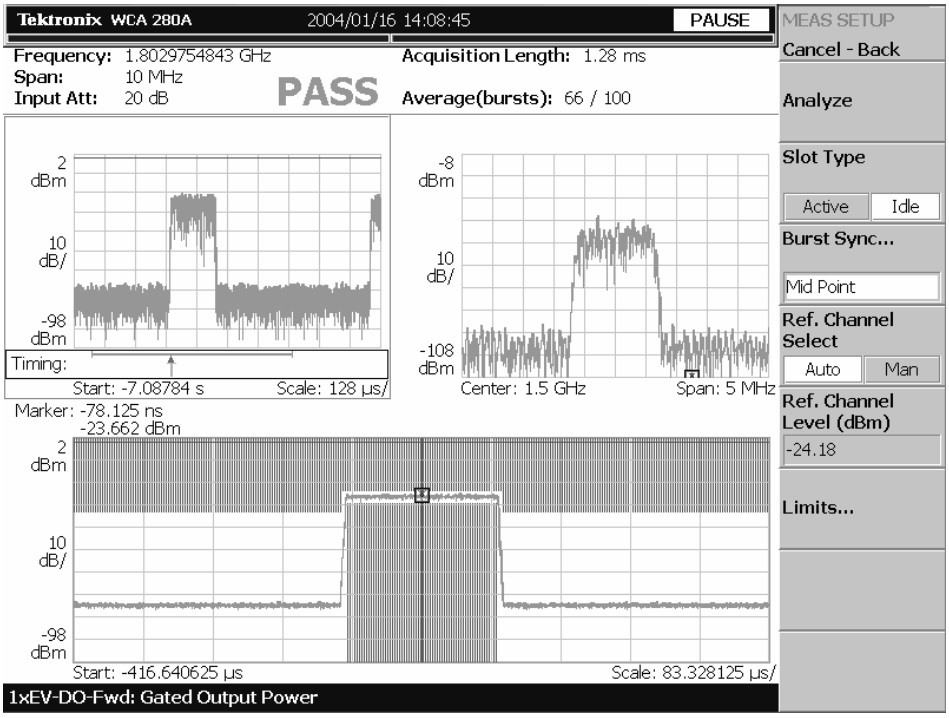

Figure 2-16: Gated output power measurement

Display Elements

The following information is shown in the gated output power measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Subview:** This view can contain spectrum.
- **Main view:** This view can contain power versus time.

The display content in the overview can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-29 for more information about the VIEW DEFINE menu.

Setting the Timing Parameters

You can set the following timing parameter using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition History:** Specifies the block number to be analyzed. Block number “0” corresponds to the latest block.

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

In the MEAS SETUP menu, you can set the following parameters:

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Slot Type:** Selects the slot type to be measured. You can select Active or Idle. For Active, the total power of the Pilot, MAC, and Data channels is measured. For Idle, the burst power of the Pilot and MAC channels is measured.

NOTE. *When you select Idle, the trigger souse need to be set to Level. For information about setting the trigger souse, refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual.

- **Burst Sync...:** Sets the burst point to be measured. You can select Rising Edge, Mid Point, or Trigger Position. This setting is only available when Idle is selected as the slot type.
- **Burst Offset:** Sets the burst offset between the trigger position and the burst position for the measurement. You can set the value from -1 ms to 1 ms. This setting is only available when Burst Sync is set to Trigger Position.
- **Ref. Channel Select:** Selects the reference mode used to measure the power level. You can select Auto or Man (manual). For Auto, the reference channel level is measured from the input signal. For Man, you can set the reference channel level in the Ref. Channel Level menu item.
- **Ref. Channel Level:** Sets the reference channel level used to measure the power level. You can set the value from -150 dBm to 30 dBm. This setting is only available when Ref.Channel Select is set to Man (manual).
- **Limits...:** Sets the pass/fail limits for the gated output power measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the contents in the overview using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Sets the view style on the screen. You can select Single or Multi.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Scale in the Main View

You can set the scale of the main view using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis.
- **Horizontal Start:** Sets the minimum (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Stop:** Sets the maximum (top) value of the vertical axis.
- **Full Scale:** Sets the scale of the vertical axis to the default full scale value.

Intermodulation Measurement

The intermodulation measurement measures the third-order and fifth-order harmonic distortion components of a modulated signal. Figure 2-17 shows an example of the intermodulation measurement.

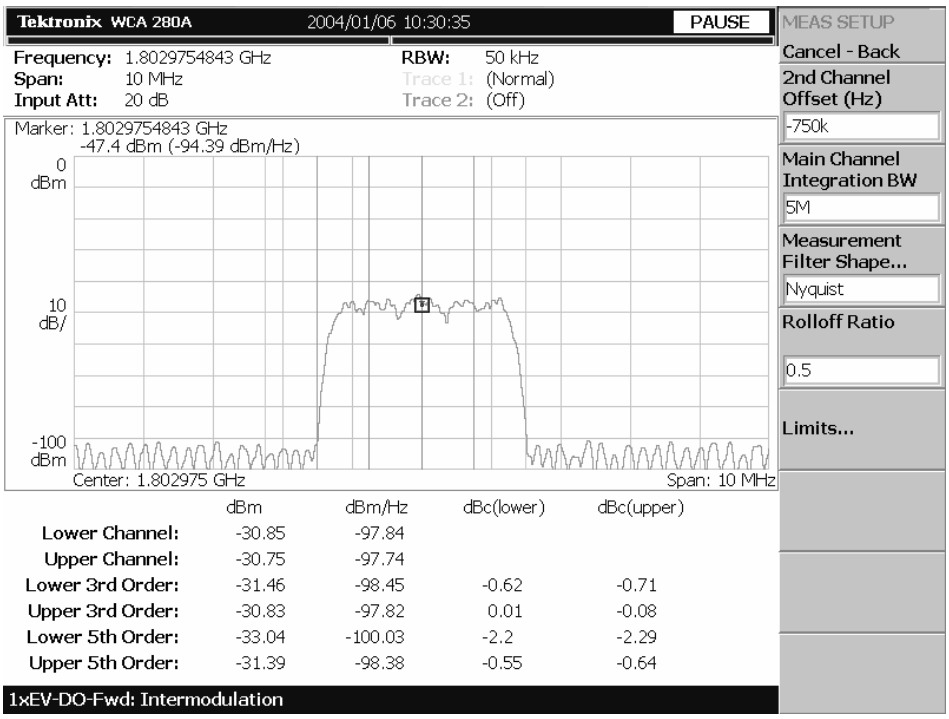

Figure 2-17: Intermodulation measurement

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **2nd Channel Offset:** Sets the center frequency of the second channel where the interfering carrier exists.
- **Main Channel Integration BW:** Sets the main channel integration bandwidth. You can set the value from 500 kHz to 5 MHz.
- **Measurement Filter Shape...:** Sets the filter to be used for the measurement. You can select Rect (Rectangular), Gaussian, Nyquist, or Root Nyquist.
- **Rolloff Ratio:** Enters the rolloff ratio when the Nyquist or Root Nyquist filter is selected. You can set the value from 0.0001 to 1. The default value is 0.5.

- **Limits...:** Sets the pass/fail limits for the intermodulation measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for information about the scale settings for the display.*

CCDF Measurement

The CCDF (Complementary Cumulative Distribution Function) measurement displays the peak-to-average power ratio along the horizontal axis, and the probability that the ratio is exceeded along the vertical axis. This display is useful in designing digital communications systems. Figure 2-18 shows an example of the CCDF measurement.

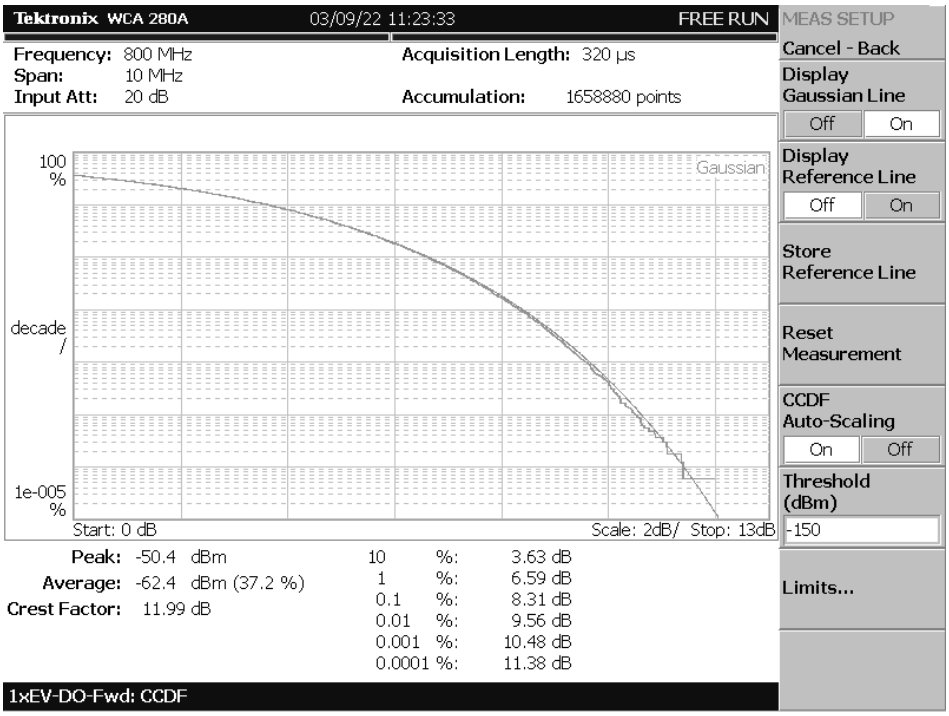

Figure 2-18: CCDF measurement (single view)

Setting the Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition Length (s):** Sets the acquisition length in seconds.

- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Spectrum Length:** Display the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.
- **Output Trigger Indicator:** Selects whether to enable the output trigger indicator.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the time parameters.*

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Display Gaussian Line:** Selects whether to display the Gaussian line on the graticule.
- **Display Reference Line:** Selects whether to display the most recently stored reference line on the graticule.
- **Store Reference Line:** Stores a new reference line.
- **Reset Measurement:** Restart the CCDF measurement. When you press this key, the CCDF accumulation counter on the upper right side of the display is reset to 0.
- **CCDF Auto-Scaling:** Selects whether to automatically set the scaling of the horizontal axis. When you set it to On, the signal peak value is displayed as the maximum value on the right edge of the graticule. When you set it to Off, the scaling of the horizontal axis can be set manually with CCDF Scale. The default value is Off.
- **CCDF Scale:** Sets the full-scale value of the horizontal axis of the CCDF display when CCDF Auto-Scaling is set to Off. You can set the value from 1dB to 100 dB.
- **Threshold:** Sets the threshold which defines the samples to be included in the CCDF calculation. You can set the value from -250 dBm to 130 dBm.
- **Limits...:** When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the contents in the overview using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Sets the view style on the screen. You can select Single or Multi. When you set it to Multi, the CCDF, spectrum, and power versus time of the measured signal are displayed simultaneously.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Scale in the Main View

You can set the scale in the main view using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis automatically to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis.
- **Horizontal Start:** Sets the minimum (left) value of the horizontal axis.
- **Vertical Stop:** Sets the maximum (top) the vertical axis. The setting ranges are twice the Vertical Start value to 100% in a 1-2-5 sequence.
- **Vertical Start:** Sets the minimum (bottom) value of the vertical axis. The setting ranges are 10^{-5} to half the Vertical Stop value in a 1-2-5 sequence.
- **Full Scale:** Sets the scale of the vertical axis to the default full scale value.
- **Sub Grid:** Sets whether to display the sub-grid on the graticule.

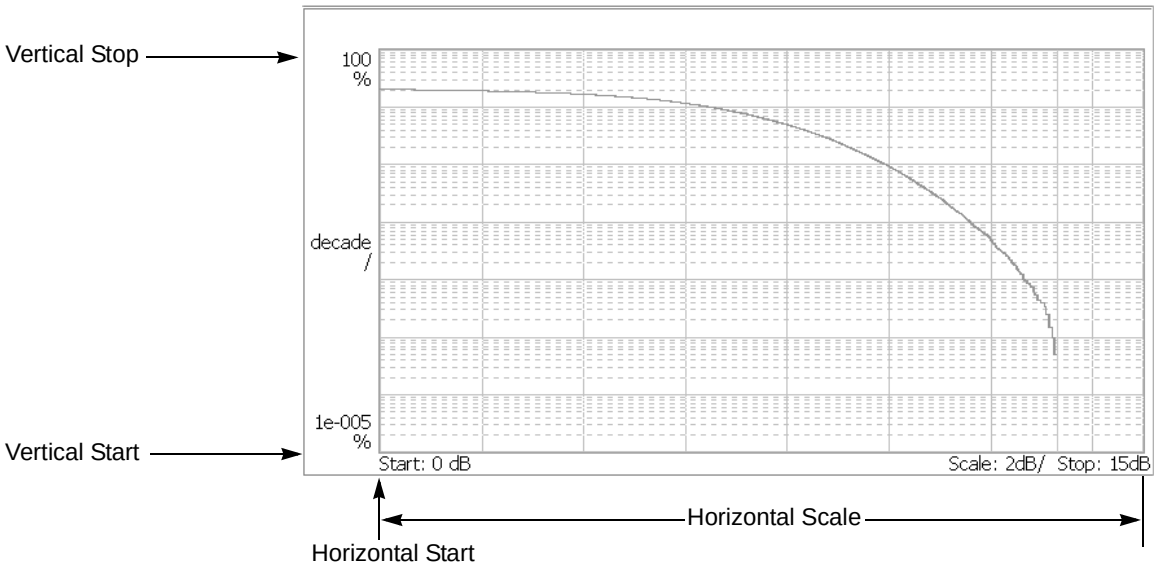

Figure 2-19: Scale settings in the CCDF display

Pilot to Code Channel Measurement

The pilot to code channel measurement measures the time difference between the pilot channel and other code channels detected in the received signal. Figure 2-20 shows an example of the pilot to code channel measurement.

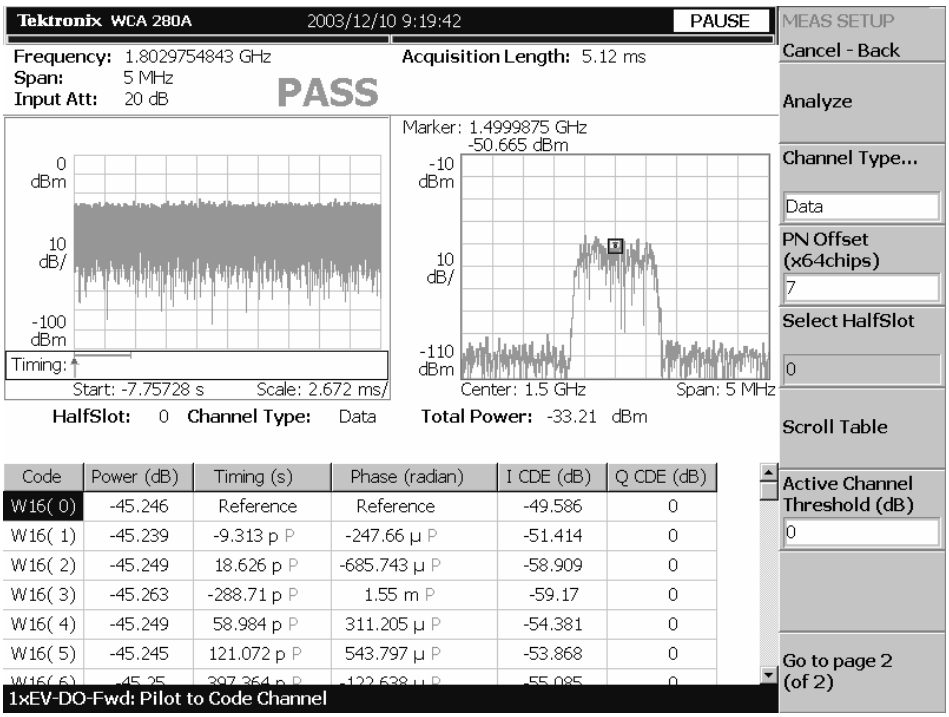

Figure 2-20: Pilot to code channel measurement

Display Elements

The following information is shown in the pilot to code channel measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Subview:** This view can contain spectrum, EVM, magnitude error, phase error, constellation.
- **Main view:** This view lists the following measurement results for the active channels:

  Power level
  Timing referred to the pilot channel
  Phase referred to the pilot channel
  Code domain error

The display content in the subview can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-36 for more information about the VIEW DEFINE menu.

Setting the Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition Length (chips):** Sets the acquisition length in chips. The range depends on the acquisition memory size and the span setting.
- **Acquisition Length (s):** Displays the acquisition length in seconds.
- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Analysis Interval:** Sets the analysis interval in half slots. The range depends on the acquisition length setting.
- **Analysis Offset:** Sets the start point of the analysis with respect to the left end of the acquisition length in half slots.
- **Spectrum Length:** Display the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the time parameters.*

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Channel Type...:** Select the channel type to be measured. You can select MAC, Data, or Preamble.
- **PN Offset:** Sets the PN offset in units of 64 chips. You can set the value from 0 to 511.
- **Select HalfSlot:** Sets the half slot for the measurement.
- **Scroll Table:** Scrolls the table displayed in the view.
- **Active Channel Threshold:** Sets the active channel threshold level (in dB from the pilot) used for deciding whether a code channel is active or inactive. You can set the value from -100 dB to 0 dB.

- **Measurement Filter...:** Selects the measurement filter to apply when calculating pilot to code channel results. You can select None, cdma2000, or cdma2000+EQ (equalizer).
- **IQ Swap:** Sets whether to swap the I and Q data streams before demodulation.
- **Limits...:** Sets the pass/fail limits for the pilot to code channel measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the contents in the overview and subview using the VIEW DEFINE menu. Press the **DEFINE** key to display the VIEW DEFINE menu.

- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Subview Content...:** Selects a view to display in the subview:
  - **Spectrum:** Displays spectrum of the input signal.
  - **EVM:** Displays changes of EVM (Error Vector Magnitude) in symbols.
  - **MagErr:** Displays changes of magnitude error in symbols.
  - **PhaseErr:** Displays changes of phase error in symbols.
  - **Constellation:** Displays the signal as an I-Q constellation.

1xEV-DO Reverse Link Measurements

This section describes the functions and features of the 1xEV-DO reverse link measurements. Each measurement description contains general information about the measurement, descriptions of the measurement displays and functions available through menu selections.

The information is divided into the following subsections:

- Modulation accuracy measurement
- Code domain power measurement
- Spectrum emission mask measurement
- Pilot to code Channel measurement

The following measurement items available in the 1xEVDO reverse link measurements are the same as those in the 1xEV-DO forward link measurements. Refer to *1xEV-DO Forward Link Measurements* beginning on page 2-3.

- Channel power measurement
- OBW measurement
- ACPR measurement
- Intermodulation measurement
- CCDF measurement

NOTE. *If you are not familiar with the operation of the WCA230A/WCA280A, refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *before reading this section.*

Modulation Accuracy Measurement

The modulation accuracy measurement measures Rho (ration of the correlated power to the total power), EVM (Error Vector Magnitude), magnitude error, phase error, frequency error, and origin offset. Figure 2-21 shows an example of the modulation accuracy measurement.

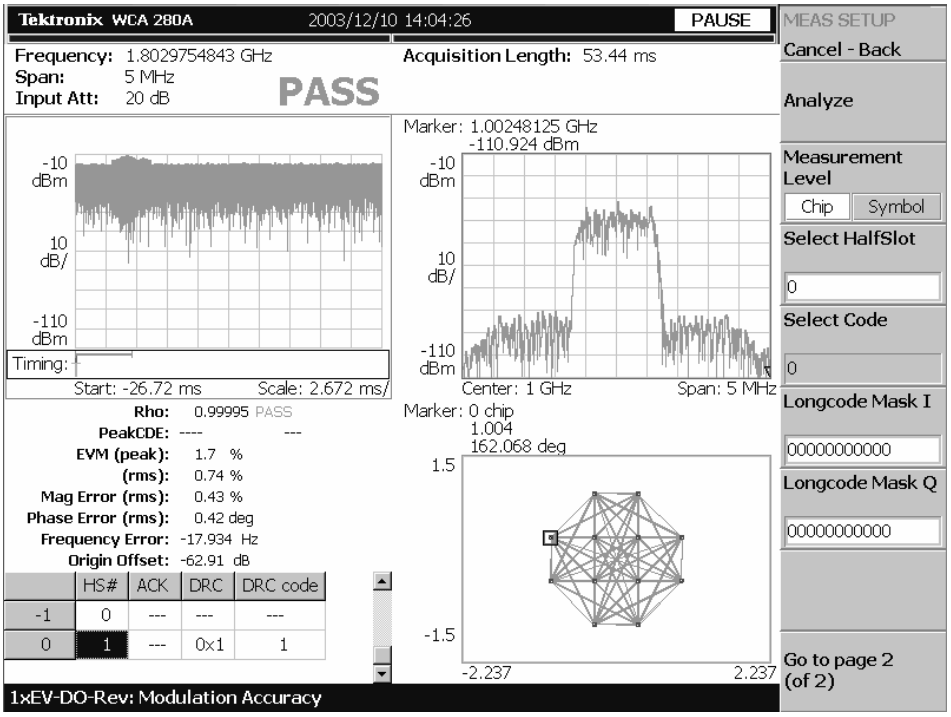

Figure 2-21: Modulation accuracy measurement-reverse link

Display Elements

The following information is shown in the modulation accuracy measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Subview:** This view can contain spectrum, EVM, magnitude error, phase error, IQ power graph, and constellation.
- **Main view:** This view can contain modulation accuracy, EVM, magnitude error, phase error, and symbol table.

The display contents in each view can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-40 for more information about the VIEW DEFINE menu.

Setting Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition Length (chips):** Sets the acquisition length in chips. The setting range depends on the acquisition memory size and the span setting.
- **Acquisition Length (s):** Displays the acquisition length in seconds.
- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Analysis Interval:** Sets the analysis interval in half slots. The setting range depends on the acquisition length setting.
- **Analysis Offset:** Sets the start point of the analysis with respect to the left end of the acquisition length in half slots.
- **Spectrum Length:** Display the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the timing parameters.*

Setting Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Measurement Level:** Selects the measurement level for the measurement. You can select Chip (chip level) or Symbol (symbol level).
- **Select HalfSlot:** Sets the half slot for the measurement.
- **Select Code:** Sets the code in the half slot for the measurement. This setting is only available when Measurement Level is set to Symbol.
- **Longcode Mask I:** Sets the long code mask value for the I signal. You can set the value from 0 to 3FFFFFFFFF in the hexadecimal format.
- **Longcode Mask Q:** Sets the long code mask value for the Q signal. You can set the value from 0 to 3FFFFFFFFF in the hexadecimal format.
- **Active Channel Threshold:** Sets the active channel threshold level (in dB from the pilot) used for deciding whether a code channel is active or inactive. You can set the value from -100 dB to 0 dB.
- **Measurement Filter...:** Selects the measurement filter to apply when calculating EVM and other modulation accuracy results. You can select None, cdma2000, or cdma2000+EQ (equalizer).

- **IQ Swap:** Sets whether to swap the I and Q data streams before demodulation.
- **Limits...:** Sets the pass/fail limits for the modulation accuracy measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the view contents in the overview, subview, and main view using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Selects the view style on the screen. You can select Single or Multi.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Subview Content...:** Selects a view to display in the subview:
  - **Spectrum:** Displays spectrum of the measured signal.
  - **EVM:** Displays changes of EVM (Error Vector Magnitude) over time.
  - **MagErr:** Displays changes of magnitude error over time.
  - **PhaseErr:** Displays changes of phase error over time.
  - **IQ Power Graph:** Displays changes of I and Q powers over time. Refer to *IQ Power Graph Display* on page 2-19.
  - **Constellation:** Displays the signal as an I-Q constellation.
- **Mainview Content...:** Selects a view to display in the main view. You can select Modulation Accuracy, EVM, MagErr, PhaseErr, or Symbol Table. Refer to *Scale and Format in the Main View* on page 2-41 for more information about the views.
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Scale and Format in the Main View

This subsection describes the scale settings and display format in the main view.

Modulation Accuracy Display. When you select Mainview Content from the VIEW DEFINE menu and then select Modulation Accuracy from the Mainview Content submenu, an IQ rectangular graph and the measured value for Rho, peak code domain error, rms and peak EVM, magnitude error, phase error, frequency error, and IQ origin offset (see Figure 2-22). The peak code domain error is displayed only when the Measurement Level menu item is set to Symbol.

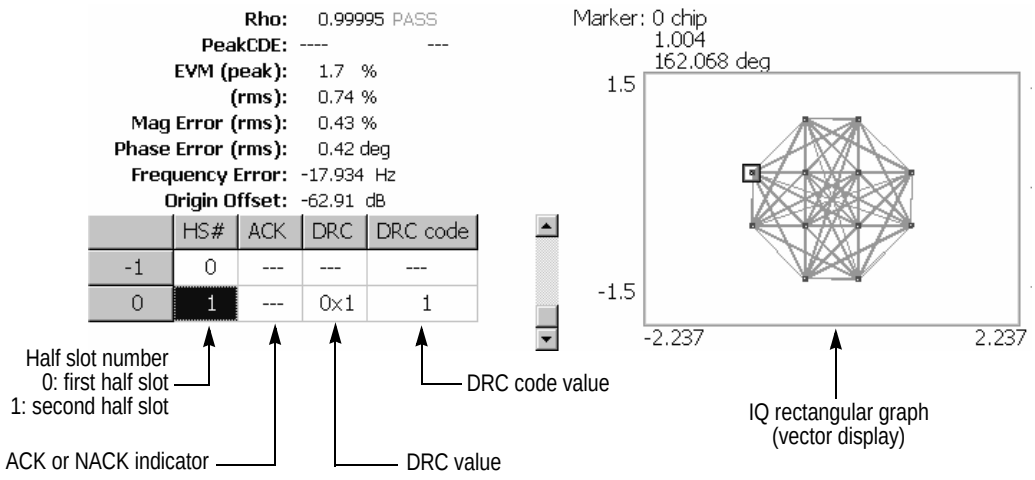

Figure 2-22: Modulation accuracy display-reverse link

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Measurement Content...:** Selects vector or constellation display.

  Vector: Selects vector display. A signal represented with phase and amplitude is displayed in rectangular (I and Q) coordinates. The red point indicates the symbol position on the measured signal, and the yellow trace indicates the locus of signal between symbols.

  Constellation: Selects constellation display. It is the same as the vector display, except that only symbols of the measured signal are indicated in red, and the locus between symbols is not shown. The cross marks indicate symbol positions of an ideal signal.

NOTE. *I and Q signals are normalized to prevent the scale from changing when signal attenuation changes.*

EVM Display. When you select Mainview Content from the VIEW DEFINE menu and then select EVM from the Mainview Content submenu, changes of EVM (Error Vector Magnitude) over time are displayed for each chip or symbol (see Figure 2-23).

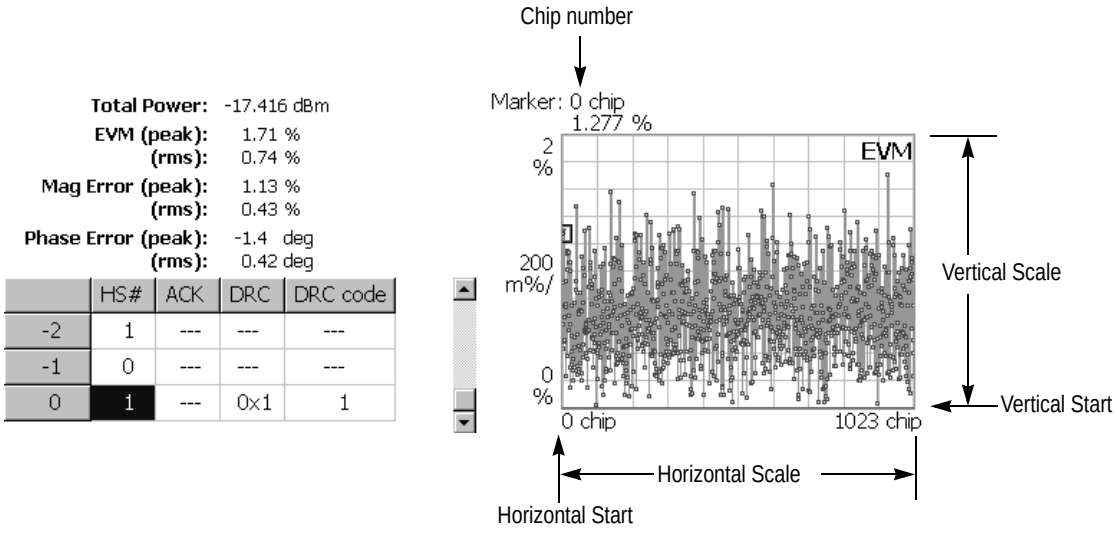

Figure 2-23: EVM display-reverse link

You can set the scale of the display using the VIEW SCALE menu. Press the SCALE key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the chip number or symbol number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Start:** Sets the minimum (bottom) value of the vertical axis.
- **Full Scale:** Sets the scale of vertical axis to the default full-scale value.
- **Measurement Content...:** Selects the display content in the main view. You can select EVM, MagError, or PhaseError. This selection can also be made from Mainview Content in the VIEW DEFINE menu.

MagErr Display. When you select Mainview Content from the VIEW DEFINE menu and then select MagErr from the Mainview Content submenu, changes of magnitude error over time are displayed for each chip or symbol (see Figure 2-24).

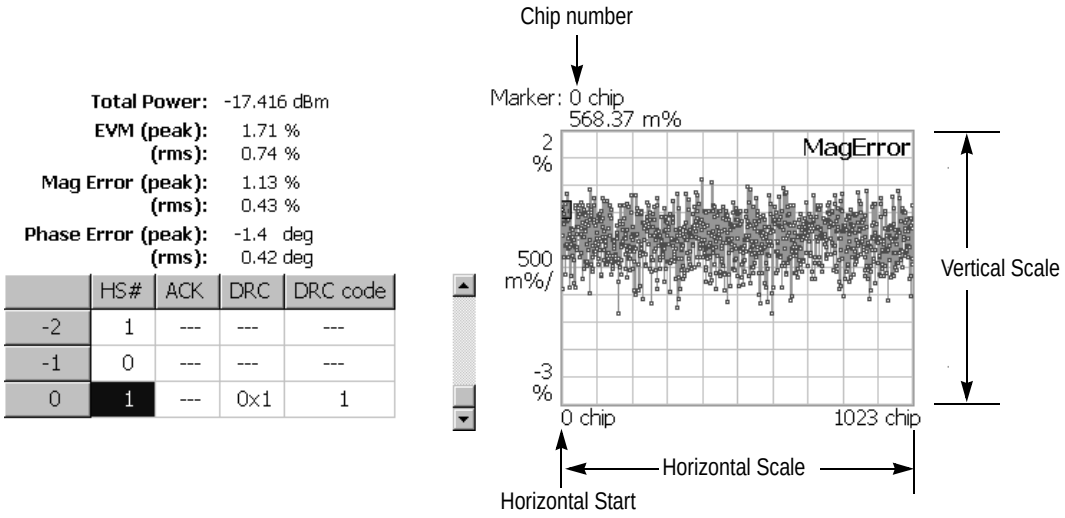

Figure 2-24: MagErr display-reverse link

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis automatically to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the chip number or symbol number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Offset:** Sets the offset value of the vertical axis. You can set the value from -200% to 200%.
- **Full Scale:** Sets the scale of vertical axis to the default full-scale value.
- **Measurement Content...:** Selects the display content in the main view. You can select EVM, MagError, or PhaseError. This selection can also be made from Mainview Content in the VIEW DEFINE menu.

PhaseErr Display. When you select Mainview Content from the VIEW DEFINE menu and then select PhaseErr from the Mainview Content submenu, changes of phase error over time are displayed for each chip or symbol (see Figure 2-25).

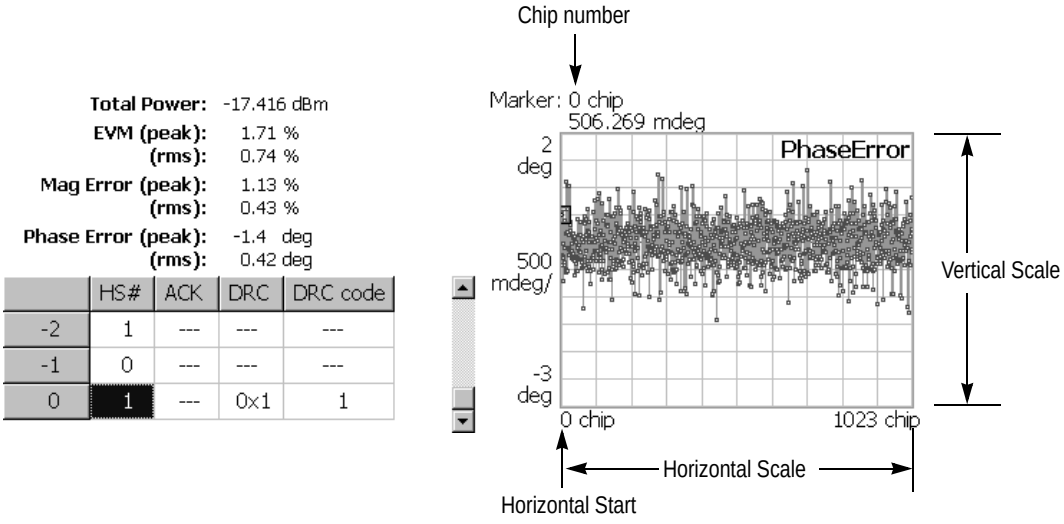

Figure 2-25: PhaseErr display-reverse link

You can set the scale of the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Auto Scale:** Sets the start value and the scale of the vertical axis to display the entire waveform.
- **Horizontal Scale:** Sets the scale of the horizontal axis (number of chips or symbols).
- **Horizontal Start:** Sets the chip number or symbol number of the first (left) value of the horizontal axis.
- **Vertical Scale:** Sets the scale of the vertical axis.
- **Vertical Offset:** Sets the offset value of the vertical axis. You can set the value from -450 to 450 degrees.
- **Full Scale:** Sets the scale of vertical axis to the default full-scale value.
- **Measurement Content...:** Selects the display content in the main view. You can select EVM, MagError, or PhaseError. This selection can also be made from Mainview Content in the VIEW DEFINE menu.

Symbol Table Display. When you select Mainview Content from the VIEW DEFINE menu and then select Symbol Table from the Mainview Content submenu, the symbol table is displayed (see Figure 2-26). This display is only available when the Measurement Level menu item is set to Symbol.

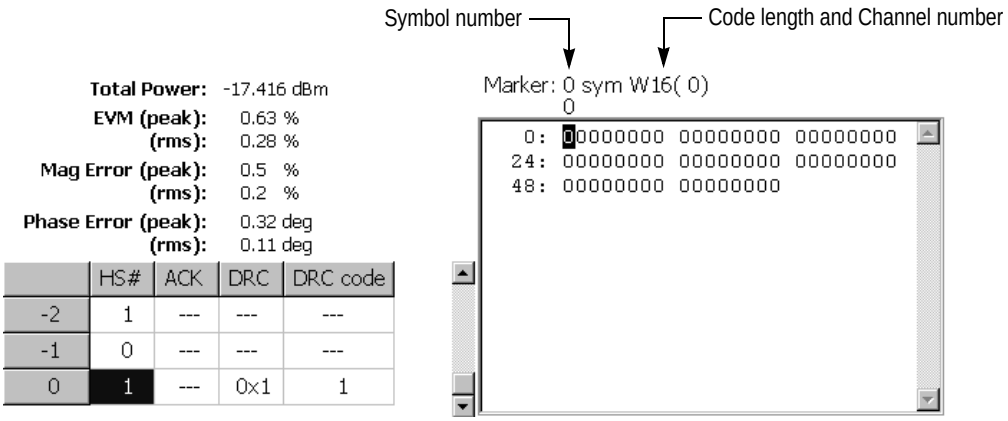

Figure 2-26: Symbol table display-reverse link

You can set the radix for the display using the VIEW SCALE menu. Press the **SCALE** key to open the menu.

- **Radix...:** Sets the radix for displaying the table. You can select Hex (hexadecimal), Oct (octal), or Bin (binary).

Code Domain Power Measurement

The code domain power measurement measures the distribution of signal power across the set of code channels, normalized to the total signal power. This measurement allows you to verify that each code channel is operating at its proper level. Figure 2-27 shows an example of the code domain power measurement.

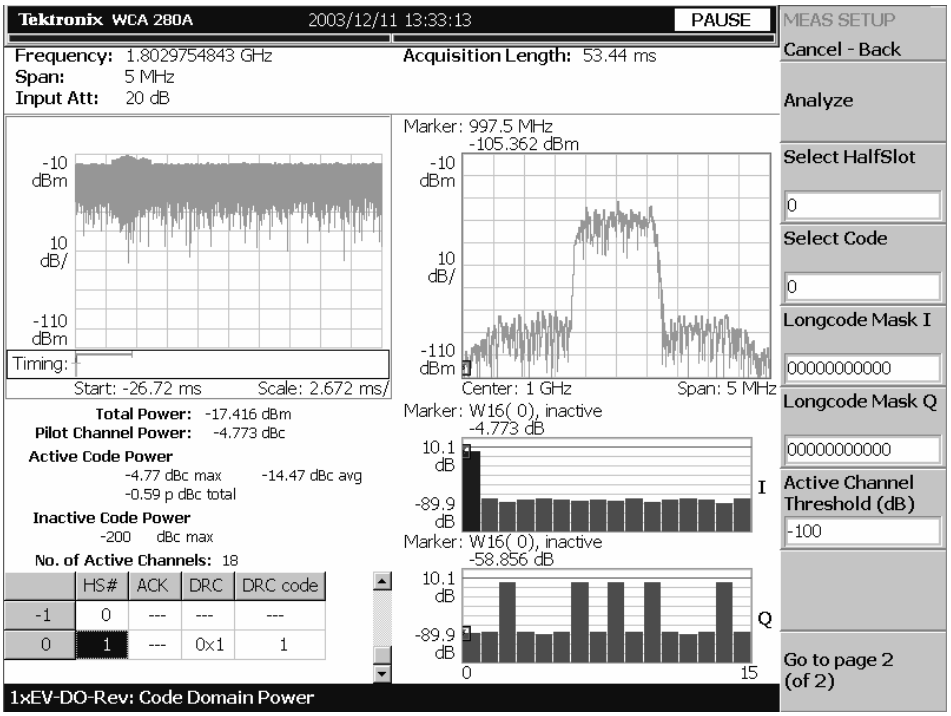

Figure 2-27: Code domain power measurement-reverse link

Display Elements

The following information is shown in the code domain power measurement display:

- **Overview:** This view can contain power versus time or spectrogram.
- **Subview:** This view can contain spectrum, EVM, magnitude error, phase error, IQ power graph, and constellation.
- **Main view:** This view can contain code domain power, power codogram, and IQ power graph.

The display contents in each view can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-48 for more information about the VIEW DEFINE menu.

Setting Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition Length (chips):** Sets the acquisition length in chips. The setting range depends on the acquisition memory size and the span setting.
- **Acquisition Length (s):** Displays the acquisition length in seconds.
- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Analysis Interval:** Sets the analysis interval in half slots. The setting range depends on the acquisition length setting.
- **Analysis Offset:** Sets the start point of the analysis with respect to the left end of the acquisition length in half slots.
- **Spectrum Length:** Displays the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the timing parameters.*

Setting Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Measurement Level:** Selects the measurement level for the measurement. You can select Chip (chip level) or Symbol (symbol level). This setting is only available when Mainview Content in the VIEW DEFINE menu is set to IQ Power Graph.
- **Select HalfSlot:** Sets the half slot for the measurement.
- **Select Code:** Sets the code in the half slot for the measurement.
- **Longcode Mask I:** Sets the long code mask value for the I signal. You can set the value from 0 to 3FFFFFFFFF in the hexadecimal format.
- **Longcode Mask Q:** Sets the long code mask value for the Q signal. You can set the value from 0 to 3FFFFFFFFF in the hexadecimal format.
- **Active Channel Threshold:** Sets the active channel threshold level (in dB from the pilot) used for deciding whether a code channel is active or inactive. You can set the value from -100 dB to 0 dB

- **Measurement Filter...:** Selects the measurement filter to apply when calculating code domain power results. You can select None, cdma2000, or cdma2000+EQ (equalizer).
- **IQ Swap:** Sets whether to swap the I and Q data streams before demodulation.
- **Limits...:** Sets the pass/fail limits for the code domain power measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the contents in the overview, subview, and main view using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Show Views:** Selects the view style on the screen. You can select Single or Multi.
- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Subview Content...:** Selects a view to display in the subview:
  - **Spectrum:** Displays spectrum of the input signal.
  - **EVM:** Displays changes of EVM (Error Vector Magnitude) over time.
  - **MagErr:** Displays changes of magnitude error over time.
  - **PhaseErr:** Displays changes of phase error over time.
  - **IQ Power Graph:** Displays the code domain power for each symbol. Refer to *IQ Power Graph Display* on page 2-19.
  - **Constellation:** Displays the signal as an I-Q constellation.
- **Mainview Content...:** Selects a view to display in the main view. You can select Code Domain Power, Power Codogram, or IQ Power Graph. Refer to *Scale and Format in the Main View* on page 2-15 for more information about the views.
- **Code Order...:** Sets the way that code channels are arranged on the display. You can select Hadamard or BitReverse.
- **Menu Off:** Hides the side menu. To display the menu again, press the **MENU** side key or VIEW: **DEFINE** key.

Spectrum Emission Mask Measurement

The spectrum emission mask measurement verifies that the base station is not transmitting excessive power outside of its designated channel. Since the Option 26 provides the pre-defined measurement limits for each band class, you can perform pass/fail evaluations easily. Figure 2-28 shows an example of the spectrum emission mask measurement.

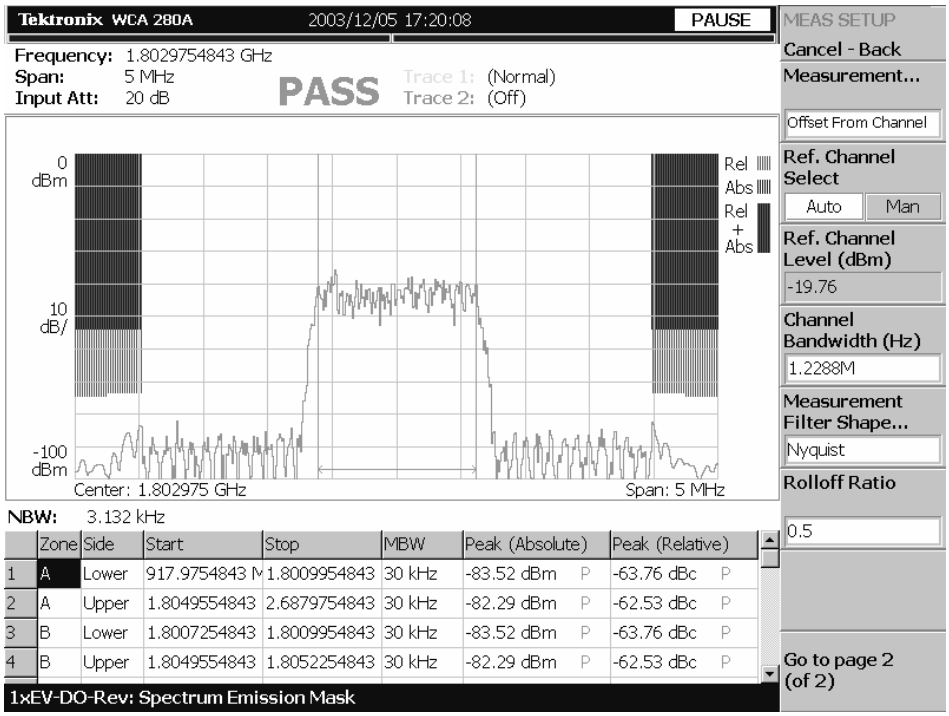

Figure 2-28: Spectrum emission mask measurement-reverse link

Setting the Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Measurement...:** Sets the limit table used for limit testing. You can select Offset From Channel or Inband Spurious. For Offset From Channel, frequency zones are specified by the difference from the center frequency. For Inband Spurious, frequency zones are specified by the absolute frequency values.
- **Ref. Channel Select:** Selects the reference mode used to measure the spectrum emission level. You can select Auto or Man (manual). For Auto, the reference channel level is measured from the input signal for the specified channel bandwidth. For Man, you can set the reference channel level in the Ref. Channel Level menu item.

- **Ref. Channel Level:** Sets the reference channel level used to measure the spectrum emission level. You can set the value from -150 dBm to 30 dBm. This setting is only available when Ref. Channel Select is set to Man (manual).
- **Channel Bandwidth:** Sets the channel bandwidth for the measurement.
- **Measurement Filter Shape...:** Sets the filter to be used for the measurement. You can select Rect (Rectangular), Gaussian, Nyquist, or Root Nyquist. This setting is only available when Ref. Channel Select is set to Auto.
- **Rolloff Ratio:** Enters the rolloff ratio when the Nyquist or Root Nyquist filter is selected. You can set the value from 0.0001 to 1. The default value is 0.5. This setting is only available when Ref. Channel Select is set to Auto.
- **Limits...:** Sets the pass/fail limits for the spectrum emission mask measurement. When pressing this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.
- **Scroll Table:** Scrolls the table displayed in the view.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for information about the scale settings for the display.*

Pilot to Code Channel Measurement

The pilot to code channel measurement measures the time difference between the pilot channel and other code channels detected in the received signal. Figure 2-29 shows an example of the pilot to code channel measurement.

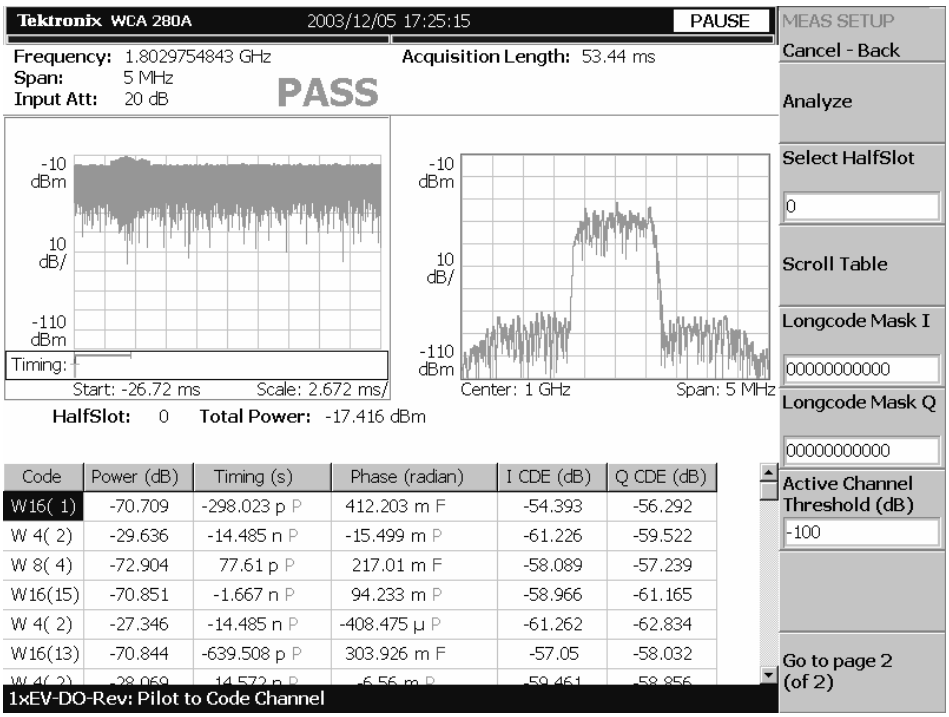

Figure 2-29: Pilot to code channel measurement-reverse link

Display Elements

The following information is shown in the modulation accuracy measurement display:

- **Overview:** This view can contain power versus time.
- **Subview:** This view can contain spectrum, EVM, magnitude error, phase error, constellation.
- **Main view:** This view lists the following measurement results for the active channels:

  Power level
  Timing referred to the pilot channel
  Phase referred to the pilot channel
  Code domain error

The display content in the subview can be changed using the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-53 for more information about the VIEW DEFINE menu.

Setting Timing Parameters

You can set the following timing parameters using the TIMING menu. Press the **TIMING** key to open the TIMING menu.

- **Acquisition Length (chips):** Sets the acquisition length in chips. The setting range depends on the acquisition memory size and the span setting.
- **Acquisition Length (s):** Displays the acquisition length in seconds.
- **Acquisition History:** Specifies the number of the block to display and analyze. The latest block is number zero. Older blocks have larger negative numbers.
- **Analysis Interval:** Sets the analysis interval in half slots. The setting range depends on the acquisition length setting.
- **Analysis Offset:** Sets the start point of the analysis with respect to the left end of the acquisition length in half slots.
- **Spectrum Length:** Display the time length for FFT processing of the spectrum displayed in the subview. This value is equivalent to one frame acquisition length.
- **Spectrum Offset:** Sets the beginning of Spectrum Length with respect to the left end of the acquisition length.

NOTE. *Refer to the* WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual *for detailed information about the time parameters.*

Setting Measurement Parameters

You can set the following measurement parameters using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

- **Analyze:** Performs analysis for the time slots in the analysis range.
- **Select HalfSlot:** Sets the half slot for the measurement.
- **Select Code:** Sets the code in the half slot for the measurement.
- **Longcode Mask I:** Sets the long code mask value for the I signal. You can set the value from 0 to 3FFFFFFFFF in the hexadecimal format.
- **Longcode Mask Q:** Sets the long code mask value for the Q signal. You can set the value from 0 to 3FFFFFFFFF in the hexadecimal format.
- **Active Channel Threshold:** Sets the active channel threshold level (in dB from the pilot) used for deciding whether a code channel is active or inactive. You can set the value from -100 dB to 0 dB.

- **Measurement Filter...:** Selects the measurement filter to apply when calculating EVM and other modulation accuracy results. You can select None, cdma2000, or cdma2000+EQ (equalizer).
- **IQ Swap:** Sets whether to swap the I and Q data streams before demodulation.
- **Limits...:** Sets the pass/fail limits for the pilot to code channel measurement. When you press this side key, the measurement limits editor appears. Refer to *Editing the Measurement Limits* on page 2-55 for more information.

Changing the View Contents

You can change the contents in the overview and subview using the VIEW DEFINE menu. Press the VIEW: **DEFINE** key to display the VIEW DEFINE menu.

- **Overview Content...:** Selects a view to display in the overview. You can select Spectrogram or Waveform (power versus time).
- **Subview Content...:** Selects a view to display in the subview:
  - **Spectrum:** Displays spectrum of the input signal.
  - **EVM:** Displays changes of EVM (Error Vector Magnitude) over time.
  - **MagErr:** Displays changes of magnitude error over time.
  - **PhaseErr:** Displays changes of phase error over time.
  - **Constellation:** Displays the signal as an I-Q constellation.

Editing the Measurement Limits

This section describes how to set measurement limits that can be used to perform pass/fail testing for the 1xEV-DO measurements.

Refer to *Measurement Limit Defaults* on page 2-65 for information about the default settings of each measurement limit.

Using the Measurement Limits Editor

All of the measurement limits are set in the measurement limits editor, which you access from the **Limits...** side key on the MEAS SETUP menu.

Figure 2-30 shows the measurement limits editor for the 1xEV-DO forward link measurements.

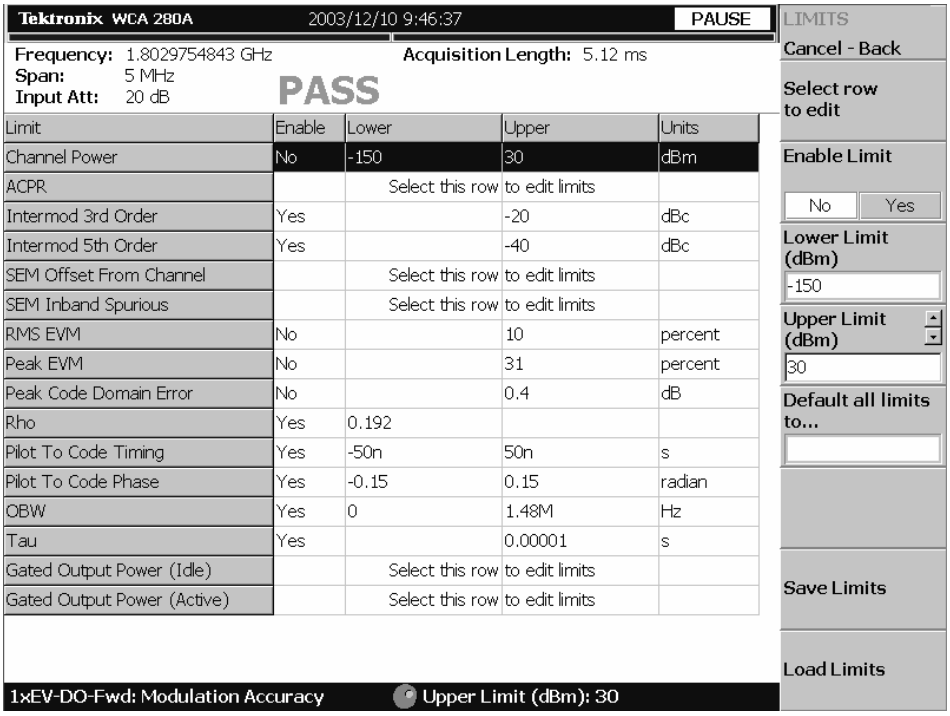

Figure 2-30: Measurement limits editor

Table 2-1 describes all of the measurement limit items available in the measurement limits editor.

Table 2-1: Measurement limits items

Limit item	Description	Lower limit range	Upper limit range
Channel power	Sets the lower and upper limits for the Channel Power measurement.	-200 to 200 dBm	-200 to 200 dBm
ACPR	Select this item to access another measurement limits editor to edit ACPR Limits.	----------	----------
Intermod 3rd Order	Sets the upper limit of the third harmonic distortion component for the Intermodulation measurement.	Not settable	-200 to 200 dBc
Intermod 5th Order	Sets the upper limit of the fifth harmonic distortion component for the Intermodulation measurement.	Not settable	-200 to 200 dBc
SEM Offset From Channel	Select this item to access another measurement limits editor to edit SEM offset from channel limits.	----------	----------
SEM Inband Spurious	Select this item to access another measurement limits editor to edit SEM inband spurious limits.	----------	----------
RMS EVM	Sets the upper limit for the RMS EVM measurement.	Not settable	0 to 100%
Peak EVM	Sets the upper limit for the Peak EVM measurement.	Not settable	0 to 100%
Peak Code Domain Error	Sets the upper limit for the Peak code domain error measurement.	Not settable	-200 to 200 dB
Rho	Sets the lower limit of Rho for the modulation accuracy measurement.	0 to 1	Not settable
Pilot To Code Timing	Sets the upper limit for the pilot to code timing measurement.	-1 to 1 s	-1 to 1 s
Pilot To Code Phase	Sets the lower and upper limits for the pilot to code phase measurement.	-100 to 100 degree	-100 to 100 degree
OBW	Sets the upper and lower limits for the OBW measurement.	0 to 30 MHz	0 to 30 MHz
Tau	Sets the lower limit of Tau for the modulation accuracy measurement.	0 to 1 s	Not settable
Gated Output Power (Idle)*	Select this item to access another measurement limits editor to edit gated output power limits.	----------	----------
Gated Output Power (Active)*	Select this item to access another measurement limits editor to edit gated output power limits.	----------	----------

* These items are only available in the 1xEV-DO forward link measurements.

Setting a Measurement Limit

Perform the following procedure to set measurement limits:

1. Press the **MEAS SETUP** menu key to open the MEAS SETUP menu.
2. Press the **Limits...** side key to open the measurement limits editor with LIMITS menu.
3. Press the **Select row to edit** side key.
4. Turn the rotary knob or press the arrow keys to select the row that you want to edit.
5. Press the **Enable Limit** side key to enable or disable the pass/fail testing for the specified limit(s).
6. Press the **Lower Limit** side key to set the lower limit for the selected measurement item, if applicable.
7. Press the **Upper Limit** side key to set the upper limit for the selected measurement item.

When you want to set limits for the spectrum emission mask or gated output power measurement, perform the following steps to open another measurement limits editor:

1. Press the **Select row to edit** side key.
2. Turn the rotary knob or press the arrow keys to select **ACPR**, **SEM Offset From Channel**, **SEM Inband Spurious**, **Gated Output Power (Idle)**, or **Gated Output Power (Active)** row.
3. Press the **Edit ACPR Limits...**, **Edit SEM Offset Limits...**, **Edit SEM Inband Limits...**, **Edit Gated Output Power (Idle) Limits...**, or **Edit Gated Output Power (Active) Limits...** side key. This opens the limits editor to set more complex limits for the ACPR, spectrum emission mask, or gated output power measurement. Figure 2-32 shows the measurement limits editor for the ACPR measurement.

Setting the ACPR Limits

When you select the ACPR row in the measurement limits editor, another measurement limits editor for the ACPR measurement is displayed. Figure 2-31 shows the measurement limits editor for the ACPR measurement.

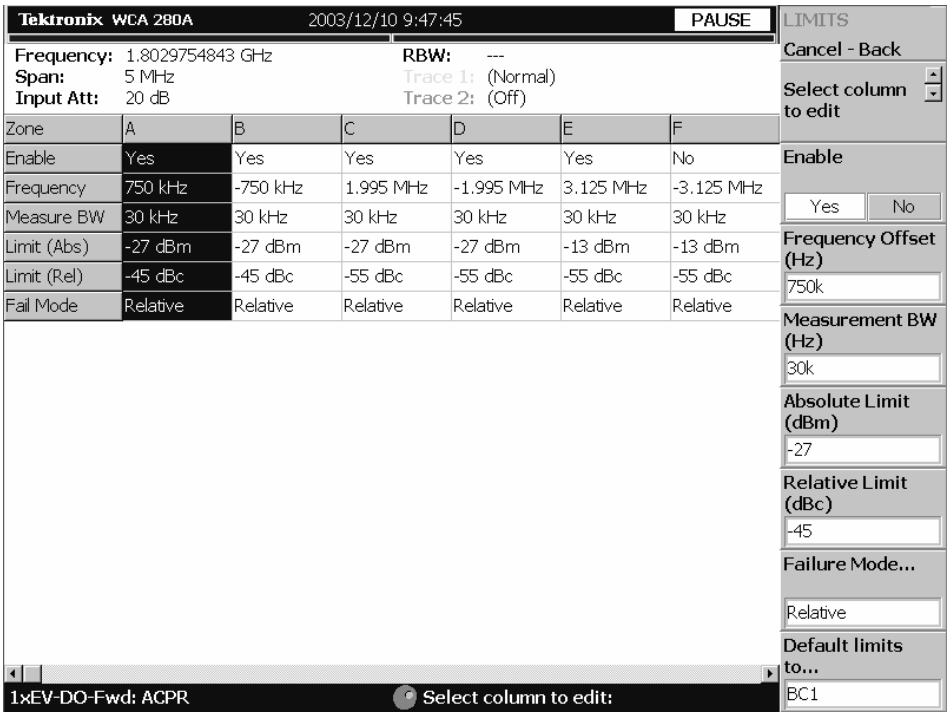

Figure 2-31: ACPR measurement limits editor

Table 2-2 lists the measurement limit items that can be set in the measurement limits editor.

Table 2-2: Measurement limit items for the ACPR measurement

Item	Description	Limit ranges
Enable	Enables or disables use of the limits in the specified zone (A to L).	----------
Frequency	Sets the frequency offset for the zone.	-3 to 3 GHz (WCA230A) -8 to 8 GHz (WCA280A)
Measurement BW	Sets the measurement bandwidth for the zone.	-3 to 3 GHz (WCA230A) -8 to 8 GHz (WCA280A)
Limit (Abs)	Sets an absolute level limit for the zone.	-200 to 200 dBm
Limit (Rel)	Sets a relative level limit for the zone.	-200 to 200 dBc

Table 2-2: Measurement limit items for the ACPR measurement (cont.)

Item	Description	Limit ranges
Failure Mode	Selects the fail mode to detect fail conditions between the measurement results and the test limits. The choices are: ■ Absolute: Fail is detected when the absolute measurement result is larger than the limit for Limit (Abs). ■ Relative: Fail is detected when the relative measurement result is larger than the limit for Limit (Rel).	----------

Perform the following steps to set measurement limits in the limits editor:

1. Press the **Select column to edit** side key.
2. Turn the rotary knob or press the arrow keys to select the column that you want to edit.
3. Press the **Enable** side key to enable or disable use of the limits for the zone.
4. Press the side key corresponding to the limit item, and then use the rotary knob or arrow keys to set the value.
5. Press the **Failure Mode...** side key to select the failure mode.
6. Press the **Default limits to...** side key if you want to use a given measurement limit for the measurement. Refer to *Measurement Limit Defaults* on page 2-65 for information about the default settings of each measurement limit.

Setting the Spectrum Emission Mask Limits

When you select the SEM Offset From Channel or SEM Inband Spurious row in the measurement limits editor, another measurement limits editor for the spectrum emission mask measurement is displayed. Figure 2-32 shows the measurement limits editor for the spectrum emission mask measurement.

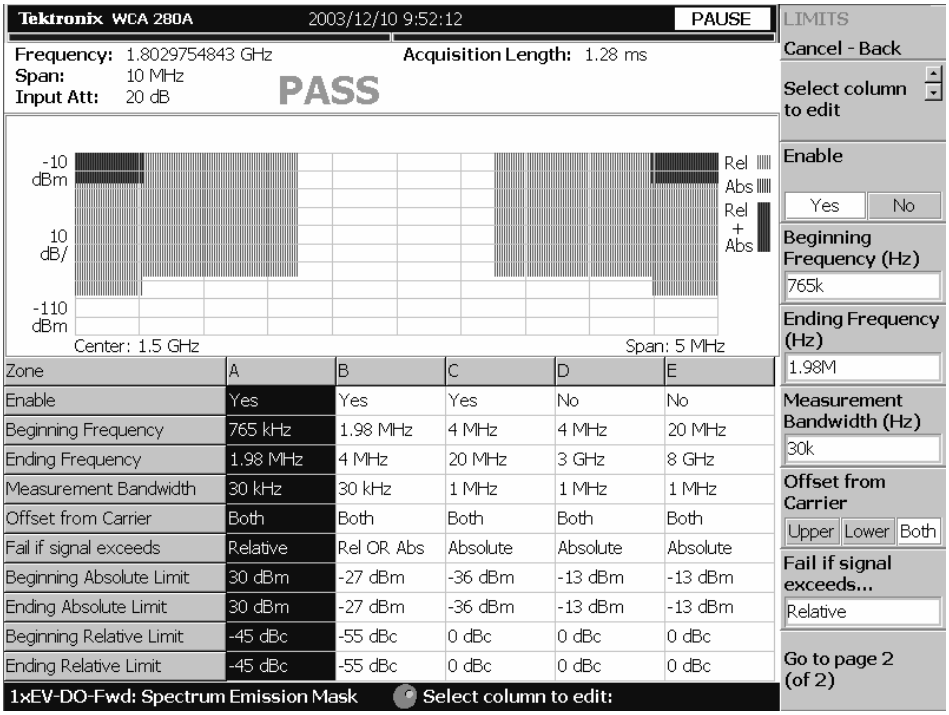

Figure 2-32: Spectrum emission mask measurement limits editor

Table 2-3 lists the measurement limit items that can be set in the measurement limits editor.

Table 2-3: Measurement limit items for the spectrum emission mask measurement

Item	Description	Limit ranges
Enable	Enables or disables use of the mask in the specified zone (A, B, C, D, or E).	----------
Beginning Frequency	Sets the beginning frequency for the zone.	-3 to 3 GHz (WCA230A) -8 to 8 GHz (WCA280A)
Ending Frequency	Sets the ending frequency for the zone.	-3 to 3 GHz (WCA230A) -8 to 8 GHz (WCA280A)
Measurement Bandwidth	Sets the measurement bandwidth.	-3 to 3 GHz (WCA230A) -8 to 8 GHz (WCA280A)
Offset from Carrier*	Specifies which offset side is to be measured. You can select Upper (positive), Lower (negative), or Both.	----------

Table 2-3: Measurement limit items for the spectrum emission mask measurement (cont.)

Item	Description	Limit ranges
Fail if signal exceeds	Selects the fail mode to detect fail conditions between the measurement results and the test limits. The choices are: ■ Absolute: Fail is detected when one of the absolute measurement results is larger than the limit for Beginning Absolute Limit and/or Ending Absolute Limit. ■ Relative: Fail is detected when one of the relative measurement results is larger than the limit for Beginning Relative Limit and/or Ending Relative Limit. ■ Rel OR Abs: Fail is detected when one of the absolute measurement results is larger than the limit for Beginning Absolute Limit and Ending Absolute Limit OR one of the relative measurement results is larger than the limit for Beginning Relative Limit and Ending Relative Limit. ■ Rel AND Abs: Fail is detected when one of the absolute measurement results is larger than the limit for Beginning Absolute Limit and Ending Absolute Limit AND one of the relative measurement results is larger than the limit for Beginning Relative Limit and Ending Relative Limit.	----------
Beginning Absolute Limit	Sets an absolute level limit at Beginning Frequency.	-200 to 200 dBm
Ending Absolute Limit	Sets an absolute level limit at Ending Frequency.	-200 to 200 dBm
Beginning Relative Limit	Sets a relative level limit at Beginning Frequency.	-200 to 200 dBc
Ending Relative Limit	Sets a relative level limit at Ending Frequency.	-200 to 200 dBc

* This item is only available when SEM Offset From Channel is selected.

Perform the following steps to set measurement limits in the limits editor:

1. Press the **Select column to edit** side key.
2. Turn the rotary knob or press the arrow keys to select the column that you want to edit.
3. Press the **Enable** side key to enable or disable use of the limits for the zone.
4. Press the side key corresponding to the limit item, and then use the rotary knob or arrow keys to set the value.
5. Press the **Default limits to...** side key if you want to use a given measurement limit for the measurement. Refer to *Measurement Limit Defaults* on page 2-65 for information about the default settings of each measurement limit.
6. When you press the **Rescale Graph** side key, the graph is rescaled to match the set limits.

Setting the Gated Output Power Limits

When you select the Gated Output Power (Idle) row or Gated Output Power (Active) row in the measurement limits editor, another measurement limits editor for the gated output power measurement is displayed. Figure 2-33 shows the measurement limits editor for the gated output power measurement.

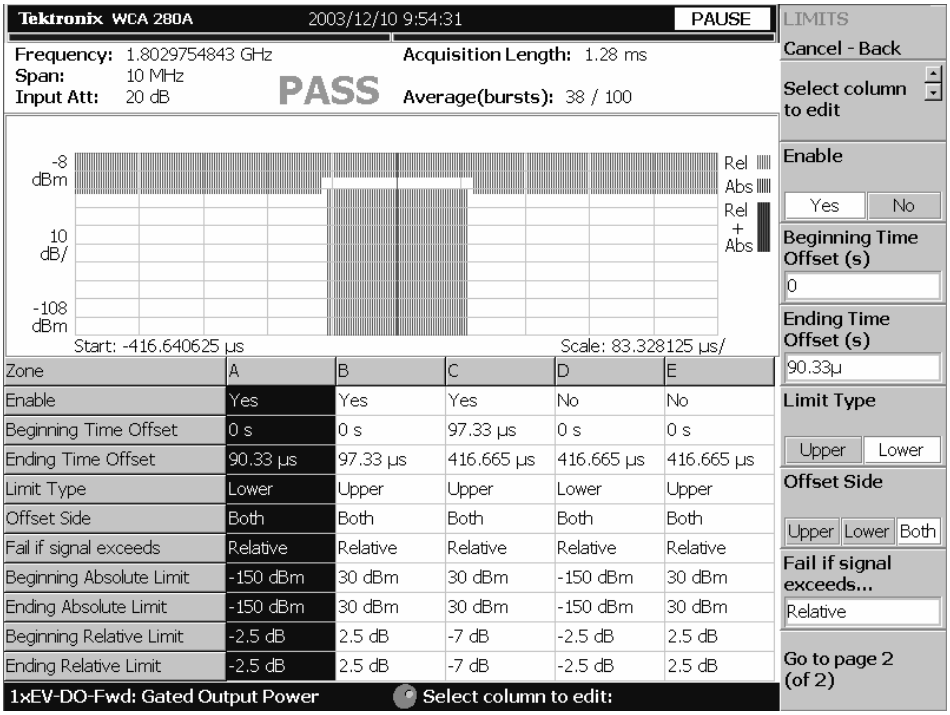

Figure 2-33: Gated output power measurement limits editor

Table 2-4 lists the measurement limit items that can be set in the measurement limits editor.

Table 2-4: Measurement limit items for the gated output power measurement

Item	Description	Limit ranges
Enable	Enables or disables use of the mask in the specified zone (A, B, C, D, or E).	----------
Beginning Time Offset	Sets the beginning time from the center of the zone.	-10 to 10 s
Ending Time Offset	Sets the ending time from the center of the zone.	-10 to 10 s
Limit Type	Sets the limit type for the measurement. You can select Upper (upper limit) or Lower (lower limits).	----------
Offset Side	Specifies which offset side is to be measured. You can select Upper (positive), Lower (negative), or Both.	----------

Table 2-4: Measurement limit items for the gated output power measurement (cont.)

Item	Description	Limit ranges
Fail if signal exceeds	Selects the fail mode to detect fail conditions between the measurement results and the test limits. The choices are: ■ Absolute: Fail is detected when one of the absolute measurement results is larger than the limit for Beginning Absolute Limit and/or Ending Absolute Limit. ■ Relative: Fail is detected when one of the relative measurement results is larger than the limit for Beginning Relative Limit and/or Ending Relative Limit. ■ Rel OR Abs: Fail is detected when one of the absolute measurement results is larger than the limit for Beginning Absolute Limit and Ending Absolute Limit OR one of the relative measurement results is larger than the limit for Beginning Relative Limit and Ending Relative Limit. ■ Rel AND Abs: Fail is detected when one of the absolute measurement results is larger than the limit for Beginning Absolute Limit and Ending Absolute Limit AND one of the relative measurement results is larger than the limit for Beginning Relative Limit and Ending Relative Limit.	----------
Beginning Absolute Limit	Sets an absolute level limit at Beginning Time Offset.	-200 to 200 dBm
Ending Absolute Limit	Sets an absolute level limit at Ending Time Offset.	-200 to 200 dBm
Beginning Relative Limit	Sets a relative level limit at Beginning Time Offset.	-200 to 200 dB
Ending Relative Limit	Sets a relative level limit at Ending Time Offset.	-200 to 200 dB

Perform the following steps to set measurement limits in the limits editor:

1. Press the **Select column to edit** side key.
2. Turn the rotary knob or press the arrow keys to select the column that you want to edit.
3. Press the **Enable** side key to enable or disable use of the limits for the zone.
4. Press the side key corresponding to the limit item, and then use the rotary knob or arrow keys to set the value.
5. Press the **Default limits to...** side key if you want to use a given measurement limits for the measurement. Refer to *Measurement Limit Defaults* on page 2-65 for information about the default settings of each measurement limit.
6. When you press the **Rescale Graph** side key, the graph is rescaled to match the set limits.

Saving and Loading Measurement Limits

Measurement limits that set in the measurement limits editor can be saved as a file and loaded from a file. This section describes how to save and load measurement limits.

Refer to the *WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual*, for further information about file operation including how to enter a file name and how to delete a file.

Saving Measurement Limits

Perform the following steps to save the current measurement limits to a file:

1. When you open the spectrum emission mask measurement limits editor or gated output power measurement limits editor, press the **Cancel-Back (MENU)** side key to return the measurement limit editor (see Figure 2-30).
2. Press the **Save Limits** side key to open the **Save to File** menu.

   You can save the limits by using the preset file name or by entering a new file name.
3. To use the preset file name, press one of the following side keys: **Save to LimitsA**, **Save to LimitsB**, or **Save to LimitsC**.
4. To enter a new file name, type a file name in the text box at the top of the menu, and then press the **Save File Now** side key.

The file extension *.lmt is automatically added to the limits file.

Loading Measurement Limits

Perform the following steps to load measurement limits from a file:

1. When you open the spectrum emission mask measurement limits editor or gated output power measurement limits editor, press the **Cancel-Back (MENU)** side key to return the measurement limit editor (see Figure 2-30).
2. Press the **Load Limits** side key to open the **Load From File** menu.
3. To load limits from the preset file, press one of the following side keys: **Load from LimitsA**, **Load from LimitsB**, or **Load from LimitsC**.
4. To load limits from an existing file, select the file from the file list, and then press the **Load File Now** side key.

Measurement Limit Defaults

Tables 2-5 through 2-21 list the default limit settings used to perform the pass/file testing for the 1xEV-DO measurements. Refer to *Using the Measurement Limits Editor* on page 2-55 for procedures to edit the measurement limits.

Common Limits

Tables 2-5 and 2-6 list the common measurement limits that can be used for the measurements other than the ACPR, Spectrum Emission Mask and Gated Output Power measurements.

Table 2-5: Forward link common limits

Limit	Enable	Lower	Upper	Units
Channel Power	No	-150	30	dBm
Intermod 3rd Order	Yes	N.A	-20	dBc
Intermod 5th Order	Yes	N.A	-40	dBc
RMS EVM	No	N.A	10	percent
Peak EVM	No	N.A	31	percent
Peak Code Domain Error	No	N.A	0.4	dB
Rho	Yes	0.912	N.A	N.A
Pilot To Code Timing	Yes	-50 n	50 n	s
Pilot To Code Phase	Yes	-0.15	0.15	radian
OBW	Yes	N.A	1.48 M	Hz
Tau	Yes	N.A	0.00001	s

Table 2-6: Reverse link common limits

Limit	Enable	Lower	Upper	Units
Channel Power	No	-150	30	dBm
Intermod 3rd Order	Yes	N.A	-18	dBc
Intermod 5th Order	Yes	N.A	-36	dBc
RMS EVM	No	N.A	10	percent
Peak EVM	No	N.A	24	percent
Peak Code Domain Error	No	N.A	0.25	dB
Rho	Yes	0.994	N.A	N.A
Pilot To Code Timing	Yes	-10 n	10 n	s
Pilot To Code Phase	Yes	-0.15	0.15	radian
OBW	Yes	N.A	1.48 M	Hz

ACPR Limits

Table 2-7 list the measurement limits that can be used for the ACPR measurement.

Table 2-7: Forward and reverse link: all band classes

Zone	Enable	Frequency	Measure BW	Limit (Abs)	Limit (Rel)	Fail Mode
A	Yes	750 kHz	30 kHz	-27 dBm	-45 dBc	Relative
B	Yes	-750 kHz	30 kHz	-27 dBm	-45 dBc	Relative
C	Yes	1.995 MHz	30 kHz	-27 dBm	-55 dBc	Relative
D	Yes	-1.995 MHz	30 kHz	-27 dBm	-55 dBc	Relative
E	Yes	3.125 MHz	30 kHz	-13 dBm	-55 dBc	Relative
F	No	-3.125 MHz	30 kHz	-13 dBm	-55 dBc	Relative
G	No	4 MHz	30 kHz	-13 dBm	-55 dBc	Relative
H	No	-4 MHz	30 kHz	-13 dBm	-55 dBc	Relative
I	No	7.5 MHz	30 kHz	-13 dBm	-55 dBc	Relative
J	No	-7.5 MHz	30 kHz	-13 dBm	-55 dBc	Relative
K	No	0 Hz	30 kHz	-13 dBm	-55 dBc	Relative
L	No	0 Hz	30 kHz	-13 dBm	-55 dBc	Relative

SEM Offset from Channel Limits

Tables 2-8 through 2-16 list the measurement limits that can be used for the SEM Offset From Channel measurement.

Table 2-8: Forward link: BC (band class) 0, 2, 3, 5, and 9

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	No	No
Start Frequency	750 kHz	1.98 MHz	4 MHz	4 MHz	20 MHz
Stop Frequency	1.98 MHz	4.00 MHz	20 MHz	3 GHz	8 GHz
Measurement BW	30 kHz	30 kHz	1 MHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Rel OR Abs	Absolute	Absolute	Absolute
Absolute Start	30 dBm	-27 dBm	-36 dBm	-13 dBm	-13 dBm
Absolute Stop	30 dBm	-27 dBm	-36 dBm	-13 dBm	-13 dBm
Relative Start	-45 dBc	-55 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	-45 dBc	-55 dBc	0 dBc	0 dBc	0 dBc

Table 2-9: Forward link: BC (band class) 1, 4, and 8

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	No
Start Frequency	885 kHz	1.25 MHz	2.25 MHz	4 MHz	4 MHz
Stop Frequency	1.25 MHz	2.25 MHz	4 MHz	20 MHz	3 GHz
Measurement BW	30 kHz	30 kHz	1 MHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Rel OR Abs	Absolute	Absolute	Absolute
Absolute Start	30 dBm	-9 dBm	-13 dBm	-36 dBm	-13 dBm
Absolute Stop	30 dBm	-9 dBm	-13 dBm	-36 dBm	-13 dBm
Relative Start	-45 dBc	-45 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	-45 dBc	-45 dBc	0 dBc	0 dBc	0 dBc

Table 2-10: Forward link: BC (band class) 3b

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	No	No
Start Frequency	750 kHz	1.98 MHz	4 MHz	4 MHz	20 MHz
Stop Frequency	1.98 MHz	4 MHz	20 MHz	3 MHz	8 GHz
Measurement BW	30 kHz	30 kHz	1 MHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Relative	Absolute	Absolute	Absolute
Absolute Start	30 dBm	-27 dBm	-36 dBm	-13 dBm	-13 dBm
Absolute Stop	30 dBm	-27 dBm	-36 dBm	-13 dBm	-13 dBm
Relative Start	-45 dBc	-60 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	-45 dBc	-60 dBc	0 dBc	0 dBc	0 dBc

Table 2-11: Forward link: BC (band class) 6

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	Yes
Start Frequency	885 kHz	1.25 MHz	1.45 MHz	2.25 MHz	4 MHz
Stop Frequency	1.25 MHz	1.45 MHz	2.25 MHz	4 MHz	20 MHz
Measurement BW	30 kHz	30 kHz	30 kHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Rel OR Abs	Rel OR Abs	Absolute	Absolute
Absolute Start	30 dBm	-13 dBm	-13 dBm	-13 dBm	-36 dBm
Absolute Stop	30 dBm	-13 dBm	-26.6 dBm[1]	-13 dBm	-36 dBm
Relative Start	-45 dBc	-45 dBc	-45 dBc	0 dBc	0 dBc
Relative Stop	-45 dBc	-45 dBc	-45 dBc	0 dBc	0 dBc

1 Based on -[13+17x(Δf-1.45 MHz)] dBm when Δf is 2.25 MHz.

Table 2-12: Forward link: BC (band class) 7

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	Yes
Start Frequency	750 kHz	1.98 MHz	3.25 MHz	4 MHz	4 MHz
Stop Frequency	1.98 MHz	3.25 MHz	4 MHz	20 MHz	20 MHz
Measurement BW	30 kHz	30 kHz	30 kHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Rel OR Abs	Rel OR Abs	Absolute	Absolute
Absolute Start	30 dBm	-27 dBm	-46 dBm	-36 dBm	-36 dBm
Absolute Stop	30 dBm	-27 dBm	-46 dBm	-36 dBm	-36 dBm
Relative Start	-45 dBc	-55 dBc	-55 dBc	0 dBc	0 dBc
Relative Stop	-45 dBc	-55 dBc	-55 dBc	0 dBc	0 dBc

Table 2-13: Reverse link: BC (band class) 0, 2, 3, 5, and 9

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	No	No
Start Frequency	885 kHz	1.98 MHz	4 MHz	4 MHz	20 MHz
Stop Frequency	1.98 MHz	4 MHz	20 MHz	3 GHz	8 GHz
Measurement BW	30 kHz	30 kHz	1 MHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Rel AND Abs	Rel AND Abs	Absolute	Absolute	Absolute
Absolute Start	-54 dBm	-54 dBm	-36 dBm	-13 dBm	-13 dBm
Absolute Stop	-54 dBm	-54 dBm	-36 dBm	-13 dBm	-13 dBm
Relative Start	-42 dBc	-55 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	-42 dBc	-55 dBc	0 dBc	0 dBc	0 dBc

Table 2-14: Reverse link: BC (band class) 1, 4, and 8

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	No	No
Start Frequency	1.25 MHz	1.98 MHz	4 MHz	4 MHz	20 MHz
Stop Frequency	1.98 MHz	4 MHz	20 MHz	3 GHz	8 GHz
Measurement BW	30 kHz	30 kHz	1 MHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Rel OR Abs	Absolute	Absolute	Absolute
Absolute Start	-54 dBm	-54 dBm	-36 dBm	-13 dBm	-13 dBm
Absolute Stop	-54 dBm	-54 dBm	-36 dBm	-13 dBm	-13 dBm
Relative Start	-42 dBc	-50 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	-42 dBc	-50 dBc	0 dBc	0 dBc	0 dBc

Table 2-15: Reverse link: BC (band class) 6

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	No	No
Start Frequency	1.25 MHz	1.98 MHz	2.25 MHz	2.25 MHz	4 MHz
Stop Frequency	1.98 MHz	2.25 MHz	4 MHz	4 MHz	20 MHz
Measurement BW	30 kHz	30 kHz	1 MHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Rel AND Abs	Rel OR Abs	Rel OR Abs	Absolute	Absolute
Absolute Start	-54 dBm	-54 dBm	-13 dBm	-13 dBm	-36 dBm
Absolute Stop	-54 dBm	-54 dBm	-14.75 dBm[2]	-13 dBm	-36 dBm
Relative Start	-42 dBc	-50 dBc	-45 dBc	0 dBc	0 dBc
Relative Stop	-42 dBc	-50 dBc	-45 dBc	0 dBc	0 dBc

2 Based on -[13+1x(Δf-2.25 MHz)] dBm when Δf is 4 MHz.

Table 2-16: Reverse link: BC (band class) 7

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	Yes
Start Frequency	885 kHz	1.98 MHz	2.25 MHz	4 MHz	4 MHz
Stop Frequency	1.98 MHz	2.25 MHz	4 MHz	20 MHz	20 MHz
Measurement BW	30 kHz	30 kHz	30 kHz	1 MHz	1 MHz
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Rel AND Abs	Rel AND Abs	Rel AND Abs	Absolute	Absolute
Absolute Start	-54 dBm	-54 dBm	-35 dBm	-36 dBm	-36 dBm
Absolute Stop	-54 dBm	-54 dBm	-35 dBm	-36 dBm	-36 dBm
Relative Start	-42 dBc	-54 dBc	-55 dBc	0 dBc	0 dBc
Relative Stop	-42 dBc	-54 dBc	-55 dBc	0 dBc	0 dBc

SEM Inband Spurious Limits

Tables 2-17 through 2-19 list the measurement limits that can be used for the SEM Inband Spurious measurement.

Table 2-17: Forward and reverse link: BC (band class) 0, 1, 2, 3, 4, 5, 7, 8, and 9

Zone	A	B	C	D	E
Enable	Yes	Yes	No	No	No
Start Frequency	1 GHz	925 MHz	935 MHz	1.805 GHz	4 MHz
Stop Frequency	3 GHz	935 MHz	960 MHz	1.880 GHz	8 GHz
Measurement BW	1 MHz	100 kHz	100 kHz	100 kHz	1 MHz
Failure Mode	Absolute	Absolute	Absolute	Absolute	Absolute
Absolute Start	-36 dBm	-67 dBm	-79 dBm	-71 dBm	-36 dBm
Absolute Stop	-36 dBm	-67 dBm	-79 dBm	-71 dBm	-36 dBm
Relative Start	0 dBc	0 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	0 dBc	0 dBc	0 dBc	0 dBc	0 dBc

Table 2-18: Forward link: BC (band class) 6

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	No
Start Frequency	1.8935 GHz	925 MHz	935 MHz	1.805 GHz	4 MHz
Stop Frequency	1.9196 GHz	935 MHz	960 MHz	1.880 GHz	20 MHz
Measurement BW	300 kHz	100 kHz	100 kHz	100 kHz	1 MHz
Failure Mode	Absolute	Absolute	Absolute	Absolute	Absolute
Absolute Start	-41 dBm	-67 dBm	-79 dBm	-71 dBm	-36 dBm
Absolute Stop	-41 dBm	-67 dBm	-79 dBm	-71 dBm	-36 dBm
Relative Start	0 dBc	0 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	0 dBc	0 dBc	0 dBc	0 dBc	0 dBc

Table 2-19: Reverse link: BC (band class) 6

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	Yes
Start Frequency	1.8935 GHz	876 MHz	921 MHz	1.710 GHz	1.805 GHz
Stop Frequency	1.9196 GHz	915 MHz	960 MHz	1.785 GHz	1.880 GHz
Measurement BW	300 kHz	100 kHz	100 kHz	100 kHz	100 kHz
Failure Mode	Absolute	Absolute	Absolute	Absolute	Absolute
Absolute Start	-41 dBm	-98 dBm	-57 dBm	-98 dBm	-47 dBm
Absolute Stop	-41 dBm	-98 dBm	-57 dBm	-98 dBm	-47 dBm
Relative Start	0 dBc	0 dBc	0 dBc	0 dBc	0 dBc
Relative Stop	0 dBc	0 dBc	0 dBc	0 dBc	0 dBc

Gated Output Power Limits

Tables 2-20 and 2-21 list the measurement limits that can be used for the gated output power measurement.

Table 2-20: Forward link, all band classes, idle slot

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	No	No
Start Time	0 s	0 s	97.33 µs	0 s	0 s
Stop Time	90.33 µs	97.33 µs	416.665 µs	416.665 µs	416.665 µs
Upper/Lower	Lower	Upper	Upper	Lower	Upper
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Relative	Relative	Relative	Relative
Absolute Start	-150 dBm	30 dBm	30 dBm	-150 dBm	30 dBm
Absolute Stop	-150 dBm	30 dBm	30 dBm	-150 dBm	30 dBm
Relative Start	-2.5 dB	2.5 dB	-7 dB	-2.5 dB	2.5 dB
Relative Stop	-2.5 dB	2.5 dB	-7 dB	-2.5 dB	2.5 dB

Table 2-21: Forward link, all band classes, active slot

Zone	A	B	C	D	E
Enable	No	No	No	Yes	Yes
Start Time	0 s	0 s	97.33 µs	0 s	0 s
Stop Time	90.33 µs	97.33 µs	416.665 µs	416.665 µs	416.665 µs
Upper/Lower	Lower	Upper	Upper	Lower	Upper
Offset Side	Both	Both	Both	Both	Both
Failure Mode	Relative	Relative	Relative	Relative	Relative
Absolute Start	-150 dBm	30 dBm	30 dBm	-150 dBm	30 dBm
Absolute Stop	-150 dBm	30 dBm	30 dBm	-150 dBm	30 dBm
Relative Start	-2.5 dB	2.5 dB	-7 dB	-2.5 dB	2.5 dB
Relative Stop	-2.5 dB	2.5 dB	-7 dB	-2.5 dB	2.5 dB

Syntax and Commands

Command Groups

This section shows the organization of the Option 26 commands in a number of functional groups.

For detailed information about other commands can be used with the WCA230A or WCA280A, refer to the *WCA230A & WCA280A Wireless Communication Analyzers Programmer Manual*.

Items followed by question marks are queries; items without question marks are commands. Some items in this section have a question mark in parentheses (?) in the command header section; this indicates that the item can be both a command and a query.

You need to select one of the following measurement modes before executing any commands for the Option 26. To set the measurement mode, use the :INSTrument[:SELect] command using one of the mnemonics listed below:

Table 3-1: Measurement modes

Mnemonic	Meaning
DEMFL1XEVDO	1xEV-DO forward link analysis
DEMRL1XEVDO	1xEV-DO reverse link analysis

For more information on SCPI commands and programming structure, refer to *WCA230A & WCA280A Wireless Communication Analyzers Programmer Manual*.

NOTE. *Throughout the header descriptions in this section, the word* **Standard** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

:CONFigure Commands

Use these commands to set up the analyzer to perform the specified measurement.

Table 3-2: :CONFigure commands

Header	Description
:CONFigure:*Standard*:ACPower	Sets up the analyzer to the ACPR measurement default settings.
:CONFigure:*Standard*:CCDF	Sets up the analyzer to the CCDF measurement default settings.
:CONFigure:*Standard*:CDPower	Sets up the analyzer to the code domain power measurement default settings.
:CONFigure:*Standard*:CHPower	Sets up the analyzer to the channel power measurement default settings.
:CONFigure:*Standard*:IM	Sets up the analyzer to the intermodulation measurement default settings.
:CONFigure:*Standard*:MACCuracy	Sets up the analyzer to the modulation accuracy measurement default settings.
:CONFigure:*Standard*:OBWidth	Sets up the analyzer to the occupied band width measurement default settings.
:CONFigure:*Standard*:PCCHannel	Sets up the analyzer to the pilot to code channel measurement default settings.
:CONFigure:FL1XEVDO:PVTime	Sets up the analyzer to the gated output power measurement default settings.
:CONFigure:*Standard*:SEMask	Sets up the analyzer to the spectrum emission mask measurement default settings.

:DISPlay Commands

Use these commands to control how to show measurement data on the screen.

Table 3-3: :DISPlay commands

Header	Description
:DISPlay:***Standard***:CCDF subgroup	
:DISPlay:*Standard*:CCDF:LINE:GAUSsian [:STATe] (?)	Sets whether to display the Gaussian line on the CCDF view.
:DISPlay:*Standard*:CCDF:LINE:REFerence [:STATe] (?)	Sets whether to display the reference line on the CCDF view.
:DISPlay:*Standard*:CCDF:LINE:REFerence:STORe	Stores a new reference line.
:DISPlay:*Standard*:CCDF:X[:SCALe]:AUTO (?)	Determines whether to set the horizontal scale automatically in the CCDF view.
:DISPlay:*Standard*:CCDF:X[:SCALe] :MAXimum (?)	Sets the horizontal maximum value (right end) in the CCDF view.
:DISPlay:*Standard*:CCDF:X[:SCALe] :OFFSet (?)	Sets the minimum horizontal value (left end) in the CCDF view.
:DISPlay:*Standard*:CCDF:Y[:SCALe]:FIT	Runs auto-scale on the CCDF view.
:DISPlay:*Standard*:CCDF:Y[:SCALe]:FULL	Sets the vertical axis to the default full-scale value in the CCDF view.
:DISPlay:*Standard*:CCDF:Y[:SCALe] :MAXimum (?)	Sets the maximum vertical value (top end) in the CCDF view.
:DISPlay:*Standard*:CCDF:Y[:SCALe] :MINimum (?)	Sets the minimum vertical value (bottom end) in the CCDF view.

Table 3-3: :DISPlay commands (cont.)

Header	Description
:DISPlay:***Standard***:DDEMod subgroup	
:DISPlay:*Standard*:DDEMod:MVIew:CORDer(?)	Sets the code order.
:DISPlay:*Standard*:DDEMod:MVIew:FORMat (?)	Selects the main view display format.
:DISPlay:*Standard*:DDEMod:MVIew:X[:SCALe] :OFFSet (?)	Sets the minimum horizontal value (left end) in the main view.
:DISPlay:*Standard*:DDEMod:MVIew:X[:SCALe] :RANGe (?)	Sets the horizontal full-scale value in the main view.
:DISPlay:*Standard*:DDEMod:MVIew:Y[:SCALe]:FIT	Runs auto-scale on the main view.
:DISPlay:*Standard*:DDEMod:MVIew:Y[:SCALe] :FULL	Sets the main view's vertical axis to the default full-scale value.
:DISPlay:*Standard*:DDEMod:MVIew:Y[:SCALe] :OFFSet (?)	Sets the minimum vertical value (bottom end) in the main view.
:DISPlay:Standard:DDEMod:MVIew:Y[:SCALe] :PUNit (?)	Sets the unit of the vertical axis in the main view.
:DISPlay:Standard:DDEMod:MVIew:Y[:SCALe] :RANGe (?)	Sets the vertical full-scale value in the main view.
:DISPlay:*Standard*:DDEMod:SVIew:FORMat (?)	Selects the subview display format.
:DISPlay:*Standard*:DDEMod:SVIew:X[:SCALe] :OFFSet (?)	Sets the minimum horizontal value (left end) in the subview.
:DISPlay:*Standard*:DDEMod:SVIew:X[:SCALe] :RANGe (?)	Sets the horizontal full-scale value in the subview.
:DISPlay:*Standard*:DDEMod:SVIew:Y[:SCALe]:FIT	Runs auto-scale on the subview.
:DISPlay:*Standard*:DDEMod:SVIew:Y[:SCALe] :FULL	Sets the subview's vertical axis to the default full-scale value.
:DISPlay:*Standard*:DDEMod:SVIew:Y[:SCALe] :OFFSet (?)	Sets the minimum vertical value (bottom end) in the subview.
:DISPlay:*Standard*:DDEMod:SVIew:Y[:SCALe] :RANGe (?)	Sets the vertical full-scale value in the subview.
:DISPlay:***Standard***:SPECtrum subgroup	
:DISPlay:*Standard*:SPECtrum:X[:SCALe] :OFFSet (?)	Sets the minimum horizontal value (left end) in the spectrum view.
:DISPlay:*Standard*:SPECtrum:X[:SCALe] :PDIVision (?)	Sets the horizontal scale in the spectrum view.
:DISPlay:*Standard*:SPECtrum:Y[:SCALe]:FIT	Runs auto-scale on the spectrum view.
:DISPlay:*Standard*:SPECtrum:Y[:SCALe]:FULL	Sets the vertical axis to the default full-scale value.
:DISPlay:*Standard*:SPECtrum:Y[:SCALe] :OFFSet (?)	Sets the minimum vertical value (bottom end) in the spectrum view.
:DISPlay:*Standard*:SPECtrum:Y[:SCALe] :PDIVision (?)	Sets the vertical scale in the spectrum view.

Table 3-3: :DISPlay commands (cont.)

Header	Description
:DISPlay:FL1XEVDO:WAVeform subgroup	
:DISPlay:FL1XEVDO:WAVeform:X[:SCALe] :OFFSet (?)	Sets the minimum horizontal value in the time domain display.
:DISPlay:FL1XEVDO:WAVeform:X[:SCALe] :PDIVision (?)	Sets the horizontal or time scale per division in the spectrum view.
:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:FIT	Runs auto-scale on the time domain display.
:DISPlayFL1XEVDO:WAVeform:Y[:SCALe]:FULL	Sets the vertical axis to the default full scale.
:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe] :OFFSet (?)	Sets the minimum vertical value in the time domain display.
:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe] :PDIVision (?)	Sets the vertical scale per division in the time domain display.

:FETCh Commands

Use these commands to retrieve the measurement from the data taken by the latest :INITiate command.

If you want to perform a FETCh operation on fresh data, use the :READ commands, which acquire a new input signal and fetch the measurement results from that data.

Table 3-4: :FETCh commands

Header	Description
:FETCh:*Standard*:ACPower?	Returns the ACPR measurement results.
:FETCh:*Standard*:CCDF?	Returns the CCDF measurement results.
:FETCh:*Standard*:CDPower?	Returns the code domain power measurement results.
:FETCh:*Standard*:CHPower?	Returns the channel power measurement results.
:FETCh:*Standard*:IM?	Returns the intermodulation measurement results.
:FETCh:*Standard*:MACCuracy?	Returns the modulation accuracy measurement results.
:FETCh:*Standard*:OBWidth?	Returns the occupied bandwidth measurement results.
:FETCh:*Standard*:PCCHannel?	Returns the pilot-to-code channel measurement results.
:FETCh:FL1XEVDO:PVTime?	Returns the gated output power measurement results.
:FETCh:*Standard*:SEMask?	Returns the spectrum emission mask measurement results.
:FETCh:*Standard*:DISTribution:CCDF?	Returns the distribution data of the CCDF measurement.
:FETCh:FL1XEVDO:TAMPlitude:PVTime?	Returns the time amplitude for the gated output power measurement.
:FETCh:*Standard*:SPECtrum:ACPower?	Returns the spectrum waveform data of the ACPR measurement.
:FETCh:*Standard*:SPECtrum:CHPower?	Returns the spectrum waveform data of the channel power measurement.
:FETCh:*Standard*:SPECtrum:IM?	Returns the spectrum waveform data of the intermodulation measurement.
:FETCh:*Standard*:SPECtrum:OBWidth?	Returns the spectrum waveform data of the occupied bandwidth measurement.

:MMEMory Commands

Use these commands to manipulate files on the hard disk or floppy disk.

Table 3-5: :MMEMory commands

Header	Description
:MMEMory:LOAD:LIMit	Loads the limit from the specified file.
:MMEMory:STORe:LIMit	Stores the limit in the specified file.
:MMEMory:STORe:STABle	Stores the symbol table in the specified file.

:READ Commands

Use these commands to acquire an input signal once in the single mode and obtain the measurement results from that data.

If you want to fetch the measurement results from the data currently residing in the memory without acquiring the input signal, use the :FETCh command.

Table 3-6: :READ commands

Header	Description
:READ:*Standard*:ACPower?	Returns the ACPR measurement results.
:READ:*Standard*:CCDF?	Returns the CCDF measurement results.
:READ:*Standard*:CHPower?	Returns the channel power measurement results.
:READ:*Standard*:IM?	Returns the intermodulation measurement results.
:READ:*Standard*:OBWidth?	Returns the occupied bandwidth measurement results.
:READ:FL1XEVDO:PVTime?	Returns the gated output power measurement results.
:READ:*Standard*:SEMask?	Returns the spectrum emission mask measurement results.
:READ:*Standard*:DISTribution:CCDF?	Returns the distribution data of the CCDF measurement.
:READ:FL1XEVDO:TAMPlitude:PVTime?	Returns the time amplitude for the gated output power measurement.
:READ:*Standard*:SPECtrum:ACPower?	Returns the spectrum waveform data of the ACPR measurement.
:READ:*Standard*:SPECtrum:CHPower?	Returns the spectrum waveform data of the channel power measurement.
:READ:*Standard*:SPECtrum:IM?	Returns the spectrum waveform data of the intermodulation measurement.
:READ:*Standard*:SPECtrum:OBWidth?	Returns the spectrum waveform data of the occupied bandwidth measurement.

:SENSe Commands

Use these commands to set the detailed measurement conditions.

Table 3-7: :SENSe commands

Header	Description
[:SENSe]:***Standard*** subgroup	
[:SENSe]:*Standard*:ACQuisition:CHIPs (?)	Sets the acquisition length in chips.
[:SENSe]:*Standard*:ACQuisition:HISTory (?)	Sets the acquisition history.
[:SENSe]:*Standard*:ACQuisition:SEConds (?)	Sets the acquisition length in seconds.
[:SENSe]:*Standard*:ANALysis:INTerval (?)	Sets the analysis interval.
[:SENSe]:*Standard*:ANALysis:OFFSet (?)	Sets the analysis offset.
[:SENSe]:*Standard*:BLOCk (?)	Sets the number of the block to be measured.
[:SENSe]:*Standard*[:IMMediate]	Starts the calculation for the acquired data.
[:SENSe]:*Standard*:MEASurement (?)	Selects the measurement item.
[:SENSe]:*Standard*:SPECtrum:OFFSet (?)	Sets the spectrum offset within the time window.
[:SENSe]:*Standard*:SPECtrum:TINTerval?	Returns the length of the time-domain information used to construct the spectrum trace.
[:SENSe]:***Standard***:ACPower subgroup	
[:SENSe]:*Standard*:ACPower:BANDwidth|BWIDth :INTegration (?)	Sets the bandwidth of the main channel for the ACPR measurement.
[:SENSe]:*Standard*:ACPower:FILTer :COEFficient (?)	Sets the filter roll-off rate for the ACPR measurement.
[:SENSe]:*Standard*:ACPower:FILTer:TYPE (?)	Sets the filter for the ACPR measurement.
[:SENSe]:*Standard*:ACPower:LIMit :ADJacent[1]|2|3..|12[:STATe] (?)	Sets whether to enable or disable the adjacent limit testing for the ACPR measurement.
[:SENSe]:***Standard***:CCDF subgroup	
[:SENSe]:*Standard*:CCDF:RMEasurement	Clears the CCDF accumulator and restarts the measurement.
[:SENSe]:*Standard*:CCDF:THReshold (?)	Sets the threshold for the CCDF measurement.
[:SENSe]:***Standard***:CDPower subgroup	
[:SENSe]:*Standard*:CDPower:ACCThreshold (?)	Sets the active channel threshold level for the code domain power measurement.
[:SENSe]:FL1XEVDO:CDPower:CHANnel [:TYPE] (?)	Selects the channel type for the code domain power measurement.
[:SENSe]:*Standard*:CDPower:FILTer :MEASurement (?)	Selects the measurement filter for the code domain power measurement.
[:SENSe]:*Standard*:CDPower:IQSWap (?)	Sets whether to enable or disable IQ swapping for the code domain power measurement.
[:SENSe]:RL1XEVDO:CDPower:LCMask:I (?)	Sets the 11-digit mask of the I long code for the code domain power measurement.
[:SENSe]:RL1XEVDO:CDPower:LCMask:Q (?)	Sets the 11-digit mask of the Q long code for the code domain power measurement.
[:SENSe]:*Standard*:CDPower:MLEVel (?)	Selects the measurement level for the code domain power measurement.
[:SENSe]:FL1XEVDO:CDPower:PNOFfset (?)	Sets the PN offset for the code domain power measurement.
[:SENSe]:*Standard*:CDPower:SELect:CODE (?)	Sets the code in the halfslot for the code domain power measurement.
[:SENSe]:*Standard*:CDPower:SELect:HSLot (?)	Sets the halfslot for the code domain power measurement.

Table 3-7: :SENSe commands (cont.)

Header	Description
[:SENSe]:***Standard***:CHPower subgroup	
[:SENSe]:*Standard*:CHPower:BANDwidth|BWIDth :INTegration (?)	Sets the channel bandwidth for the channel power measurement.
[:SENSe]:*Standard*:CHPower:FILTer: COEFficient (?)	Sets the filter roll-off rate for the channel power measurement.
[:SENSe]:*Standard*:CHPower:FILTer:TYPE (?)	Selects the filter for the channel power measurement.
[:SENSe]:*Standard*:CHPower:LIMit[:STATe] (?)	Sets whether to enable or disable the limit testing for the channel power measurement.
[:SENSe]:***Standard***:IM subgroup	
[:SENSe]:*Standard*:IM:BANDwidth|BWIDth :INTegration (?)	Sets the bandwidth of the main channel for the intermodulation measurement.
[:SENSe]:*Standard*:IM:FILTer:COEFficient (?)	Sets the filter roll-off rate for the intermodulation measurement.
[:SENSe]:*Standard*:IM:FILTer:TYPE (?)	Selects the filter for the intermodulation measurement.
[:SENSe]:*Standard*:IM:LIMit:FORDer[:STATe] (?)	Sets whether to enable or disable the fifth order limit testing for the intermodulation measurement.
[:SENSe]:*Standard*:IM:LIMit:TORDer[:STATe] (?)	Sets whether to enable or disable the third order limit testing for the intermodulation measurement.
[:SENSe]:*Standard*:IM:SCOFfset (?)	Sets the frequency of the second channel for the intermodulation accuracy.
[:SENSe]:***Standard***:MACCuracy subgroup	
[:SENSe]:*Standard*:MACCuracy:ACCThreshold (?)	Sets the level (in dB from the pilot) which should be used when deciding whether a code channel is active or inactive for the modulation accuracy measurement.
[:SENSe]:FL1XEVDO:MACCuracy:CHANnel [:TYPE] (?)	Selects the channel type for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:FILTer :MEASurement (?)	Selects the measurement filter for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:IQSWap (?)	Sets whether to enable or disable IQ swapping for the modulation accuracy measurement.
[:SENSe]:RL1XEVDO:MACCuracy:LCMask:I (?)	Sets the 11-digit mask of the I long code for the modulation accuracy measurement.
[:SENSe]:RL1XEVDO:MACCuracy:LCMask:Q (?)	Sets the 11-digit mask of the Q long code for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:LIMit:EVM:PEAK [:STATe] (?)	Sets whether to enable or disable the Peak EVM limit testing for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:LIMit:EVM:RMS [:STATe] (?)	Sets whether to enable or disable the RMS EVM limit testing for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:LIMit:PCDerror [:STATe] (?)	Sets whether to enable or disable the Peak Code Domain Error limit testing for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:LIMit:RHO [:STATe] (?)	Sets whether to enable or disable the Rho limit testing for the modulation accuracy measurement.
[:SENSe]:FL1XEVDO:MACCuracy:LIMit:TAU [:STATe] (?)	Sets whether to enable or disable the Tau limit testing for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:MLEVel (?)	Selects the measurement level for the modulation accuracy measurement.
[:SENSe]:FL1XEVDO:MACCuracy:PNOFfset (?)	Sets the PN offset for the modulation accuracy measurement.
[:SENSe]:*Standard*:MACCuracy:SELect:CODE (?)	Sets the code in the halfslot for the modulation accuracy measurement.

Table 3-7: :SENSe commands (cont.)

Header	Description
[:SENSe]:*Standard*:MACCuracy:SELect:HSLot (?)	Sets the halfslot for the modulation accuracy measurement.
[:SENSe]:*Standard*:OBWidth subgroup	
[:SENSe]:*Standard*:OBWidth:LIMit[:STATe] (?)	Sets whether to enable or disable the limit testing for the occupied bandwidth measurement.
[:SENSe]:*Standard*:OBWidth:PERcent (?)	Sets the occupied bandwidth for the occupied bandwidth measurement.
[:SENSe]:*Standard*:PCCHannel subgroup	
[:SENSe]:*Standard*:PCCHannel:ACCThreshold (?)	Sets the level (in dB from the pilot) that should be used when deciding whether a code channel is active or inactive for the pilot to code channel measurement.
[:SENSe]:FL1XEVDO:PCCHannel:CHANnel [:TYPE] (?)	Selects the channel type for the pilot to code channel measurement.
[:SENSe]:*Standard*:PCCHannel:FILTer :MEASurement (?)	Selects the measurement filter for the pilot to code channel measurement.
[:SENSe]:*Standard*:PCCHannel:IQSWap (?)	Sets whether to enable or disable IQ swapping for the pilot to code channel measurement.
[:SENSe]:RL1XEVDO:PCCHannel:LCMask:I (?)	Sets the 11-digit mask of the I long code for the pilot to code channel measurement.
[:SENSe]:RL1XEVDO:PCCHannel:LCMask:Q (?)	Sets the 11-digit mask of the Q long code for the pilot to code channel measurement.
[:SENSe]:*Standard*:PCCHannel:LIMit:PHASe [:STATe] (?)	Sets whether to enable or disable the phase limit testing for the pilot to code channel measurement.
[:SENSe]:*Standard*:PCCHannel:LIMit:TIME [:STATe] (?)	Sets whether to enable or disable the time limit testing for the pilot to code channel measurement.
[:SENSe]:FL1XEVDO:PCCHannel:PNOFfset (?)	Sets the PN offset for the pilot to code channel measurement.
[:SENSe]:*Standard*:PCCHannel:SELect:CODE(?)	Sets the code in the halfslot for the pilot to code channel measurement.
[:SENSe]:*Standard*:PCCHannel:SELect:HSLot (?)	Sets the halfslot for the pilot to code channel measurement.
[:SENSe]:FL1XEVDO:PVTime subgroup	
[:SENSe]:FL1XEVDO:PVTime:BURSt:OFFSet (?)	Selects the burst offset between the trigger position and burst position for the power versus time measurement.
[:SENSe]:FL1XEVDO:PVTime:BURSt:SYNC (?)	Selects the burst sync for the power versus time measurement.
[:SENSe]:FL1XEVDO:PVTime:LIMit :ZONE[1]|2|3|4|5[:STATe] (?)	Sets whether to enable or disable the zone limit testing for the power versus time measurement.
[:SENSe]:FL1XEVDO:PVTime:RCHannel :LEVel (?)	Sets the reference channel level for measuring the power level in dB.
[:SENSe]:FL1XEVDO:PVTime:RCHannel :MODE (?)	Selects the reference channel level mode for measuring the power level in dB.
[:SENSe]:FL1XEVDO:PVTime:SLOT[:TYPE] (?)	Selects the slot type.
[:SENSe]:*Standard*:SEMask subgroup	
[:SENSe]:*Standard*:SEMask:BANDwidth|BWIDth :INTegration (?)	Sets the channel bandwidth for the spectrum emission mask measurement.
[:SENSe]:*Standard*:SEMask:BURSt:OFFSet (?)	Sets the burst offset between the trigger position and burst point for the spectrum emission mask measurement.
[:SENSe]:*Standard*:SEMask:BURSt:SYNC (?)	Sets the burst sync for the spectrum emission mask measurement.
[:SENSe]:*Standard*:SEMask:FILTer:COEFficient (?)	Sets the filter roll-off rate for the spectrum emission mask measurement.
[:SENSe]:*Standard*:SEMask:FILTer:TYPE (?)	Selects the filter for the spectrum emission mask measurement.

Table 3-7: :SENSe commands (cont.)

Header	Description
[:SENSe]:*Standard*:SEMask:LIMit:ISPurious :ZONE[1]|2|3|4|5[:STATe] (?)	Sets whether to enable or disable the inband spurious zone limit testing for the spectrum emission mask measurement.
[:SENSe]:*Standard*:SEMask:LIMit:OFCHannel :ZONE[1]|2|3|4|5[:STATe] (?)	Sets whether to enable or disable the offset from the channel zone limit testing for the spectrum emission mask measurement.
[:SENSe]:*Standard*:SEMask:MEASurement (?)	Selects the limit table type.
[:SENSe]:*Standard*:SEMask:RCHannel:LEVel (?)	Sets the reference channel level for measuring the spurious emission level.
[:SENSe]:*Standard:*SEMask:RCHannel:MODE (?)	Selects the reference channel level mode for measuring the spurious emission level.
[:SENSe]:FL1XEVDO:SEMask:SLOT:GATE (?)	Sets the slot gate time for the spectrum emission mask measurement.
[:SENSe]:FL1XEVDO:SEMask:SLOT[:TYPE] (?)	Sets the slot type (Idle or Active) for the spectrum emission mask measurement.

:CONFigure Commands

The :CONFigure commands set up the analyzer to the default settings for the specified measurement under the 1xEV-DO forward link or reverse link standard.

NOTE. *Throughout the header descriptions in this section, the word* ***Standard*** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

Command Tree

```
:CONFigure
   :FL1XEVDO|RL1XEVDO
      :ACPower
      :CCDF
      :CDPower
      :CHPower
      :IM
      :MACCuracy
      :OBWidth
      :PCCHannnel
      :PVTime
      :SEMask
```

:CONFigure:***Standard***:ACPower

Sets up the analyzer to the default settings for the ACPR measurement under the 1xEVDO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:ACPower`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:ACPower`
sets up the analyzer to the default settings for the ACPR measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:***Standard***:CCDF

Sets up the analyzer to the default settings for the CCDF measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:CCDF`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:CCDF`
sets up the analyzer to the default settings for the CCDF measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:***Standard***:CDPower

Sets up the analyzer to the default settings for the code domain power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:CDPower`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:CDPower`
sets up the analyzer to the default settings for the code domain power measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:*Standard*:CHPower

Sets up the analyzer to the default settings for the channel power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:CHPower`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:CHPower`
sets up the analyzer to the default settings for the channel power measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:*Standard*:IM

Sets up the analyzer to the default settings for the intermodulation measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:IM`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:IM`
sets up the analyzer to the default settings for the intermodulation measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:***Standard***:MACCuracy

Sets up the analyzer to the default settings for the modulation accuracy measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:MACCuracy`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:MACCuracy`
sets up the analyzer to the default settings for the modulation accuracy measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:***Standard***:OBWidth

Sets up the analyzer to the default settings for the occupied bandwidth measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:OBWidth`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:OBWidth`
sets up the analyzer to the default settings for the occupied bandwidth measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:*Standard*:PCCHannel

Sets up the analyzer to the default settings for the pilot to code channel measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:PCCHannel`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:PCCHannel`
sets up the analyzer to the default settings for the pilot to code channel measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:FL1XEVDO:PVTime

Sets up the analyzer to the default settings for the gated output power measurement under the 1xEV-DO forward link standard.

Syntax `:CONFigure:FL1XEVDO:PVTime`

Arguments None

Measurement Modes `DEMFL1XEVDO`

Examples `:CONFigure:FL1XEVDO:PVTime`
sets up the analyzer to the default settings for the gated output power measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:CONFigure:***Standard***:SEMask

Sets up the analyzer to the default settings for the spectrum emission mask measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:CONFigure:FL1XEVDO|RL1XEVDO:SEMask`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:CONFigure:FL1XEVDO:SEMask`
sets up the analyzer to the default settings for the spectrum emission mask measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:DISPlay Commands

NOTE. *Throughout the header descriptions in this section, the word* ***Standard*** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

The :DISPlay commands control how measurement data is shown on the screen. These commands are divided into the following subgroups:

Table 3-8: :DISPlay command subgroups

Command header	Function	Page number
:DISPlay:*Standard*:CCDF	Controls display of the CCDF measurement.	Page 3-18
:DISPlay:*Standard*:DDEMod	Controls display of the digital modulation related measurements.	Page 3-24
:DISPlay:*Standard*:SPECtrum	Controls the spectrum display.	Page 3-34
:DISPlay:FL1XEVDO:WAVeform	Controls the time domain display.	Page 3-38

:DISPlay:***Standard***:CCDF Subgroup

The :DISPlay:*Standard*:CCDF commands control the CCDF view in the CCDF measurement under the 1xEV-DO forward link or reverse link standard.

Command Tree

```
:DISPlay
   :FL1XEVDO|RL1XEVDO
      :CCDF
         :LINE
            :GAUSsian
               [:STATe]          <boolean>
            :REFerence
               [:STATe]          <boolean>
               :STORe
         :X
            [:SCALe]
               :AUTO             <boolean>
               :MAXimum          <numeric_value>
               :OFFSet           <numeric_value>
         :Y
            [:SCALe]
               :FIT
               :FULL
               :MAXimum          <numeric_value>
               :MINimum          <numeric_value>
```

:DISPlay:***Standard***:CCDF:LINE:GAUSsian[:STATe]

Determines whether to display the Gaussian line on the CCDF view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:LINE:GAUSsian[:STATe] <boolean>

:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:LINE:GAUSsian[:STATe]?
```

Arguments

```
<boolean>::={ON|OFF|1|0}
{ON|1}      enables the Gaussian line display.
{OFF|0}     disables the Gaussian line display.
```

Measurement Modes

```
DEMFL1XEVDO, DEMRL1XEVDO
```

Examples

```
:DISPlay:FL1XEVDO:CCDF:LINE:GAUSsian:STATe ON
```

displays the Gaussian line on the CCDF view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:CCDF:LINE:REFerence[:STATe]

Determines whether to display the most recently stored reference line on the CCDF view. This command is only available when a reference line is stored in the instrument memory.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:LINE:REFerence[:STATe] <boolean>

:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:LINE:REFerence[:STATe]?
```

Arguments

```
<boolean>::={ON|OFF|1|0}
{ON|1}      enables to display the reference line.
{OFF|0}     disables to display the reference line.
```

Measurement Modes

```
DEMFL1XEVDO, DEMRL1XEVDO
```

Examples

```
:DISPlay:FL1XEVDO:CCDF:LINE:REFerence:STATe ON
```

displays the most recently stored reference line on the CCDF view under the 1xEV-DO forward link standard.

Related Commands

```
:DISPLay:FL1XEVDO|RL1XEVDO:CCDF:LINE:REFerence:STORe
```

:DISPlay:***Standard***:CCDF:LINE:REFerence:STORe

Stores the line currently being displayed on the CCDF view as a reference line.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:LINE:REFerence:STORe
```

Arguments

None

Measurement Modes

```
DEMFL1XEVDO, DEMRL1XEVDO
```

Examples

```
:DISPlay:FL1XEVDO:CCDF:LINE:REFerence:STORe
```

stores the line currently being displayed on the CCDF view as a reference line under the 1xEV-DO forward link standard.

Related Commands

```
:DISPLay:FL1XEVO|RL1XEVDO:CCDF:LINE:REFerence:[:STATe]
```

:DISPlay:***Standard***:CCDF:X[:SCALe]:AUTO (?)

Determines whether to automatically set the horizontal, or power, scale in the CCDF view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:AUTO <boolean>
```

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:AUTO?
```

Arguments

```
<boolean>::={ON|OFF|1|0}
```

`{ON|1}` specifies that the horizontal scale is set automatically.
`{OFF|0}` specifies that the horizontal scale is set manually (default).
Use the :DISPlay:*Standard*:CCDF:X[:SCALe]:MAXimum and :DISPlay:*Standard*:CCDF:X[:SCALe]:OFFSet commands to set the horizontal axis.

Measurement Modes

```
DEMFL1XEVDO, DEMRL1XEVDO
```

Examples

```
:DISPlay:FL1XEVDO:CCDF:X:SCALe:AUTO ON
```

specifies that the horizontal scale is set automatically on the CCDF view under the 1xEV-DO forward link standard.

Related Commands

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:MAXimum
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:OFFSet
```

:DISPlay:***Standard***:CCDF:X[:SCALe]:MAXimum (?)

Sets or queries the maximum horizontal, or power, scale in the CCDF view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:MAXimum <numeric_value>
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:MAXimum?
```

Arguments

`<numeric_value>::=<NRf>` specifies the maximum horizontal value.
Range: 0 to 15.01 dB

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:CCDF:X:SCALe:MAXimum 15dB
```

sets the maximum horizontal value to 15 dB on the CCDF view under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:AUTO`

:DISPlay:***Standard***:CCDF:X[:SCALe]:OFFSet (?)

Sets or queries the start value of the horizontal axis in the CCDF view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:OFFSet <numeric_value>
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:OFFSet?
```

Arguments

`<numeric_value>::=<NRf>` specifies the start value of the horizontal axis.
Range: 0 to 15.01 dB

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:CCDF:X:SCALe:OFFSet 10dB
```

sets the start value of the horizontal axis to 10 dB on the CCDF view under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:X[:SCALe]:AUTO`

:DISPlay:***Standard***:CCDF:Y[:SCALe]:FIT

Runs auto-scale on the CCDF view. The auto-scale automatically sets the start value and scale of the vertical axis so that the whole waveform is displayed on the screen.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:Y[:SCALe]:FIT`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:CCDF:Y:SCALe:FIT`
runs auto scale on the CCDF view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:CCDF:Y[:SCALe]:FULL

Sets the vertical axis to the default full-scale value in the CCDF view.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:Y[:SCALe]:FULL`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:CCDF:Y:SCALe:FULL`
sets the vertical axis to the default full-scale value in the CCDF view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:CCDF:Y[:SCALe]:MAXimum (?)

Sets or queries the maximum vertical value (top end) in the CCDF view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:Y[:SCALe]:MAXimum <numeric_value>
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:Y[:SCALe]:MAXimum?
```

Arguments

<numeric_value>::=<NRf> specifies the maximum vertical value.
Range: 10 E-9 to 100%

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:CCDF:Y:SCALe:MAXimum 90PCT
```
sets the maximum vertical value to 90% in the CCDF view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:CCDF:Y[:SCALe]:MINimum (?)

Sets or queries the minimum vertical value (bottom end) in the CCDF view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:Y[:SCALe]:MINimum <numeric_value>
:DISPlay:FL1XEVDO|RL1XEVDO:CCDF:Y[:SCALe]:MINimum?
```

Arguments

<numeric_value>::=<NRf> specifies the minimum vertical value.
Range: 10 E-9 to 100%

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:CCDF:Y:SCALe:MINimum 20PCT
```
sets the minimum vertical value to 20% in the CCDF view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:DDEMod Subgroup

The :DISPlay:*Standard*:DDEMod commands control display of the main view and subview for the digital modulation related measurement under the 1xEV-DO forward link or reverse link standard.

Command Tree

```
:DISPlay
   :FL1XEVDO|RL1XEVDO
      :DDEMod
         :MView
            :CORDer          HADamard|BREVerse
            :FORMat          CDPower|MACCuracy|EVM|MERRor|
                             PERRor|PCGRam|STABle|IQPower
            :X
               [:SCALe]
                  :OFFSet    <numeric_value>
                  :RANGe     <numeric_value>
            :Y
               [:SCALe]
                  :FIT
                  :FULL
                  :OFFSet    <numeric_value>
                  :PUNit     RELative|ABSolute
                  :RANGe     <numeric_value>
         :SView
            :FORMat          SPECtrum|IQPower|CONSte|EVM|
                             MERRor|PERRor
            :X
               [:SCALe]
                  :OFFSet    <numeric_value>
                  :RANGe     <numeric_value>
            :Y
               [:SCALe]
                  :FIT
                  :FULL
                  :OFFSet    <numeric_value>
                  :RANGe     <numeric_value>
```

:DISPlay:***Standard***:DDEMod:MVIew:CORDer (?)

Sets or queries the code order of the main view in the digital modulation related measurement. This command is only available when the code domain power measurement is enabled and the :DISPlay:*Standard*:DDEMod:MVIew:FORMat command is set to CDPower or PCGram.

Syntax

```
:DISPlay:FL1xEVDO|RL1XEVDO:DDEMod:MVIew:CORDer
{HADamard|BREVerse}

:DISPlay:FL1xEVDO|RL1XEVDO:DDEMod:MVIew:CORDer?
```

Arguments

`HADamard` specifies the hadamard code order.
`BREVerse` specifies bit reverse.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:CORDer HADamard
```

selects the hadamard code order for the code domain power measurement under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:FORMat (?)

Selects or queries the display format of the main view in the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat {CDPower|MACCuracy
|EVM|MERRor|PERRor|PCGRam|STABle|IQPower}

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat?
```

Arguments The arguments and display formats are listed below:

Argument	Display format
CDPower	Code domain power
MACCuracy	Modulation accuracy
EVM	Error vector magnitude (EVM)
MERRor	Amplitude error
PERRor	Phase error
PCGRam	Power codegram
STABle	Symbol table
IQPower	IQ power graph

NOTE. *The arguments CDPower, PCGram, and IQPower are available only when the [:SENSe]:Standard:MEASurement command is set to CDPower. The arguments MACCuracy, EVM, MERRor, PERRor, and STABle are available only when the [:SENSe]:Standard:MEASurement command is set to MACCuracy.*

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:FORMat CDPower
```

selects the code domain power measurement under the 1xEV-DO forward link standard.

Related Commands

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat
[:SENSe]:FL1XEVDO|RL1XEVDO:MEASurement
```

:DISPlay:***Standard***:DDEMod:MVIew:X[:SCALe]:OFFSet (?)

Sets or queries the minimum horizontal value (left end) in the main view during the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:X[:SCALe]:OFFset
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:X[:SCALe]:OFFset?
```

Arguments `<numeric_value>::=<NRf>` specifies the minimum horizontal value in the main view. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:X:SCALe:OFFSet 10
```

sets the minimum horizontal value to 10 chips when the main view displays EVM under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:X[:SCALe]:RANGe (?)

Sets or queries the full-scale value of the horizontal axis in the main view during the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:X[:SCALe]:RANGe
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:X[:SCALe]:RANGe?
```

Arguments `<numeric_value>::=<NRf>` specifies the full-scale value of the horizontal axis in the main view. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:X:SCALe:RANGe 512
```

sets the full-scale value of the horizontal axis to 512 chips when the main view displays EVM under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:Y[:SCALe]:FIT

Runs auto-scale on the main view during the digital modulation related measurement. The auto-scale automatically sets the start value and scale of the vertical axis so that the whole waveform is displayed on the screen.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:FIT`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:DDEMod:MVIew:Y:SCALe:FIT`
runs auto scale on the main view under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:Y[:SCALe]:FULL

Sets the vertical axis in the main view to the default full-scale value during the digital modulation related measurement.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:FULL`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:DDEMod:MVIew:Y:SCALe:FULL`
sets the main view's vertical axis to the default full-scale value under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:Y[:SCALe]:OFFSet (?)

Sets or queries the minimum vertical value in the main view (bottom end) during the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:OFFSet
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:OFFSet?
```

Arguments

`<numeric_value>::=<NRf>` specifies the minimum vertical value in the main view. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:Y:SCALe:OFFSet -10PCT
```

sets the minimum vertical value to -10% when the main view displays EVM under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:Y[:SCALe]:PUNit (?)

Selects or queries the unit on the Y, or power, axis in the main view during the digital modulation related measurement. This command is only available when the :DISPlay:*Standard*:DDEMod :MVIew:FORMat command is set to CDPower or PCGRam.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:PUNit
{RELative|ABSolute}

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:PUNit?
```

Arguments

`RELative` represents the relative channel power to the total power of all the channels along the Y axis in dB.
`ABSolute` represents the absolute power of each channel along the Y axis in dBm.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:Y:SCALe:PUNit ABSolute
```

sets the Y axis unit in the main view to Absolute under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:MVIew:Y[:SCALe]:RANGe (?)

Sets or queries the full-scale value of the vertical axis in the main view during the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:RANGe
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:Y[:SCALe]:RANGe?
```

Arguments

`<numeric_value>::=<NRf>` specifies the full-scale value of the vertical axis in the main view. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:Y:SCALe:RANGe 10PCT
```

sets the full-scale value of the vertical axis to 10% when the main view displays EVM under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:SVIew:FORMat (?)

Selects or queries the display format of the subview in the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat {SPECtrum|IQPower
|CONSte|EVM|MERRor|PERRor}

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat?
```

Arguments

The arguments and display formats are listed below:

Argument	Display format
SPECtrum	Spectrum
IQPower	IQ power graph
CONSte	Constellation
EVM	Error vector magnitude (EVM)
MERRor	Amplitude error
PERRor	Phase error

NOTE. *The argument IQPower is only available when the [:SENSe]:Standard :MEASurement command is set to CDPower or MACCuracy.*

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:DDEMod:SVIew:FORMat SPECtrum`
displays the spectrum in the subview under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat`

:DISPlay:***Standard***:DDEMod:SVIew:X[:SCALe]:OFFSet (?)

Sets or queries the minimum horizontal value (left end) in the main view during the digital modulation related measurement.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:X[:SCALe]:OFFset <numeric_value>`

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:X[:SCALe]:OFFset?`

Arguments `<numeric_value>::=<NRf>` specifies the minimum horizontal value in the subview. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:DDEMod:SVIew:X:SCALe:OFFSet 10`
sets the minimum horizontal value to 10 chips when the subview displays EVM under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat`

:DISPlay:***Standard***:DDEMod:SVIew:X[:SCALe]:RANGe (?)

Sets or queries the full-scale value of the horizontal axis in the subview during the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:X[:SCALe]:RANGe
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:X[:SCALe]:RANGe?
```

Arguments

<numeric_value>::=<NRf> specifies the full-scale value of the horizontal axis in the subview. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:DDEMod:MVIew:X:SCALe:RANGe 512
```

sets the full-scale value of the horizontal axis to 512 chips when the subview displays EVM under the 1xEV-DO forward link standard.

Related Commands

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat
```

:DISPlay:***Standard***:DDEMod:SVIew:Y[:SCALe]:FIT

Runs auto-scale on the subview during the digital modulation related measurement. The auto-scale automatically sets the start value and scale of the vertical axis so that the whole waveform is displayed on the screen.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:Y[:SCALe]:FIT
```

Arguments

None

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:DDEMod:SVIew:Y:SCALe:FIT
```

runs auto scale on the subview under the 1xEV-DO forward link standard.

Related Commands

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat
```

:DISPlay:***Standard***:DDEMod:SVIew:Y[:SCALe]:FULL

Sets the vertical axis in the subview to the default full-scale value during the digital modulation related measurement.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:Y[:SCALe]:FULL`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:DDEMod:SVIew:Y:SCALe:FULL`
sets the subview's vertical axis to the default full-scale value under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat`

:DISPlay:***Standard***:DDEMod:SVIew:Y[:SCALe]:OFFSet (?)

Sets or queries the minimum vertical value in the subview (bottom end) during the digital modulation related measurement.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:Y[:SCALe]:OFFSet <numeric_value>`

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:Y[:SCALe]:OFFSet?`

Arguments `<numeric_value>::=<NRf>` specifies the minimum vertical value in the subview. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:DDEMod:SVIew:Y:SCALe:OFFSet -100dBm`
sets the minimum vertical value to -100 dBm when the subview displays spectrum under the 1xEV-DO forward link standard.

Related Commands `:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat`

:DISPlay:***Standard***:DDEMod:SVIew:Y[:SCALe]:RANGe (?)

Sets or queries the full-scale value of the vertical axis in the subview during the digital modulation related measurement.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:Y[:SCALe]:RANGe
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:Y[:SCALe]:RANGe?
```

Arguments

`<numeric_value>::=<NRf>` specifies the full-scale value of the vertical axis in the subview. The valid range depends on the display format. Refer to Table C-1 in *Appendix C*.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:DDEMod:SVIew:Y:SCALe:RANGe 100dB
```

sets the full-scale value of the vertical axis to 100 dB when the subview displays spectrum under the 1xEV-DO forward link standard.

Related Commands

`:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:SVIew:FORMat`

:DISPlay:***Standard***:SPECtrum Subgoup

The :DISPlay:*Standard*:SPECtrum commands control the spectrum display in the channel power, intermodulation, spectrum emission mask (SEM), and occupied bandwidth measurements under the 1xEV-DO forward link or reverse link standard.

Command Tree

```
:DISPlay
   :FL1XEVDO|RL1XEVDO
      :SPECtrum
         :X
            [:SCALe]
               :OFFSet          <numeric_value>
               :PDIVison        <numeric_value>
         :Y
            [:SCALe]
               :FIT
               :FULL
               :OFFSet          <numeric_value>
               :PDIVison        <numeric_value>
```

:DISPlay:***Standard***:SPECtrum:X[:SCALe]:OFFSet (?)

Sets or queries the minimum value (left edge) of the horizontal axis (frequency) in the spectrum view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:X[:SCALe]:OFFSet
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:X[:SCALe]:OFFSet?
```

Arguments

`<numeric_value>::=<NRf>` specifies the minimum horizontal value in the spectrum view. The valid range depends on the measurement frequency band in the [:SENSe]:FREQuency:BAND command. Refer to the *WCA230A & WCA280A Portable Wireless Communication Analyzers Programmer Manual*.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:SPECTrum:X:SCALe:OFFSet 100MHZ
```

sets the minimum horizontal value to 100 MHz in the spectrum view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:SPECtrum:X[:SCALe]:PDIVision (?)

Sets or queries the horizontal, or frequency, scale (per division) in the spectrum view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:X[:SCALe]:PDIVision
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:X[:SCALe]:PDIVision?
```

Arguments

`<numeric_value>::=<NRf>` specifies the horizontal scale in the spectrum view. The valid range depends on the measurement frequency band in the [:SENSe] :FREQuency:BAND command. Refer to the *WCA230A & WCA280A Portable Wireless Communication Analyzers Programmer Manual*.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:SPECTrum:X:SCALe:PDIVision 100kHz
```

sets the horizontal scale to 100 kHz/div in the spectrum view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:SPECtrum:Y[:SCALe]:FIT

Runs auto-scale on the spectrum view. The auto-scale automatically sets the start value and scale of the vertical axis so that the whole waveform is displayed on the screen.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:Y[:SCALe]:FIT`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:SPECtrum:Y:SCALe:FIT`
runs auto-scale on the spectrum view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:SPECtrum:Y[:SCALe]:FULL

Sets the vertical axis to the default full-scale value in the spectrum view.

Syntax `:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:Y[:SCALe]:FULL`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:DISPlay:FL1XEVDO:SPECtrum:Y:SCALe:FULL`
sets the vertical axis to the default full-scale value in the spectrum view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:SPECtrum:Y[:SCALe]:OFFSet (?)

Sets or queries the minimum vertical, or amplitude value (bottom end) in the spectrum view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:Y[:SCALe]:OFFSet
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:Y[:SCALe]:OFFSet?
```

Arguments

`<numeric_value>::=<NRf>` specifies the minimum vertical value.
Range: -200 to 100 dBm

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:SPECtrum:Y:SCALe:OFFSet -100dBm
```

sets the minimum vertical value to -100 dBm in the spectrum view under the 1xEV-DO forward link standard.

:DISPlay:***Standard***:SPECtrum:Y[:SCALe]:PDIVision (?)

Sets or queries the vertical, or amplitude, scale (per division) in the spectrum view.

Syntax

```
:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:Y[:SCALe]:PDIVision
<numeric_value>

:DISPlay:FL1XEVDO|RL1XEVDO:SPECtrum:Y[:SCALe]:PDIVision?
```

Arguments

`<numeric_value>::=<NRf>` specifies the vertical scale in the spectrum view.
Range: 0 to 10 dB/div

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:DISPlay:FL1XEVDO:SPECTrum:Y:SCALe:PDIVision 10dB
```

sets the vertical scale to 10 dB/div in the spectrum view under the 1xEV-DO forward link standard.

:DISPlay:FL1XEVDO:WAVeform Subgroup

The :DISPlay:FL1XEVDO:WAVeform commands control the time domain display in the main view of the gated output power measurement under the 1xEV-DO forward link standard.

Command Tree

```
:DISPlay
   :FL1XEVDO
      :WAVeform
         :X
            [:SCALe]
               :OFFSet          <numeric_value>
               :PDIVison        <numeric_value>
         :Y
            [:SCALe]
               :FIT
               :FULL
               :OFFSet          <numeric_value>
               :PDIVison        <numeric_value>
```

:DISPlay:FL1XEVDO:WAVeform:X[:SCALe]:OFFSet (?)

Sets or queries the minimum value (left edge) of the horizontal axis (frequency) in the time domain display.

Syntax

```
:DISPlay:FL1XEVDO:WAVeform:X[:SCALe]:OFFSet <numeric_value>
```

```
:DISPlay:FL1XEVDO:WAVeform:X[:SCALe]:OFFSet?
```

Arguments

<numeric_value>::=<NRf> specifies the minimum horizontal value.
Range: approximately -416.67 µs to approximately 415 µs (since the resolution of the time axis depends on the span setting of the instrument, the upper and lower limit values are set to the nearest value of a multiple of its resolution.

Measurement Modes

DEMFL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:WAVeform:X:SCALe:OFFSet -100us
```

sets the minimum horizontal value to -100 µs in the time domain display under the 1xEV-DO forward link standard.

:DISPlay:FL1XEVDO:WAVeform:X[:SCALe]:PDIVision (?)

Sets or queries the horizontal, or time, scale (per division) in the time domain display.

Syntax

```
:DISPlay:FL1XEVDO:WAVeform:X[:SCALe]:PDIVision <numeric_value>

:DISPlay:FL1XEVDO:WAVeform:X[:SCALe]:PDIVision?
```

Arguments

<numeric_value>::=<NRf> specifies the horizontal scale.
Range: approximately 0.1627 µs to approximately 833.33 µs (since the resolution of the time axis depends on the span setting of the instrument, the upper and lower limit values are set to the nearest value of a multiple of its resolution.

Measurement Modes

DEMFL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:WAVeform:X:SCALe:PDIVision 10us
```

sets the horizontal scale to 10 µs/div in the time domain display under the 1xEV-DO forward link standard.

:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:FIT

Runs auto-scale on the time domain display. The auto-scale automatically sets the start value and scale of the vertical axis so that the whole waveform is displayed on the screen.

Syntax

```
:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:FIT
```

Arguments

None

Measurement Modes

DEMFL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:WAVeform:Y:SCALe:FIT
```

runs auto-scale on the time domain display under the 1xEV-DO forward link standard.

:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:FULL

Sets the vertical axis to the default full-scale value in the time domain display.

Syntax `:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:FULL`

Arguments None

Measurement Modes `DEMFL1XEVDO`

Examples `:DISPlay:FL1XEVDO:WAVeform:Y:SCALe:FULL`
sets the vertical axis to the default full-scale value in the time domain display under the 1xEV-DO forward link standard.

:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:OFFSet (?)

Sets or queries the minimum vertical, or amplitude value (bottom end) in the time domain display.

Syntax `:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:OFFSet <numeric_value>`

`:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:OFFSet?`

Arguments `<numeric_value>::=<NRf>` specifies the minimum vertical value.
Range: -200 to 100 dB

Measurement Modes `DEMFL1XEVDO`

Examples `:DISPlay:FL1XEVDO:WAVeform:Y:SCALe:OFFSet -100dBm`
sets the minimum vertical value to -100 dBm in the time domain display under the 1xEV-DO forward link standard.

:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:PDIVision (?)

Sets or queries the vertical, or amplitude, scale (per division) in the time domain display.

Syntax

```
:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:PDIVision <numeric_value>

:DISPlay:FL1XEVDO:WAVeform:Y[:SCALe]:PDIVision?
```

Arguments

<numeric_value>::=<NRf> specifies the vertical scale in the time domain display.
Range: 1.0 E-5 to 10 dB

Measurement Modes

DEMFL1XEVDO

Examples

```
:DISPlay:FL1XEVDO:WAVeform:Y:SCALe:PDIVision 10dB
```

sets the vertical scale to 10 dB/div in the time domain display under the 1xEV-DO forward link standard.

:FETCh Commands

The :FETCh commands retrieve the measurements from the data taken by the latest :INITiate command.

If you want to perform a FETCh operation on fresh data, use the :READ commands on page 3-67. The :READ commands acquire a new input signal and fetch the measurement results from the data.

NOTE. *Throughout the header descriptions in this section, the word* ***Standard*** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

Command Tree

```
:FETCh
   :FL1XEVDO|RL1XEVDO
      :ACPR?
      :CCDF?
      :CDPower?        RESult|CDPower|IQPower
      :CHPower?
      :IM?
      :MACCuracy?      RESult|MACCuracy|EVM|MERRor|PERRor|STABle
      :OBWidth?
      :PCCHannel?
      :PVTime?
      :SEMask?
      :Distribution
         :CCDF?
      :TAMPlitude
         :PVTime?
      :SPECtrum
         :ACPower?
         :CHPower?
         :IM?
         :OBWidth?
```

:FETCh:*Standard*:ACPower?

Returns the results of the ACPR measurement under the 1xEV-DO forward link or reverse link standard.

Syntax

```
:FETCh:FL1XEVDO|RL1XEVDO:ACPower?
```

Arguments

None

Returns

<Pass_fail>,<Chpower>,<Acpr1>,<Acpr2>,<Acpr3>,<Acpr4>,<Acpr5>,
<Acpr6>,<Acpr7>,<Acpr8>,<Acpr9>,<Acpr10>,<Acpr11>,<Acpr12>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Chpower>::=<NRf> is the channel power measured value in dBm.
<Acpr1>::=<NRf> is the first adjacent channel ACPR in dBc.
<Acpr2>::=<NRf> is the second adjacent channel ACPR in dBc.
<Acpr3>::=<NRf> is the third adjacent channel ACPR in dBc.

.
.
.

<Acpr10>::=<NRf> is the tenth adjacent channel ACPR in dBc.
<Acpr11>::=<NRf> is the eleventh adjacent channel ACPR in dBc.
<Acpr12>::=<NRf> is the twelfth adjacent channel ACPR in dBc.

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:FETCh:FL1XEVDO:ACPower?
```

might return 0,-2.045E+001,-6.461E+001,-4.379E+001,-6.576E+001,
-6.753E+001,-6.79E+001,-1.0E+038,-1.0E+038,-1.0E+038,-1.0E+038,
-1.0E+038,-1.0E+038,-1.0E+038 for the ACPR measurement under the 1xEV-DO forward link standard.

Related Commands

:INSTrument[:SELect]

:FETCh:*Standard*:CCDF?

Returns the results of the CCDF measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:CCDF?`

Arguments None

Returns `<Mean_power>,<Peak_power>,<Crest_factor>`

Where
`<Mean_power>::=<NRf>` is the average power in dBm.
`<Peak_power>::=<NRf>` is the peak power in dBm.
`<Crest_factor>::=<NRf>` is the crest factor in dB.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:FETCh:FL1XEVDO:CCDF?`
might return `-1.757E+001,-9.53E+000,8.04E+000` for the CCDF measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:FETCh:*Standard*:CDPower?

Returns the results of the code domain power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:CDPower? {RESult|CDPower|IQPower}`

Arguments

`RESult`	measurement result
`CDPower`	relative/absolute power values of each code
`IQPower`	each I/Q symbol powers of selected code

Returns **FLL1XEVDO**:

- **RESult:**

`<Pass_fail>,<Total_power>,<ACP_max>,<ACP_avg>,<ACP_total>,<ICP>,<EVM_peak>,<EVM_rms>,<Merror_peak>,<Merror_rms>,<Perror_peak>,<Perror_rms>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Total_power>::=<NRf>` is the channel power total value in dBm.
`<ACP_max>::=<NRf>` is the active channel power maximum value in dBc.
`<ACP_avg>::=<NRf>` is the active channel power average value in dBc.
`<ACP_total>::=<NRf>` is the active channel power total value in dBc.
`<ICP>::=<NRf>` is the maximum inactive channel power in dBc.
`<EVM_peak>::=<NRf>` is the EVM peak value in %.
`<EVM_rms>::=<NRf>` is EVM rms value in %.
`<Merror_peak>::=<NRf>` is the magnitude error peak value in %.
`<Merror_rms>::=<NRf>` is the magnitude error rms value in %.
`<Perror_peak>::=<NRf>` is the phase error peak value in degrees.
`<Perror_rms>::=<NRf>` is the phase error rms value in degrees.

■ **CDPower:**

#<Num_digit>,<Num_byte>,<ICpower(1)>,<QCpower(1)>,...,
<ICpower(n)>,<QCpower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<ICpower(n)> and <QCpower(n)> is the relative or absolute power value for each code in dB or dBm.When the unit on the Y axis of main view is set to RELative, the relative power value is selected. When the unit on the Y axis of main view is set to ABSolute, the absolute power value is selected. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 640
Channel type MAC: n=64, Pilot: n=32, Data: n=Max: 16, Preamble: n=Max 32

■ **IQPower:**

#<Num_digit>,<Num_byte>,<Ipower(1)>,<Qpower(1)>,...,<Ipower(n)>,
<Qpower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Ipower(n)> and <Qpower(n)> is the each I/Q symbol power of selected code.
4-byte little endian floating-point format specified IEEE 488.2. n: Max 1024

Channel	Chip	Symbol
Overall	1024	0
MAC	128	2
Pilot	96	3
Data	Max 800	Max 50
Preamble	Max 800	Max 25

RL1XEVDO:

- **RESult:**

<Pass_fail>,<Total_power>,<PCP1>,<ACP_max>,<ACP_avg>,<ACP_total>,
<ICP>,<Num_AC>,<EVM_peak>,<EVM_rms>,<Merror_peak>,<Merror_rms>,
<Perror_peak>,<Perror_rms>,<PCP2>,<RRI_CP>,<ACK_CP>,<DRC_CP>,
<Data_CP>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Total_power>::=<NRf> is the channel power total value in dBm.
<PCP1>::=<NRf> is the pilot channel power value in dBc (includes RRI channel).
<ACP_max>::=<NRf> is the active channel power maximum value in dBc.
<ACP_avg>::=<NRf> is the active channel power average value in dBc.
<ACP_total>::=<NRf> is the active channel power total value in dBc.
<ICP>::=<NRf> is the maximum inactive channel power in dBc.
<Num_AC>::=<NR1> is the number of active channels.
<EVM_peak>::=<NRf> is the EVM peak value in %.
<EVM_rms>::=<NRf> is EVM rms value in %.
<Merror_peak>::=<NRf> is the magnitude error peak value in %.
<Merror_rms>::=<NRf> is the magnitude error rms value in %.
<Perror_peak>::=<NRf> is the phase error peak value in degree.
<Perror_rms>::=<NRf> is the phase error rms value in degree.
<PCP2>::=<NRf> is the pilot channel power value in dBc (excludes RRI channel).
<RRI_CP>::=<NRf> is the RRI channel power value in dB (excludes Pilot channel).
<ACK_CP>::=<NRf> is the ACK channel power value in dB.
<DRC_CP>::=<NRf> is the DRC channel power value in dB.
<Data_CP>::=<NRf> is the data channel power value in dB.

- **CDPower:**

#<Num_digit>,<Num_byte>,<ICpower(1)>,<QCpower(1)>,...,
<ICpower(n)>,<QCpower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<ICpower(n)> and <QCpower(n)> is the relative or absolute power value for each code in dB or dBm.When the unit on the Y axis of main view is set to RELative, the relative power value is selected. When the unit on the Y axis of main view is set to ABSolute, the absolute power value is selected. Four-byte little endian floating-point format specified IEEE 488.2. n=16

■ **IQPower:**

#<Num_digit>,<Num_byte>,<Ipower(1)>,<Qpower(1)>,...,<Ipower(n)>,<Qpower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Ipower(n)> and <Qpower(n)> is the each I/Q symbol power of selected code.
4-byte little endian floating-point format specified IEEE 488.2. n: Max 1024
Measurement level Chip: n=1024, Symbol: n=256.

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

:FETCh:FL1XEVDO:CDPower? RESult
might return 0,-3.32076616615568E+001,-2.33279216292314E-004,-2.33279216292314E-004,-2.33279216292314E-004,-5.53129098248105E+001,1.05323582245638E-001,9.3576108554992E-002,-9.71313482041643E-002,7.27630326866468E-002,4.19705794596374E-002,3.37042668803851E-002
for the code domain power measurement for the 1xEV-DO forward link standard.

Related Commands

:INSTrument[:SELect]

:FETCh:*Standard*:CHPower?

Returns the results of the channel power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:CHPower?`

Arguments None

Returns `<Pass_fail>,<Chpower>,<Power_density>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Chpower>::=<NRf>` is the channel power measured value in dBm.
`<Power_density>::=<NRf>` is the power density measured value in dBm/Hz.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:FETCh:FL1XEVDO:CHPower?`
might return `1,-2.0375E+001,-8.1274E+001` for the channel power measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:FETCh:*Standard*:IM?

Returns the results of the intermodulation measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:IM?`

Arguments None

Returns `<Pass_fail>,<L_channel>,<U_channel>,<L3_lower>,<L3_upper>,`
`<U3_lower>,<U3_Upper>,<L5_lower>,<L5_upper>,<U5_lower>,<U5_upper>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<L_channel>::=<NRf>` is the lower channel measured value in dBm.
`<U_channel>::=<NRf>` is the upper channel measured value in dBm.
`<L3_lower>::=<NRf>` is the lower third order (lower) measured value in dBc.
`<L3_upper>::=<NRf>` is the lower third order (upper) measured value in dBc.
`<U3_lower>::=<NRf>` is the upper third order (lower) measured value in dBc.
`<U3_upper>::=<NRf>` is the upper third order (upper) measured value in dBc.

<L5_lower>::=<NRf> is the lower fifth order (lower) measured value in dBc.
<L5_upper>::=<NRf> is the lower fifth order (upper) measured value in dBc.
<U5_lower>::=<NRf> is the upper fifth order (lower) measured value in dBc.
<U5_upper>::=<NRf> is the upper fifth order (upper) measured value in dBc.

When each value is not present, the value of -1000 is returned.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:FETCh:FL1XEVDO:IM?
```

might return

```
1,-2.061E+001,-5.501E+001,-1.66E+001,1.78E+001,
-4.76E+001,-1.32E+001,-4.73E+001,-1.29E+001,-5.1E+001,-1.66E+001
```

for the intermodulation measurement under the 1xEV-DO forward link standard.

Related Commands :INSTrument[:SELect]

:FETCh:*Standard*:MACCuracy?

Returns the results of the modulation accuracy measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:MACCuracy? {RESult|MACCuracy|EVM|MERRor|STABle}`

Arguments None

Returns **FLL1XEVDO:**

- **RESult:**

`<Pass_fail>,<Rho>,<Rho2>,<Peak_CDE>,<CDE_code>,<CDE_I/Q>,<EVM_peak>,<EVM_rms>,<Merror_peak>,<Merror_rms>,<Perror_peak>,<Perror_rms>,<Ferror>,<Org_offset>,<Tau>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Rho>::=<NRf>` is the measured value of waveform quality (Rho).
`<Rho2>::=<NRf>` is the measured value of the waveform quality (Rho2). This value is only available when Measurement Level is set to Chip and Channel Type is set to Overall. In other cases, the value -1000 returns.
`<Peak_CDE>::=<NRf>` is the code domain error value in dB.
`<CDE_code>::=<NR1>` is the code number of CDE.
`<CDE_I/Q>::=<NR1>` is the I/Q channel of CDE. 0: don't care, 1: I, 2: Q.
`<EVM_peak>::=<NRf>` is the EVM peak value in %.
`<EVM_rms>::=<NRf>` is EVM rms value in %.
`<Merror_peak>::=<NRf>` is the magnitude error peak value in %.
`<Merror_rms>::=<NRf>` is the magnitude error rms value in %.
`<Perror_peak>::=<NRf>` is the phase error peak value in degrees.
`<Perror_rms>::=<NRf>` is the phase error rms value in degrees.
`<Ferror>::=<NRf>` is the measured value of frequency error in Hz.
`<Org_offset>::=<NRf>` is the measured value of origin offset in Hz.
`<Tau>::=<NRf>` is the measured value of Tau in seconds.

■ **MACCuracy:**

#<Num_digit>,<Num_byte>,<Iposition(1)>,<Qposition(1)>,...,
<Iposition(n)>,<Qposition(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Iposition(n)> and <Qposition(n)> is the I/Q position of each symbol.
Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024

Channel	Chip	Symbol
Overall	1024	0
MAC	128	2
Pilot	96	3
Data	Max 800	Max 50
Preamble	Max 800	Max 25

■ **EVM:**

#<Num_digit>,<Num_byte>,<EVM(1)>,...,<EVM(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<EVM(n)> is EVM of each symbol. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024

Channel	Chip	Symbol
Overall	1024	0
MAC	128	2
Pilot	96	3
Data	Max 800	Max 50
Preamble	Max 800	Max 25

■ **MERRor:**

#<Num_digit>,<Num_byte>,<Merror(1)>,...,<Merror(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Merror(n)> is the magnitude error of each symbol. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024

Channel	Chip	Symbol
Overall	1024	0
MAC	128	2
Pilot	96	3
Data	Max 800	Max 50
Preamble	Max 800	Max 25

■ **PERRor:**

#<Num_digit>,<Num_byte>,<Perror(1)>,...,<Perror(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Perror(n)> is the phase error of each symbol. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024

Channel	Chip	Symbol
Overall	1024	0
MAC	128	2
Pilot	96	3
Data	Max 800	Max 50
Preamble	Max 800	Max 25

■ **STABle:**

#<Num_digit>,<Num_byte>,<Symbol(1)>,...,<Symbol(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Symbol(n)> is the each symbol data. Four-byte little endian floating-point format specified IEEE 488.2. This value is only available when Measurement Level is set to Symbol. In other cases the value -1000 returns.
Channel type MAC: n=2, Pilot: n=3, Data: n=Max 50, Preamble: n= Max 25

RL1XEVDO:

- **RESult:**

<Pass_fail>,<Rho>,<Peak_CDE>,<CDE_code>,<CDE_I/Q>,<EVM_peak>,
<EVM_rms>,<Merror_peak>,<Merror_rms>,<Perror_peak>,<Perror_rms>,
<Ferror>,<Org_offset>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Rho>::=<NRf> is the measured value of waveform quality (Rho).
<Peak_CDE>::=<NRf> is the code domain error value in dB.
<CDE_code>::=<NR1> is the code number of CDE.
<CDE_I/Q>::=<NR1> is the I/Q channel of CDE. 0: don't care, 1: I, 2: Q.
<EVM_peak>::=<NRf> is the EVM peak value in %.
<EVM_rms>::=<NRf> is EVM rms value in %.
<Merror_peak>::=<NRf> is the magnitude error peak value in %.
<Merror_rms>::=<NRf> is the magnitude error rms value in %.
<Perror_peak>::=<NRf> is the phase error peak value in degrees.
<Perror_rms>::=<NRf> is the phase error rms value in degrees.
<Ferror>::=<NRf> is the measured value of frequency error in Hz.
<Org_offset>::=<NRf> is the measured value of origin offset in Hz.

- **MACCuracy:**

#<Num_digit>,<Num_byte>,<Iposition(1)>,<Qposition(1)>,...,
<Iposition(n)>,<Qposition(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Iposition(n)> and <Qposition(n)> is the I/Q position of each symbol.
Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024.
Measurement level Chip: n=1024, Symbol: n=256

- **EVM:**

#<Num_digit>,<Num_byte>,<EVM(1)>,...,<EVM(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<EVM(n)> is EVM of each symbol. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024.
Measurement level Chip: n=1024, Symbol: n=256

- **MERRor:**

```
#<Num_digit>,<Num_byte>,<Merror(1)>,...,<Merror(n)>
```

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Merror(n)> is the magnitude error of each symbol. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024
Measurement level Chip: n=1024, Symbol: n=256

- **PERRor:**

```
#<Num_digit>,<Num_byte>,<Perror(1)>,...,<Perror(n)>
```

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Perror(n)> is the phase error of each symbol. Four-byte little endian floating-point format specified IEEE 488.2. n: Max 1024
Measurement level Chip: n=1024, Symbol: n=256

- **STABle:**

```
#<Num_digit>,<Num_byte>,<Symbol(1)>,...,<Symbol(n)>
```

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Symbol(n)> is the each symbol data. Four-byte little endian floating-point format specified IEEE 488.2. This value is only available when Measurement Level is set to Symbol. In other cases, the value -1000 returns.
n: Max 256

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:FETCh:FL1XEVDO:MACCuracy? RESult
```

might return `1,9.99999124351958E-001,-1.0E+003,-5.27257858114915E+001,28,1,1.05323582245638E-001,9.3576108554992E-002,-9.71313482041643E-002,7.27630326866468E-002,4.19705794596374E-002,3.37042668803851E-002,-2.75421142578065E+001,-1.23769373237522E+002,0.0E+000` for the modulation accuracy measurement under the 1xEV-DO forward link measurement.

Related Commands :INSTrument[:SELect]

:FETCh:*Standard*:OBWidth?

Fetches the results of the occupied bandwidth measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:OBWidth?`

Arguments None

Returns `<Pass_fail>,<obw>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<obw>::=<NRf>` is the occupied bandwidth in Hz.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:FETCh:FL1XEVDO:OBWidth?`
might return `1,1.27333E+006` for the OBW measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:FETCh:*Standard*:PCCHannel?

Fetches the results of the pilot-to-code channel measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:PCCHannel?`

Arguments None

Returns **FL1XEVDO:**

`<Pass_fail>.<Total_AC>{,<SF(n)>,<Code_num(n)>,<Power(n)>,<Timing(n)>,<Phase(n)>,<I_code(n)>,<Q_code(n)>}`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Total_AC>::=<NRf>` is the total active channel number (MAC: n=2 to 60, DATA: n=16, Preamble: n=1).
`<SF(n)>::=<NRf>` is the spreading factor.
`<Code_num(n)>::=<NR1>` is the code number.
`<Power(n)>::=<NRf>` is code domain power measured value in dBm.
`<Timing(n)>::=<NRf>` is the pilot channel versus time measured value in seconds.
`<Phase(n)>::=<NRf>` is the pilot channel versus phase measured value in radian.
`<I_code(n)>::=<NRf>` is the code domain error of I phase in dBm.
`<Q_code(n)>::=<NRf>` is the code domain error of Q phase in dBm.

RL1XEVDO:

`<Pass_fail>.<Total_AC>{,<SF(n)>,<Code_num(n)>,<Power(n)>,<Timing(n)>,<Phase(n)>,<I_code(n)>,<Q_code(n)>}`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Total_AC>::=<NRf>` is the total active channel number (n=1 to 4).
`<SF(n)>::=<NRf>` is the spreading factor.
`<Code_numb(n)>::=<NR1>` is the code number.
`<Power(n)>::=<NRf>` is code domain power measured value in dBm.
`<Timing(n)>::=<NRf>` is the pilot channel versus time measured value in seconds.
`<Phase(n)>::=<NRf>` is the pilot channel versus phase measured value in radian.
`<I_code(n)>::=<NRf>` is the code domain error of I phase in dBm.
`<Q_code(n)>::=<NRf>` is the code domain error of Q phase in dBm.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:FETCh:FL1XEVDO:PCCHannel?
```

might return `1,2,6,2,-3.62181797592003E+001,7.95659919582192E-009, 2.46966153831218E-003,-7.2188511413898E+001, -7.25107168870122E+001,6,34,-3.62224724925938E+001, -7.4505805947922E-010,-3.11469251014973E-003, -7.1436502569957E+001,-6.58634460703051E+001` for the pilot to code channel measurement under the 1xEV-DO forward link measurement.

Related Commands

```
:INSTrument[:SELect]
```

:FETCh:FL1XEVDO:PVTime?

Fetches the results of the gated output power measurement under the 1xEV-DO forward link standard.

Syntax

```
:FETCh:FL1XEVDO:PVTime?
```

Arguments

None

Returns

```
<Pass_fail>
```

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.

Measurement Modes

```
DEMFL1XEVDO
```

Examples

```
:FETCh:FL1XEVDO:PVTIme?
```

might return `1`, indicating that the gated output power measurement has passed.

Related Commands

```
:INSTrument[:SELect]
```

:FETCh:*Standard*:SEMask?

Fetches the results of the spectrum emission mask measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:SEMask?`

Arguments None

Returns `<Pass_fail>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:FETCh:FL1XEVDO:SEMask?`
might return 1, indicating that the spectrum emission mask measurement has passed.

Related Commands `:INSTrument[:SELect]`

:FETCh:*Standard*:DISTribution:CCDF?

Fetches the distribution data of the CCDF measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:DISTribution:CCDF?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the absolute power for each symbol in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:FETCh:FL1XEVDO:DISTribution:CCDF?
```

might return `#510240xxx...` (1024-byte data) as the results of the CCCDF measurement under the 1xEV-DO forward link standard.

Related Commands

```
:INSTrument[:SELect]
```

:FETCh:FL1XEVDO:TAMPlitude:PVTime?

Fetches the time domain amplitude data of the gated output power measurement under the 1xEV-DO forward link standard.

Syntax

```
:FETCh:FL1XEVDO:TAMPlitude:PVTime?
```

Arguments

None

Returns

```
#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>
```

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the absolute power for each symbol in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes

```
DEMFL1XEVDO
```

Examples

```
:FETCh:FL1XEVDO:TAMPlitude:PVTime?
```

might return `#510240xxx...` (1024-byte data) as the results of the gated output power measurement under the 1xEV-DO forward link standard.

Related Commands

```
:INSTrument[:SELect]
```

:FETCh:***Standard***:SPECtrum:ACPower?

Fetches the spectrum waveform data of the ACPR measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:SPECtrum:ACPower?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the spectrum amplitude in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:FETCh:FL1XEVDO:SPECtrum:ACPower?`
might return `#510240xxx...` (1024-byte data) as the spectrum waveform data of the ACPR measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:FETCh:***Standard***:SPECtrum:CHPower?

Fetches the spectrum waveform data of the channel power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:SPECtrum:CHPower?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in <Num_byte>.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the spectrum amplitude in dBm.

Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples :FETCh:FL1XEVDO:SPECtrum:CHPower?
might return #510240xxx... (1024-byte data) as the spectrum waveform data of the channel power measurement under the 1xEV-DO forward link standard.

Related Commands :INSTrument[:SELect]

:FETCh:*Standard*:SPECtrum:IM?

Fetches the spectrum waveform data of the intermodulation measurement under the 1xEV-DO forward link or reverse link standard.

Syntax :FETCh:FL1XEVDO|RL1XEVDO:SPECtrum:IM?

Arguments None

Returns #<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follow.
<Data(n)> is the spectrum amplitude in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples :FETCh:FL1XEVDO:SPECtrum:IM?
might return #510240xxx... (1024-byte data) as the spectrum waveform data of the intermodulation measurement under the 1xEV-DO forward link standard.

Related Commands :INSTrument[:SELect]

:FETCh:*Standard*:SPECtrum:OBWidth?

Fetches the spectrum waveform data of the occupied bandwidth measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:FETCh:FL1XEVDO|RL1XEVDO:SPECtrum:OBWidth?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the spectrum amplitude in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:FETCh:FL1XEVDO:SPECtrum:OBWidth?`
might return `#510240xxx...` (1024-byte data) as the spectrum waveform data of the occupied bandwidth measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:MMEMory Commands

The :MMEMory commands allow you to manipulate files on the hard disk or floppy disk.

For details on file manipulation, refer to the *WCA230A & WCA280A Portable Wireless Communication Analyzers User Manual*.

Command Tree

```
:MMEMory
   :LOAD
      :LIMit       <file_name>
   :STORe
      :LIMit       <file_name>
      :STABle      <file_name>
```

:MMEMory:LOAD:LIMit

Loads limits from the specified file.

Syntax `:MMEMory:LOAD:LIMit <file_name>`

Arguments `<file_name>::=<string>` specifies the file from which to load limits. The file extension is .lmt.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:MMEMory:LOAD:LIMit "C:\My Documents\Test.lmt"`
loads limits from the file Test.lmt in the My Documents folder.

:MMEMory:STORe:LIMit

Stores the current limits in the specified file.

Syntax `:MMEMory:STORe:LIMit <file_name>`

Arguments `<file_name>::=<string>` specifies the file in which to store the current limits. The file extension is .lmt.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:MMEMory:STORe:LIMit "C:\My Documents\Test.lmt"`
stores the current limits in the file Test.lmt in the My Documents folder.

:MMEMory:STORe:STABle

Stores the symbol table in the specified file.

Syntax `:MMEMory:STORe:STABle <file_name>`

Arguments `<file_name>::=<string>` specifies the file in which to store the symbol table. The file is in text format, and its extension is .sym.

The following are written in the header before the data:
1. Data and time
2. Modulation
3. Symbol rate
4. Walsh code length
5. Walsh code number
6. PN offset (FL1XEVDO only)
7. Long code mask I (RL1XEVDO only)
8. Long code mask Q (RL1XEVDO only)
9. Channel type (FL1XEVDO only)
10. Half slot number
11. Time from the data end point of the first symbol.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:MMEMory:STORe:STABle "C:\My Documents\Data1.sym"`
stores the symbol table in the file Data1.sym in the My Documents folder.

:READ Commands

The :READ commands acquire an input signal once in the single mode and obtain the measurement results from the data.

If you want to fetch the measurement results from the data currently residing in the memory without acquiring the input signal use the :FETCh commands on page 3-43.

NOTE. *Throughout the header descriptions in this section, the word* ***Standard*** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

Command Tree

```
:READ
   :FL1XEVDO|RL1XEVDO
      :ACPower?
      :CCDF?
      :CHPower?
      :IM?
      :OBWidth?
      :PVTime?
      :SEMask?
      :DISTribution
         :CCDF?
      :TAMPlitude
         :PVTime?
      :SPECtrum
         :ACPower?
         :CHPower?
         :IM?
         :OBWidth?
```

NOTE. *There are no :READ subsystems for :CDPower?, :MACCuracy?, and :PCCHannel? commands. These commands need to execute [:SENSe]:Standard [:IMMediate] command in order to retrieve the measurement results.*

:READ:*Standard*:ACPower?

Obtains the results of the ACPR measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:ACPower?`

Arguments None

Returns `<Pass_fail>,<Chpower>,<Acpr1>,<Acpr2>,<Acpr3>,<Acpr4>,<Acpr5>, <Acpr6>,<Acpr7>,<Acpr8>,<Acpr9>,<Acpr10>,<Acpr11>,<Acpr12>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Chpower>::=<NRf>` is the channel power measured value in dBm.
`<Acpr1>::=<NRf>` is the first adjacent channel ACPR in dBc.
`<Acpr2>::=<NRf>` is the second adjacent channel ACPR in dBc.
`<Acpr3>::=<NRf>` is the third adjacent channel ACPR in dBc.
.
.
.
`<Acpr10>::=<NRf>` is the tenth adjacent channel ACPR in dBc.
`<Acpr11>::=<NRf>` is the eleventh adjacent channel ACPR in dBc.
`<Acpr12>::=<NRf>` is the twelfth adjacent channel ACPR in dBc.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:READ:FL1XEVDO:ACPower?`
might return `0,-2.048E+001,-6.29E+001,-4.248E+001,-6.526E+001, -6.607E+001,-6.79E+001,-1.0E+038,-1.0E+038,-1.0E+038,-1.0E+038, -1.0E+038,-1.0E+038,-1.0E+038` for the ACPR measurement under the 1xEV-DO forward link measurement.

Related Commands `:INSTrument[:SELect]`

:READ:*Standard*:CCDF?

Obtains the results of the CCDF measurement under the 1xEV-DO forward link or reverse link standard.

Syntax

```
:READ:FL1XEVDO|RL1XEVDO:CCDF?
```

Arguments

None

Returns

```
<Mean_power>,<Peak_power>,<Crest_factor>
```

Where
<Mean_power>::=<NRf> is the average power in dBm.
<Peak_power>::=<NRf> is the peak power in dBm.
<Crest_factor>::=<NRf> is the crest factor in dB.

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:READ:FL1XEVDO:CCDF?
```

might return `-2.043E+001,-9.75E+000,1.068E+001` for the CCDF measurement under the 1xEV-DO forward link measurement.

Related Commands

:INSTrument[:SELect]

:READ:*Standard*:CHPower?

Obtains the results of the channel power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:CHPower?`

Arguments None

Returns `<Pass_fail>,<Chpower>,<Power_density>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<Chpower>::=<NRf>` is the channel power measured value in dBm.
`<Power_density>::=<NRf>` is the power density measured value in dBm/Hz.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:READ:FL1XEVDO:CHPower?`
might return `1,-2.0375E+001,-8.1274E+001` for the channel power measurement under the 1xEV-DO forward link measurement.

Related Commands `:INSTrument[:SELect]`

:READ:*Standard*:IM?

Obtains the results of the intermodulation measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:IM?`

Arguments None

Returns `<Pass_fail>,<L_channel>,<U_channel>,<L3_lower>,<L3_upper>,`
`<U3_lower>,<U3_Upper>,<L5_lower>,<L5_upper>,<U5_lower>,<U5_upper>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.
`<L_channel>::=<NRf>` is the lower channel measured value in dBm.
`<U_channel>::=<NRf>` is the upper channel measured value in dBm.
`<L3_lower>::=<NRf>` is the lower third order (lower) measured value in dBc.
`<L3_upper>::=<NRf>` is the lower third order (upper) measured value in dBc.
`<U3_lower>::=<NRf>` is the upper third order (lower) measured value in dBc.
`<U3_upper>::=<NRf>` is the upper third order (upper) measured value in dBc.

<L5_lower>::=<NRf> is the lower fifth order (lower) measured value in dBc.
<L5_upper>::=<NRf> is the lower fifth order (upper) measured value in dBc.
<U5_lower>::=<NRf> is the upper fifth order (lower) measured value in dBc.
<U5_upper>::=<NRf> is the upper fifth order (upper) measured value in dBc.

When each value is not present, the value of -1000 is returned.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples
```
:READ:FL1XEVDO:IM?
```
might return
```
1,-2.058E+001,-5.446E+001,-1.68E+001,1.71E+001,
-4.76E+001,-1.37E+001,-4.73E+001,-1.34E+001,-5.11E+001,-1.72E+001
```
for the intermodulation measurement under the 1xEV-DO forward link standard.

Related Commands :INSTrument[:SELect]

:READ:*Standard*:OBWidth?

Obtains the results of the occupied bandwidth measurement under the 1xEV-DO forward link or reverse link standard.

Syntax
```
:READ:FL1XEVDO|RL1XEVDO:OBWidth?
```

Arguments None

Returns <Pass_fail>,<obw>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<obw>::=<NRf> is the measured value of the occupied bandwidth in Hz.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples
```
:READ:FL1XEVDO:OBWidth?
```
might return
```
1,1.26763E+006
```
for the occupied bandwidth measurement results.

Related Commands :INSTrument[:SELect]

:READ:FL1XEVDO:PVTime?

Obtains the results of the gated output power measurement under the 1xEV-DO forward link standard.

Syntax `:READ:FL1XEVDO:PVTime?`

Arguments None

Returns `<Pass_fail>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.

Measurement Modes `DEMFL1XEVDO`

Examples `:READ:FL1XEVDO:PVTime?`
might return 1, indicating that the gated output power measurement has passed.

Related Commands `:INSTrument[:SELect]`

:READ:*Standard*:SEMask?

Obtains the results of the spectrum emission mask measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:SEMask?`

Arguments None

Returns `<Pass_fail>`

Where
`<Pass_fail>::={1|0}` is the measurement result; 1: Pass or 0: Fail.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:READ:FL1XEVDO:SEMask?`
might return 1, indicating that the spectrum emission mask measurement has passed.

Related Commands `:INSTrument[:SELect]`

:READ:*Standard*:DISTribution:CCDF?

Obtains the distribution data of the CCDF measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:DISTribution:CCDF?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the absolute power for each symbol in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:READ:FL1XEVDO:DISTribution:CCDF?`
might return `#510240xxx...` (1024-byte data) as the results of the CCDF measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:READ:FL1XEVDO:TAMPlitude:PVTime?

Obtains the time domain amplitude data of the gated output power measurement under the 1xEV-DO forward link standard.

Syntax `:READ:FL1XEVDO:TAMPlitude:PVTime?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the absolute power for each symbol in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO`

Examples `:READ:FL1XEVDO:TAMPlitude:PVTime?`
might return `#510240xxx...` (1024-byte data) as the results of the gated output power measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:READ:*Standard*:SPECtrum:ACPower?

Obtains the spectrum waveform data of the ACPR measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:SPECtrum:ACPower?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the spectrum amplitude in dBm.

Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples :READ:FL1XEVDO:SPECtrum:ACPower?
might return #510240xxx... (1024-byte data) as the spectrum waveform data of the ACPR measurement under the 1xEV-DO forward link standard.

Related Commands :INSTrument[:SELect]

:READ:*Standard*:SPECtrum:CHPower?

Obtains the spectrum waveform data of the channel power measurement under the 1xEV-DO forward link or reverse link standard.

Syntax :READ:FL1XEVDO|RL1XEVDO:SPECtrum:CHPower?

Arguments None

Returns #<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follow.
<Data(n)> is the spectrum amplitude in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples :READ:FL1XEVDO:SPECtrum:CHPower?
might return #510240xxx... (1024-byte data) as the spectrum waveform data of the channel power measurement under the 1xEV-DO forward link standard.

Related Commands :INSTrument[:SELect]

:READ:*Standard*:SPECtrum:IM?

Obtains the spectrum waveform data of the intermodulation measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:SPECtrum:IM?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the spectrum amplitude in dBm.
Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:READ:FL1XEVDO:SPECtrum:IM?`
might return `#510240xxx...` (1024-byte data) as the spectrum waveform data of the intermodulation measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:READ:*Standard*:SPECtrum:OBWidth?

Obtains the spectrum waveform data of the occupied bandwidth measurement under the 1xEV-DO forward link or reverse link standard.

Syntax `:READ:FL1XEVDO|RL1XEVDO:SPECtrum:OBWidth?`

Arguments None

Returns `#<Num_digit><Num_byte><Data(1)><Data(2)>...<Data(n)>`

Where
`<Num_digit>` is the number of digits in `<Num_byte>`.
`<Num_byte>` is the number of bytes of the data that follow.
`<Data(n)>` is the spectrum amplitude in dBm.

Four-byte little endian floating-point format specified IEEE 488.2.
n: Max 512000 (= 1024 points × 500 frames)

Invalid data is returned as -1000.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:READ:FL1XEVDO:SPECtrum:OBWidth?`
might return `#510240xxx...` (1024-byte data) as the spectrum waveform data of the occupied bandwidth measurement under the 1xEV-DO forward link standard.

Related Commands `:INSTrument[:SELect]`

:SENSe Commands

NOTE. *Throughout the header descriptions in this section, the word* ***Standard*** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

The :SENSe commands set the details for each of the measurement sessions. They are divided into the following subgroups:

Table 3-17: :SENSe command subgroups

Command header	Function	Page number
[:SENSe]:*Standard*	Set up the conditions related to the 1xEV-DO forward link or reverse link analysis.	Page 3-80
[:SENSe]:*Standard*:ACPower	Set up ACPR measurement	Page 3-86
[:SENSe]:*Standard*:CCDF	Set up CCDF measurement	Page 3-89
[:SENSe]:*Standard*:CDPower	Set up code domain power measurement	Page 3-90
[:SENSe]:*Standard*:CHPower	Set up channel power measurement	Page 3-96
[:SENSe]:*Standard*:IM	Set up Intermodulation measurement	Page 3-99
[:SENSe]:*Standard*:MACCuracy	Set up modulation accuracy measurement	Page 3-103
[:SENSe]:*Standard*:OBWidth	Set up occupied bandwidth measurement	Page 3-112
[:SENSe]:*Standard*:PCCHannel	Set up pilot to code channel measurement	Page 3-113
[:SENSe]:FL1XEVDO:PVTime	Set up power versus time measurement	Page 3-120
[:SENSe]:*Standard*:SEMask	Set up spectrum emission mask measurement	Page 3-124

[:SENSe]:*Standard* Subgroup

The [:SENSe]:*Standard* commands set up the conditions related to the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :ACQuisition
         :CHIPs          <numeric_value>
         :HISTory        <numeric_value>
         :SEConds        <numeric_value>
      :ANALysis
         :INTerval       <numeric_value>
         :OFFSet         <numeric_value>
      :BLOCk             <numeric_value>
      [:IMMediate]
      :MEASurement       CHPower|ACPower|IM|SEMask|CDPower|
                         MACCuracy|CCDF|PVTime|PCCHannel|
                         OBWidth|OFF
      :SPECtrum
         :OFFSet         <numeric_value>
         :TINTerval
```

[:SENSe]:*Standard*:ACQuisition:CHIPs (?)

Sets or queries the acquisition length in chips.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACQuisition:CHIPs <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:ACQuisition:CHIPs?
```

Arguments

`<numeric_value>::=<NR1>` specifies the acquisition length in chips.
Range: 6144 to no logical limitation (depends on Span and memory length)

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

`:SENSe:FL1XEVDO:ACQuisition:CHIPs 10240`
sets the acquisition length in chips to 10240 in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:ACQuisition:HISTory (?)

Sets or queries the acquisition history. The acquisition can be viewed as it is selected, and can be reanalyzed after the selection.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACQuisition:HISTory <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:ACQuisition:HISTory?
```

Arguments

<numeric_value>::=<NR1> specifies the acquisition history.
Range: No logical limitation to 0 (depends on Span and memory length)

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:ACQuisition:HISTory 0
```

sets the acquisition history to 0 in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:ACQuisition:SEConds (?)

Sets or queries the acquisition length in seconds.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACQuisition:SEConds <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:ACQuisition:SEConds?
```

Arguments

<numeric_value>::=<NRf> specifies the acquisition length in seconds.
Range: 4.998 ms to no logical limitation (depends on Span and memory length)

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:ACQuisition:SEConds 9.163ms
```

sets the acquisition length in seconds to 9.163 ms in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:ANALysis:INTerval (?)

Sets or queries the analysis interval in half slots.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ANALysis:INTerval <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ANALysis:INTerval?
```

Arguments

<numeric_value>::=<NR1> specifies the analysis interval in half slots. The range depends on the acquisition length setting.

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:ANALysis:INTerval 10
```

sets the analysis interval in half slots to 10 in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:ANALysis:OFFSet (?)

Sets or queries the analysis offset (the start point of the analysis range) in half slots.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ANALysis:OFFSet <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ANALysis:OFFSet?
```

Arguments

<numeric_value>::=<NR1> specifies the analysis offset in half slots.
Range: 0 to 12293 half slot

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:ANALysis:OFFSet 10
```

sets the analysis offset in half slots to 10 in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:BLOCk (?)

Sets or queries the number of the block to measure in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:BLOCk <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:BLOCk?
```

Arguments

<numeric_value>::=<NR1> specifies the block number. Zero represents the latest block.
Range: -M to 0 (M: number of acquired blocks)

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:BLOCk -5`
sets the block number to -5 in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*[:IMMediate]

Performs calculation for the acquired data in the 1xEV-DO forward link or reverse link analysis.

Syntax `[:SENSe]:FL1XEVDO|RL1XEVDO[:IMMediate]`

Arguments None

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:IMMediate`
performs calculation for the acquired data in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MEASurement (?)

Selects or queries the measurement item for the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MEASurement {CHPower|ACPower|IM
|SEMask|CDPower|MACCuracy|CCDF|PVTime|PCCHannel|OBWidth|OFF}

[:SENSe]:FL1XEVDO|RL1XEVDO:MEASurement?
```

Arguments The arguments and measurement items are listed below:

Argument	Measurement item
CHPower	Channel power measurement
ACPower	ACPR measurement
IM	Intermodulation measurement
SEMask	Spectrum emission mask measurement
CDPower	Code domain power measurement
MACCuracy	Modulation accuracy measurement
CCDF	CCDF measurement
PVTime*	Gated output power measurement
PCCHannel	Pilot to code channel measurement
OBWidth	Occupied bandwidth measurement
OFF	Measurement OFF

* Only available when FL1XEVDO is selected.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples
```
:SENSe:FL1XEVDO:MEASurement CCDF
```
selects the CCDF measurement for the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SPECtrum:OFFSet (?)

Sets or queries the spectrum offset within the time window in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SPECTrum:OFFSet <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:SPECTrum:OFFSet?
```

Arguments `<numeric_value>::=<NRf>` specifies the spectrum offset within the time windows.
Range: 0 ms to 26.56 ms

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples :SENSe:FL1XEVDO:SPECtrum:OFFSet 10ms
sets the spectrum offset within the time window to 10 ms in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SPECtrum:TINTerval?

Queries the length of the time-domain information used to construct the spectrum trace in the 1xEV-DO forward link or reverse link analysis.

Syntax [:SENSe]:FL1XEVDO|RL1XEVDO:SPECTrum:TINTerval?

Arguments None

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples :SENSe:FL1XEVDO:SPECtrum:TINTerval?
returns the length of the time-domain information in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:ACPower Subgroup

The [:SENSe]:*Standard*:ACPower commands set up the conditions related to the ACPR measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :ACPower
         :BANDwidth|BWIDth
            :INTegration        <numeric_value>
         :FILTer
            :COEFficient        <numeric_value>
            :TYPE               RECTangle|GAUSsian|NYQuist|
                                RNYQuist
         :LIMit
            :ADJacent[1]|2|3..|12
               [:STATe]            <boolean>
```

[:SENSe]:*Standard*:ACPower:BANDwidth|BWIDth:INTegration (?)

Sets or queries the bandwidth of the main channel for the ACPR measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:BANDwidth|BWIDth:INTegration
<numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:BANDwidth|BWIDth:INTegration?
```

Arguments

`<numeric_value>::=<NRf>` specifies the bandwidth of the main channel for the ACPR measurement. Range: Span/20 to full span [Hz].

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:ACPower:BANDwidth:INTegration 2.5MHz
```

sets the bandwidth of the main channel to 2.5 MHz in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:ACPower:FILTer:COEFficient (?)

Sets or queries the filter roll-off rate for the ACPR measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:FILTer:COEFficient
<numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:FILTer:COEFficient?
```

Arguments

<numeric_value>::=<NRf> specifies the roll-off rate.
Range: 0 to 1

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:ACPower:FILTer:COEFficient 0.5
```

sets the filter roll-off rate for the ACPR measurement to 0.5 in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:ACPower:FILTer:TYPE (?)

Select or queries the filter for the ACPR measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:FILTer:TYPE {RECTangle
|GAUSsian|NYQuist|RNYQuist}

[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:FILTer:TYPE?
```

Arguments

The arguments and filters are listed below:

Argument	Filter
RECTangle	Rectangular
GAUSsian	Gaussian
NYQuist	Nyquist
RNYQuist	Root Nyquist

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:ACPower:FILTer:TYPE NYQuist
```

selects the Nyquist filter for the ACPR measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:ACPower:LIMit:ADJacent[1]|2|3..|12 [:STATe](?)

Sets or queries whether to enable or disable the adjacent limit testing for the ACPR measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:LIMit:ADJacent[1]|2|3..|12
[:STATe] {ON|OFF|1|0}
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:ACPower:LIMit:ADJacent[1]|2|3..|12
[:STATe]?
```

ADJacent [1]|2|3..|12 is defined as follows:

ADJacent[1]: first adjacent
ADJacent2: second adjacent
ADJacent3: third adjacent
.
.
ADJacent12: twelfth adjacent

Arguments

`ON` or `1` enables the adjacent limit testing.
`OFF` or `0` disables the adjacent limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:ACPower:LIMit:ADJacent1 ON
```

enables the first adjacent limit testing for the ACPR measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CCDF Subgroup

The [:SENSe]:*Standard*:CCDF commands set up the conditions related to the CCDF measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :CCDF
         :RMEasurement
         :THReshold      <numeric_value>
```

[:SENSe]:*Standard*:CCDF:RMEasurement

Clears the CCDF accumulator and restarts the measurement.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CCDF:RMEasurement
```

Arguments

None

Measurement Modes

```
DEMFL1XEVDO, DEMRL1XEVDO
```

Examples

```
:SENSe:FL1XEVDO:CCDF:RMEasurement
```

clears the CCDF accumulator and restart the measurement for the CCDF measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CCDF:THReshold (?)

Sets or queries the threshold for the CCDF measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CCDF:THReshold <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:CCDF:THReshold?
```

Arguments

`<numeric_value>::=<NRf>` specifies the threshold for the CCDF measurement. Range: -250 dBm to 130 dBm

Measurement Modes

```
DEMFL1XEVDO, DEMRL1XEVDO
```

Examples

```
:SENSe:FL1XEVDO:CCDF:THReshold -100dBm
```

sets the threshold for the CCDF measurement to -100 dBm in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CDPower Subgroup

The [:SENSe]:*Standard*:CDPower commands set up the conditions related to the code domain power measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :CDPower
         :ACCThreshold          <numeric_value>
         :CHANnel
            [:TYPE]             MAC|PILot|DATA|PREamble|OVERall
         :FILTer
            :MEASurement        OFF|EQComp|COMP
         :IQSWap                <boolean>
         :LCMask
            :I                  <num1>,<num2>,<num3>
            :Q                  <num1>,<num2>,<num3>
         :MLEVel                CHIP|SYMBol
         :PNOFfset              <numeric_value>
         :SELect
            :CODE               <numeric_value>
            :HSLot              <numeric_value>
```

[:SENSe]:*Standard*:CDPower:ACCThreshold (?)

Sets or queries the active channel threshold level (in dB from the pilot), which is used for deciding whether a code channel is active or inactive, for the code domain power measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:ACCThreshold <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:ACCThreshold?
```

Arguments

`<numeric_value>::=<NRf>` specifies the active channel threshold level.
Range: -100 dB to 0 dB

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CDPower:ACCThreshold -27dB
```

sets the active channel threshold level to -27 dB for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:CDPower:CHANnel[:TYPE] (?)

Selects or queries the channel type for the code domain power measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:CDPOwer:CHANnel[:TYPE] {MAC|PILot|DATA
|PREamble|OVERall}

[:SENSe]:FL1XEVDO:CDPOwer:CHANnel[:TYPE]?
```

Arguments

`MAC` selects the MAC channel.
`PILot` selects the pilot channel.
`DATA` selects the data channel.
`PREamble` selects the preamble embedded in the data.
`OVERall` selects the overall channels. This argument is only available when the :DISPlay:*Standard*:DDEMod:MVIew:FORMat command is set to IQPower.

Measurement Modes `DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CDPower:CHANnel:TYPE MAC
```

selects the MAC channel for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:CDPower:FILTer:MEASurement (?)

Selects or queries the measurement filter for the code domain power measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:FILTer:MEASurement
{OFF|EQComp|COMP}

[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:FILTer:MEASurement?
```

Arguments

`OFF` specifies that no measurement filter is used.
`EQComp` selects the Complementary filter + EQ (equalizer).
`COMP` selects the Complementary filter.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CDPower:FILTer:MEASurement COMP
```

selects the Complementary filter for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CDPower:IQSWap (?)

Sets or queries whether to enable or disable IQ swapping for the code domain power measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:IQSWap <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:IQSWap?
```

Arguments

<boolean>::={ON|OFF|1|0}
ON or 1 enables the IQ swapping.
OFF or 0 disables the IQ swapping.

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:CDPower:IQSWap ON
```

sets the IQ swapping to ON for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:RL1XEVDO:CDPower:LCMask:I (?)

Sets or queries the 11-digit mask of the I long code for the code domain power measurement in the 1xEV-DO reverse link analysis.

Syntax

```
[:SENSe]:RL1XEVDO:CDPOwer:LCMask:I <num1>,<num2>,<num3>

[:SENSe]:RL1XEVDO:CDPOwer:LCMask:I?
```

Arguments

<num1> is the upper 3 digits of the I long code mask.
Range: #H0 (0) to #H3FF (1023)
<num2> is the middle 4 digits of the I long code mask.
Range: #H0000 (0) to #HFFFF (65535).
<num3> is the lower 4 digits of the I long code mask.
Range: #H0000 (0) to #HFFFF (65535).

Measurement Modes

DEMRL1XEVDO

Examples

```
:SENSe:RL1XEVDO:CDPower:LCMask:I 3FF,FFFF,FFFF
```

sets the 11-digit mask of the I long code to 3FFFFFFFFFF for the code domain power measurement in the 1xEV-DO reverse link analysis.

[:SENSe]:RL1XEVDO:CDPower:LCMask:Q (?)

Sets or queries the 11-digit mask of the Q long code for the code domain power measurement in the 1xEV-DO reverse link analysis.

Syntax

```
[:SENSe]:RL1XEVDO:CDPOwer:LCMask:Q <num1>,<num2>,<num3>

[:SENSe]:RL1XEVDO:CDPOwer:LCMask:Q?
```

Arguments

<num1> is the upper 3 digits of the Q long code mask.
Range: #H0 (0) to #H3FF (1023)
<num2> is the middle 4 digits of the Q long code mask.
Range: #H0000 (0) to #HFFFF (65535).
<num3> is the lower 4 digits of the Q long code mask.
Range: #H0000 (0) to #HFFFF (65535).

Measurement Modes

DEMRL1XEVDO

Examples

```
:SENSe:RL1XEVDO:CDPower:LCMask:Q 3FF,FFFF,FFFF
```

sets the 11-digit mask of the Q long code to 3FFFFFFFFF for the code domain power measurement in the 1xEV-DO reverse link analysis.

[:SENSe]:*Standard*:CDPower:MLEVel (?)

Sets or queries the measurement level for the code domain power measurement in the 1xEV-DO forward link or reverse link analysis. This command is only available when the :DISPlay:*Standard*:DDEMod:MVIew:FORMat command is set to IQPower.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CDPower:MLEVel {CHIP|SYMBol}

[:SENSe]:FL1XEVDO|RL1XEVDO:CDPower:MLEVel?
```

Arguments

CHIP	chip level
SYMBol	symbol level

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:CDPower:MLEVel CHIP
```

sets the measurement level to CHIP for the code domain power measurement in the 1xEV-DO forward link analysis.

Related Commands

:DISPlay:FL1XEVDO|RL1XEVDO:DDEMod:MVIew:FORMat

[:SENSe]:FL1XEVDO:CDPower:PNOFfset (?)

Sets or queries the PN offset for the code domain power measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:CDPOwer:PNOFfset <numeric_value>
```

```
[:SENSe]:FL1XEVDO:CDPOwer:PNOFfset?
```

Arguments

<numeric_value>::=<NR1> specifies the PN offset in the unit of 64 chips.
Range: 0 to 511

Measurement Modes

DEMFL1XEVDO

Examples

```
:SENSe:FL1XEVDO:CDPower:PNOFfset 100
```

sets the PN offset to 100 for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CDPower:SELect:CODE (?)

Sets or queries the code in the halfslot for the code domain power measurement in the 1xEV-DO forward or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:SELect:CODE <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:SELect:CODE?
```

Arguments

<numeric_value>::=<NR1> specifies the code in the halfslot.
The available ranges are as follows:

- FL1XEVDO:

Channel type	Range
Pilot	0 to 31
MAC	0 to 63
Data	0 to 15
Preamble	0 to 31

- RL1XEVDO: 0 to 15

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples `:SENSe:FL1XEVDO:CDPower:SELect:CODE 30`
sets the code in the halfslot to 30 for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CDPower:SELect:HSLot (?)

Sets or queries the halfslot for the code domain power measurement in the 1xEV-DO forward or reverse link analysis.

Syntax `[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:SELect:HSLot <numeric_value>`

`[:SENSe]:FL1XEVDO|RL1XEVDO:CDPOwer:SELect:HSLot?`

Arguments `<numeric_value>::=<NR1>` specifies the halfslot.
Range: -(number of analyzed chips -1) to 0

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:CDPower:SELect:HSLot -10`
sets the halfslot to -10 for the code domain power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CHPower Subgroup

The [:SENSe]:*Standard*:CHPower commands set up the conditions related to the channel power measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :CHPower
         :BANDwidth|BWIDth
            :INTegration    <numeric_value>
         :FILTer
            :COEFficient    <numeric_value>
            :TYPE        RECTangle|GAUSsian|NYQuist|RNYQuist
         :LIMit
            [:STATe]        <boolean>
```

[:SENSe]:*Standard*:CHPower:BANDwidth|BWIDth:INTegration (?)

Sets or queries the channel bandwidth for the channel power measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:BANDwidth|BWIDth:INTegration
<numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:BANDwidth|BWIDth:INTegration?
```

Arguments

`<numeric_value>::=<NRf>` specifies the channel bandwidth for the channel power measurement. Range: Span/20 to full span [Hz]

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CHPower:BANDwidth:INTegration 2.5MHz
```

sets the channel bandwidth to 2.5 MHz for the channel power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CHPower:FILTer:COEFficient (?)

Sets or queries the filter roll-off rate for the channel power measurement in the 1xEV-DO forward link or reverse link analysis. This command is only available when NYQuist or RNYQuist is selected in the [:SENSe]:*Standard*:CHPower FILTer:TYPE command.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:FILTer:COEFficient
<numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:FILTer:COEFficient?
```

Arguments

`<numeric_value>::=<NRf>` specifies the roll-off rate.

Range: 0.0001 to 1 (default: 0.5)

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CHPower:FILTer:COEFficient 0.1
```

sets the filter roll-off rate to 0.1 for the channel power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CHPower:FILTer:TYPE (?)

Select or queries the filter for the channel power measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:FILTer:TYPE {RECTangle
|GAUSsian|NYQuist|RNYQuist}

[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:FILTer:TYPE?
```

Arguments The arguments and filters are listed below:

Argument	Filter
RECTangle	Rectangular
GAUSsian	Gaussian
NYQuist	Nyquist
RNYQuist	Root Nyquist

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CHPower:FILTer:TYPE NYQuist
```

selects the Nyquist filter for the channel power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:CHPower:LIMit[:STATe] (?)

Sets or queries whether to enable or disable the limit testing for the channel power measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:LIMit[:STATe] <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:CHPower:LIMit[STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the limit testing.
`OFF` or `0` disables the limit testing.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:CHPower:LIMit:STATe ON
```

enables the limit testing for the channel power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:IM Subgroup

The [:SENSe]:*Standard*:IM commands set up the conditions related to the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :IM
         :BANDwidth|BWIDth
            :INTegration     <numeric_value>
         :FILTer
            :COEFficient     <numeric_value>
            :TYPE            RECTangle|GAUSsian|NYQuist|RNYQuist
         :LIMit
            :FORDer
               [:STATe]      <boolean>
            :TORDer
               [:STATe]      <boolean>
         :SCOFfset           <numeric_value>
```

[:SENSe]:*Standard*:IM:BANDwidth|BWIDth:INTegration (?)

Sets or queries the channel bandwidth for the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:BANDwidth|BWIDth:INTegration
<numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:BANDwidth|BWIDth:INTegration?
```

Arguments

`<numeric_value>::=<NRf>` specifies the bandwidth of the main channel for the intermodulation measurement. Range: Span/20 to full span [Hz].

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:IM:BANDwidth:INTegration 2.5MHz
```

sets the channel bandwidth to 2.5 MHz for the intermodulation measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:IM:FILTer:COEFficient (?)

Sets or queries the filter roll-off rate for the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis. This command is only available when NYQuist or RNYQuist is selected in the [:SENSe]:*Standard*:IM:FILTer:TYPE command.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:FILTer:COEFficient <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:FILTer:COEFficient?
```

Arguments

`<numeric_value>::=<NRf>` specifies the roll-off rate.
Range: 0.0001 to 1 (default: 0.5)

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:IM:FILTer:COEFficient 0.1
```

sets the filter roll-off rate to 0.1 for the intermodulation measurement in the 1xEV-DO forward link analysis.

Related Commands

`[:SENSe]:FL1XEVDO|RL1XEVDO:IM:FILTerTYPE`

[:SENSe]:*Standard*:IM:FILTer:TYPE (?)

Select or queries the filter for the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:FILTer:TYPE {RECTangle|GAUSsian
|NYQuist|RNYQuist}
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:FILTer:TYPE?
```

Arguments

The arguments and filters are listed below:

Argument	Filter
RECTangle	Rectangular
GAUSsian	Gaussian
NYQuist	Nyquist
RNYQuist	Root Nyquist

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:IM:FILTer:TYPE NYQuist`
selects the Nyquist filter for the intermodulation measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:IM:LIMit:FORDer[:STATe] (?)

Sets or queries whether to enable or disable the fifth order limit testing for the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax `[:SENSe]:FL1XEVDO|RL1XEVDO:IM:LIMit:FORDer[:STATe] <boolean>`

`[:SENSe]:FL1XEVDO|RL1XEVDO:IM:LIMit:FORFer[:STATe]?`

Arguments `<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the fifth order limit testing.
`OFF` or `0` disables the fifth order limit testing.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:IM:LIMit:FORDer:STATe ON`
enables the fifth order limit testing for the intermodulation measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:IM:LIMit:TORDer[:STATe] (?)

Sets or queries whether to enable or disable the third order limit testing for the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax `[:SENSe]:FL1XEVDO|RL1XEVDO:IM:LIMit:TORDer[:STATe] <boolean>`

`[:SENSe]:FL1XEVDO|RL1XEVDO:IM:LIMit:TORFer[:STATe]?`

Arguments `<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the third order limit testing.
`OFF` or `0` disables the third order limit testing.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:IM:LIMit:TORDer:STATe ON`
enables the third order limit testing for the intermodulation measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:IM:SCOFfset (?)

Sets or queries the second channel frequency for the intermodulation measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:SCOFfset <numeric_vslue>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:IM:SCOFfset?
```

Arguments

`<numeric_value>::=<NRf>` specifies the second channel frequency for the intermodulation. Range: -span/2 to +span/2 [Hz].

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:IM:SCOFfset 1.5MHz
```

sets the second channel frequency to 1.5 MHz for the intermodulation measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MACCuracy Subgroup

The [:SENSe]:*Standard*:MACCuracy commands set up the conditions related to the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :MACCuracy
         :ACCThreshold          <numeric_value>
         :CHANnel
            [:TYPE]             MAC|PILot|DATA|PREamble
         :FILTer
            :MEASurement        OFF|EQComp|COMP
         :IQSWAap               <boolean>
         :LCMask
            :I                  <num1>,<num2>,<num3>
            :Q                  <num1>,<num2>,<num3>
         :LIMit
            :EVM
               :RMS
                  [:STATe]      <boolean>
               :PEAK
                  [:STATe]      <boolean>
            :PCDerror
               [:STATe]         <boolean>
            :RHO
               [:STATe]         <boolean>
            :TAU
               [:STATe]         <boolean>
         :MLEVel                CHIP|SYMBol
         :PNOFfset              <numeric_value>
         :SELect
            :CODE               <numeric_value>
            :HSLot              <numeric_value>
```

[:SENSe]:*Standard*:MACCuracy:ACCThreshold (?)

Sets or queries the active channel threshold level (in dB from the pilot), which is used for deciding whether a code channel is active or inactive, for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:ACCThreshold <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:ACCThreshold?
```

Arguments

`<numeric_value>::=<NRf>` specifies the active channel threshold level.
Range: -100 dB to 0 dB

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:ACCThreshold -100dB
```

sets the active channel threshold level to -100 dB for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:MACCuracy:CHANnel[:TYPE] (?)

Selects or queries the channel type for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:MACCuracy:CHANnel[:TYPE] {MAC|PILot|DATA
|PREamble|OVERall}

[:SENSe]:FL1XEVDO:MACCuracy:CHANnel[:TYPE]?
```

Arguments

`MAC` selects the MAC channel.
`PILot` selects the pilot channel.
`DATA` selects the data channel.
`PREamble` selects the preamble embedded in the data.
`OVERall` selects the overall channels. This argument is only available when the [:SENSe]:*Standard*:MACCuracy:MLEVel command is set to CHIP.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:CHANnel:TYPE MAC
```

select the MAC channel for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MACCuracy:FILTer:MEASurement (?)

Selects or queries the measurement filter for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:MACCuracy:FILTer:MEASurement {OFF|EQComp|COMP}

[:SENSe]:FL1XEVDO:MACCuracy:FILTer:MEASurement?
```

Arguments

`OFF` specifies that no measurement filter is used.
`EQComp` selects the Complementary filter + EQ (equalizer).
`COMP` selects the Complementary filter.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:FILTer:MEASurement COMP
```

selects the Complementary filter for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MACCuracy:IQSWap (?)

Sets or queries whether to enable or disable IQ swapping for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:IQSWap <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:IQSWap?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the IQ swapping.
`OFF` or `0` disables the IQ swapping.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:IQSWap ON
```

sets the IQ swapping to ON for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:RL1XEVDO:MACCuracy:LCMask:I (?)

Sets or queries the 11-digit mask of the I long code for the modulation accuracy measurement in the 1xEV-DO reverse link analysis.

Syntax

```
[:SENSe]:RL1XEVDO:MACCuracy:LCMask:I <num1>,<num2>,<num3>

[:SENSe]:RL1XEVDO:MACCuracy:LCMask:I?
```

Arguments

<num1> is the upper 3 digits of the I long code mask.
Range: #H0 (0) to #H3FF (1023)
<num2> is the middle 4 digits of the I long code mask.
Range: #H0000 (0) to #HFFFF (65535).
<num3> is the lower 4 digits of the I long code mask.
Range: #H0000 (0) to #HFFFF (65535).

Measurement Modes

DEMRL1XEVDO

Examples

```
:SENSe:RL1XEVDO:MACCuracy:LCMask:I 3FF,FFFF,FFFF
```

sets the 11-digit mask of the I long code to 3FFFFFFFFF for the modulation accuracy measurement in the 1xEV-DO reverse link analysis.

[:SENSe]:RL1XEVDO:MACCuracy:LCMask:Q (?)

Sets or queries the 11-digit mask of the Q long code for the modulation accuracy measurement in the 1xEV-DO reverse link analysis.

Syntax

```
[:SENSe]:RL1XEVDO:MACCuracy:LCMask:Q <num1>,<num2>,<num3>

[:SENSe]:RL1XEVDO:MACCuracy:LCMask:Q?
```

Arguments

<num1> is the upper 3 digits of the Q long code mask.
Range: #H0 (0) to #H3FF (1023)
<num2> is the middle 4 digits of the Q long code mask.
Range: #H0000 (0) to #HFFFF (65535).
<num3> is the lower 4 digits of the Q long code mask.
Range: #H0000 (0) to #HFFFF (65535).

Measurement Modes

DEMRL1XEVDO

Examples

```
:SENSe:RL1XEVDO:MACCuracy:LCMask:Q 3FF,FFFF,FFFF
```

sets the 11-digit mask of the Q long code to 3FFFFFFFFF for the modulation accuracy measurement in the 1xEV-DO reverse link analysis.

[:SENSe]:***Standard***:MACCuracy:LIMit:EVM:PEAK[:STATe] (?)

Sets or queries whether to enable or disable the PEAK EVM limit checking for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:EVM:PEAK[:STATe]
<boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:EVM:PEAK[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the PEAK EVM limit testing.
`OFF` or `0` disables the PEAK EVM limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

`:SENSe:FL1XEVDO:MACCuracy:LIMit:EVM:PEAK:STATe ON`
enables the PEAK EVM limit testing for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:MACCuracy:LIMit:EVM:RMS[:STATe] (?)

Sets or queries whether to enable or disable the RMS EVM limit testing for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:EVM:RMS[:STATe]
<boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:EVM:RMS[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the RMS EVM limit testing.
`OFF` or `0` disables the RMS EVM limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

`:SENSe:FL1XEVDO:MACCuracy:LIMit:EVM:RMS:STATe ON`
enables the RMS EVM limit testing for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:MACCuracy:LIMit:PCDerror[:STATe] (?)

Sets or queries whether to enable or disable the peak code domain error limit testing for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:PCDerror[:STATe]
<boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:PCDerror[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the peak code domain error limit testing.
`OFF` or `0` disables the peak code domain error limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:LIMit:PCDerror:STATe ON
```

enables the peak code domain error limit testing for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:MACCuracy:LIMit:RHO[:STATe] (?)

Sets or queries whether to enable or disable the Rho limit testing for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:RHO[:STATe] <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:LIMit:RHO[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the Rho limit testing.
`OFF` or `0` disables the Rho limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:LIMit:RHO:STATe ON
```

enables the Rho limit testing for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:MACCuracy:LIMit:TAU[:STATe] (?)

Sets or queries whether to enable or disable the Tau limit testing for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:MACCuracy:LIMit:TAU[:STATe] <boolean>

[:SENSe]:FL1XEVDO:MACCuracy:LIMit:TAU[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the Tau limit testing.
`OFF` or `0` disables the Tau limit testing.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:LIMit:TAU:STATe ON
```

enables the Tau limit testing for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MACCuracy:MLEVel (?)

Sets or queries the measurement level for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:MLEVel {CHIP|SYMBol}

[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:MLEVel?
```

Arguments

`CHIP` chip level
`SYMBol` symbol level

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:MACCuracy:MLEVel CHIP
```

sets the measurement level to CHIP for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:MACCuracy:PNOFfset (?)

Sets or queries the PN offset for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:MACCuracy:PNOFfset <numeric_value>
```

```
[:SENSe]:FL1XEVDO:MACCuracy:PNOFfset?
```

Arguments

<numeric_value>::=<NR1> specifies the PN offset.
Range: 0 to 511

Measurement Modes

DEMFL1XEVDO

Examples

```
:SENSe:FL1XEVDO:MACCuracy:PNOFfset 100
```

sets the PN offset to 100 for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MACCuracy:SELect:CODE (?)

Sets or queries the code in the halfslot for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:SELect:CODE <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:SELect:CODE?
```

Arguments

<numeric_value>::=<NR1> specifies the code in the halfslot.
The available ranges are as follows:

- FL1XEVDO:

Channel type	Range
MAC	0 to 63
Pilot	0 to 31
Data	0 to 15
Preamble	0 to 31

- RL1XEVDO: 0 to 15

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples `:SENSe:FL1XEVDO:MACCuracy:SELect:CODE 30`
sets the code in the halfslot to 30 for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:MACCuracy:SELect:HSLot (?)

Sets or queries the halfslot for the modulation accuracy measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax `[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:SELect:HSLot <numeric_value>`

`[:SENSe]:FL1XEVDO|RL1XEVDO:MACCuracy:SELect:HSLot?`

Arguments `<numeric_value>::=<NR1>` specifies the halfslot.
Range: -(number of analyzed half slots -1) to 0

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:MACCuracy:SELect:HSLot -10`
sets the halfslot to -10 for the modulation accuracy measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:OBWidth Subgroup

The [:SENSe]:*Standard*:OBWidth commands set up the conditions related to the occupied bandwidth (OBW) measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :OBWidth
         :LIMit
            [:STATe]        <boolean>
         :PERCent           <numeric_value>
```

[:SENSe]:*Standard*:OBWidth:LIMit[:STATe] (?)

Sets or queries whether to enable or disable the limit testing for the OBW measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:OBWidth:LIMit[:STATe] <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:OBWidth:LIMit[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the limit testing.
`OFF` or `0` disables the limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:OBWidth:LIMit:STATe ON
```

sets the limit testing to ON for the OBW measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:OBWidth:PERCent (?)

Sets or queries the occupied bandwidth for the OBW measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:OBWidth:PERCent <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:OBWidth:PERCent?
```

Arguments

`<numeric_value>::=<NRf>` specifies the occupied bandwidth.
Range: 80% to 99.99% (default: 99%).

Measurement Modes DEMFL1XEVDO, DEMRL1XEVDO

Examples
```
:SENSe:FL1XEVDO:OBWidth:PERCent 95PCT
```
sets the occupied bandwidth to 95% for the OBW measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:PCCHannel Subgroup

The [:SENSe]:*Standard*:PCCHannel commands set up the conditions related to the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree
```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :PCCHannel
         :ACCThreshold          <numeric_value>
         :CHANnel
            [:TYPE]             MAC|DATA|PREamble
         :FILTer
            :MEASurement        OFF|EQComp|COMP
         :IQSWap                <boolean>
         :LCMask
            :I                  <num1>,<num2>,<num3>
            :Q                  <num1>,<num2>,<num3>
         :LIMit
            :PHASe
               [:STATe]         <boolean>
            :TIME
               [:STATe]         <boolean>
         :PNOFfset              <numeric_value>
         :SELect
            :CODE               <numeric_value>
            :HSLot              <numeric_value>
```

[:SENSe]:*Standard*:PCCHannel:ACCThreshold (?)

Sets or queries the active channel threshold level (in dB from the pilot), which is used for deciding whether a code channel is active or inactive, for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:ACCThreshold <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:ACCThreshold?
```

Arguments

`<numeric_value>::=<NRf>` specifies the active channel threshold level.
Range: -100 to 0 dB

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:ACCThreshold -100dB
```

sets the active channel threshold level to -100 dB for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:PCCHannel:CHANnel[:TYPE] (?)

Selects or queries the channel type for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:PCCHannel:CHANnel[:TYPE] {MAC|DATA|PREamble}
```

```
[:SENSe]:FL1XEVDO:PCCHannel:CHANnel[:TYPE]?
```

Arguments

`MAC`	selects the MAC channel.
`DATA`	selects the data channel.
`PREamble`	selects the preamble embedded in the data.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:CHANnel:TYPE MAC
```

selects the MAC channel for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:PCCHannel:FILTer:MEASurement (?)

Selects or queries the measurement filter for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:PCCHannel:FILTer:MEASurement {OFF|EQComp|COMP}

[:SENSe]:FL1XEVDO:PCCHannel:FILTer:MEASurement?
```

Arguments

`OFF` specifies that no measurement filter is used.
`EQComp` selects the Complementary filter + EQ (equalizer).
`COMP` selects the Complementary filter

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:FILTer:MEASurement COMP
```

selects the Complementary filter for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:PCCHannel:IQSWap (?)

Sets or queries whether to enable or disable IQ swapping for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:IQSWap <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:IQSWap?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the IQ swapping.
`OFF` or `0` disables the IQ swapping.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:IQSWap ON
```

sets the IQ swapping to ON for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:RL1XEVDO:PCCHannel:LCMask:I (?)

Sets or queries the 11-digit mask of the I long code for the pilot to code channel measurement in the 1xEV-DO reverse link analysis.

Syntax

```
[:SENSe]:RL1XEVDO:PCCHannel:LCMask:I <num1>,<num2>,<num3>

[:SENSe]:RL1XEVDO:PCCHannel:LCMask:I?
```

Arguments

<num1> is the upper 3 digits of the I long code mask.
Range: #H0 (0) to #H3FF (1023)
<num2> is the middle 4 digits of the I long code mask.
Range: #H0000 (0) to #HFFFF (65535).
<num3> is the lower 4 digits of the I long code mask.
Range: #H0000 (0) to #HFFFF (65535).

Measurement Modes

DEMRL1XEVDO

Examples

```
:SENSe:RL1XEVDO:PCCHannel:LCMask:I 3FF,FFFF,FFFF
```

sets the 11-digit mask of the I long code to 3FFFFFFFFF for the pilot to code channel measurement in the 1xEV-DO reverse link analysis.

[:SENSe]:RL1XEVDO:PCCHannel:LCMask:Q (?)

Sets or queries the 11-digit mask of the Q long code for the pilot to code channel measurement in the 1xEV-DO reverse link analysis.

Syntax

```
[:SENSe]:RL1XEVDO:PCCHannel:LCMask:Q <num1>,<num2>,<num3>

[:SENSe]:RL1XEVDO:PCCHannel:LCMask:Q?
```

Arguments

<num1> is the upper 3 digits of the Q long code mask.
Range: #H0 (0) to #H3FF (1023)
<num2> is the middle 4 digits of the Q long code mask.
Range: #H0000 (0) to #HFFFF (65535).
<num3> is the lower 4 digits of the Q long code mask.
Range: #H0000 (0) to #HFFFF (65535).

Measurement Modes

DEMRL1XEVDO

Examples

```
:SENSe:RL1XEVDO:PCCHannel:LCMask:Q 3FF,FFFF,FFFF
```

sets the 11-digit mask of the Q long code to 3FF, FFFF, FFFF for the pilot to code channel measurement in the 1xEV-DO reverse link analysis.

[:SENSe]:*Standard*:PCCHannel:LIMit:PHASe[:STATe] (?)

Sets or queries whether to enable or disable the phase limit checking for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:LIMit:PHASe[:STATe] <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:LIMit:PHASe[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the phase limit testing.
`OFF` or `0` disables the phase limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:LIMit:PHASe:STATe ON
```

enables the phase limit testing for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:PCCHannel:LIMit:TIME[:STATe] (?)

Sets or queries whether to enable or disable the time limit testing for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:LIMit:TIME[:STATe] <boolean>

[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:LIMit:TIME[:STATe]?
```

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON` or `1` enables the time limit testing.
`OFF` or `0` disables the time limit testing.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:LIMit:TIME:STATe ON
```

enables the time limit testing for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:PCCHannel:PNOFfset (?)

Sets or queries the PN offset for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:PCCHannel:PNOFfset <numeric_value>
```

```
[:SENSe]:FL1XEVDO:PCCHannel:PNOFfset?
```

Arguments

<numeric_value>::=<NR1> specifies the PN offset.
Range: 0 to 511

Measurement Modes

DEMFL1XEVDO

Examples

```
:SENSe:FL1XEVDO:PCCHannel:PNOFfset 100
```

sets the PN offset to 100 for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:PCCHannel:SELect:CODE (?)

Sets or queries the code in the halfslot for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:SELect:CODE <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:SELect:CODE?
```

Arguments

<numeric_value>::=<NR1> specifies the code in the halfslot.
The available ranges are as follows:

- FL1XEVDO:

Channel type	Range
MAC	0 to 1
Data	0 to 15
Preamble	0

- RL1XEVDO: 0, 0 to 1, 0 to 2, or 0 to 3

Measurement Modes

DEMFL1XEVDO, DEMRL1XEVDO

Examples

```
:SENSe:FL1XEVDO:PCCHannel:SELect:CODE 1
```

sets the code in the halfslot to 1 for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:PCCHannel:SELect:HSLot (?)

Sets or queries the halfslot for the pilot to code channel measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:SELect:HSLot <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:PCCHannel:SELect:HSLot?
```

Arguments

`<numeric_value>::=<NR1>` specifies the halfslot.
Range: -(number of analyzed half slots -1) to 0

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PCCHannel:SELect:HSLot -10
```

sets the halfslot to -10 for the pilot to code channel measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:PVTime Subgroup

The [:SENSe]:FL1XEVDO:PVTime commands set up the conditions related to the gated output power measurement in the 1xEV-DO forward link analysis. These commands are only available for the FL1XEVDO standard.

Command Tree

```
[:SENSe]
   :FL1XEVDO
      :PVTime
         :BURSt
            :OFFSet              <numeric_value>
            :SYNC                REDGe|MPOint|TPOSition
         :LIMit
            :ZONE[1]|2|3|4|5
               [:STATe]          <boolean>
         :RCHannel
            :LEVel               <numeric_value>
            :MODE                AUTO|MANual
         :SLOT
            [:TYPE]              IDLE|ACTive
```

[:SENSe]:FL1XEVDO:PVTime:BURSt:OFFSet (?)

Sets or queries the burst offset between the trigger position and burst position for the gated output power measurement in the 1xEV-DO forward link analysis. This command is only available when the [:SENSe]:FL1XEVDO:PVTime:SLOT [:TYPE] command is set to IDLE and the [:SENSe]:FL1XEVDO:PVTime :BURSt:SYNC command is set to TPOSition.

Syntax

```
[:SENSe]:FL1XEVDO:PVTime:BYRSt:OFFSet <numeric_value>

[:SENSe]:FL1XEVDO:PVTime:BURSt:OFFSet?
```

Arguments

`<numeric_value>::=<NRf>` specifies the burst offset.
Range: -1 E-3 to 1 E-3 [s]

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PVTime:BURSt:OFFSet 100us
```

sets the burst offset to 100 µs for the gated output power measurement in the 1x EV-DO forward link analysis.

Related Commands

```
[:SENSe]:FL1XEVDO:PVTime:SLOT[:TYPE]
[:SENSe]:FL1XEVDO:PVTime:BURSt:SYNC
```

[:SENSe]:FL1XEVDO:PVTime:BURSt:SYNC (?)

Sets or queries the burst sync for the gated output power measurement in the 1xEV-DO forward link analysis. This command is only available when the [:SENSe]:FL1xEVDO:PVTime:SLOT[:TYPE] command is set to IDLE.

Syntax

```
[:SENSe]:FL1XEVDO:PVTime:BURSt:SYNC {REDGe|MPOint|TPOSition}

[:SENSe]:FL1XEVDO:PVTime:BURSt:SYNC?
```

Arguments

`REDGe` specifies the rising edge.
`MPOint` specifies the middle point.
`TPOSition` specifies the trigger position.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PVTime:BURSt:SYNC TPOSition
```

sets the burst sync to the trigger position for the gated output power measurement in the 1x EV-DO forward link analysis.

Related Commands

`[:SENSe]:FL1XEVDO:PVTime:SLOT[:TYPE]`

[:SENSe]:FL1XEVDO:PVTime:LIMit:ZONE[1]|2|3|4|5[:STATe] (?)

Sets or queries whether to enable or disable the zone limit testing for the gated output power measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:PVTime:LIMit:ZONE[1]|2|3|4|5[:STATe] <boolean>

[:SENSe]:FL1XEVDO:PVTime:LIMit:ZONE[1]|2|3|4|5[:STATe]?
```

Zones 1, 2, 3, 4, and 5 correspond to Zones A, B, C, D, and E in the limit editor, respectively.

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON or 1` enables the zone limit testing.
`OFF or 0` disables the zone limit testing.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PVTime:LIMit:ZONE1 ON
```

enables the limit testing of the zone 1 for the gated output power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:FL1XEVDO:PVTime:RCHannel:LEVel (?)

Sets or queries the reference channel level to measure the power level in dB. This command is only available when the [:SENSe]:FL1XEVDO:PVTime :RCHannel:MODE command is set to MANual.

Syntax

```
[:SENSe]:FL1XEVDO:PVTime:RCHannel:LEVel <numeric_value>

[:SENSe]:FL1XEVDO:PVTime:RCHannel:LEVel?
```

Arguments

<numeric_value>::=<NRf> specifies the reference channel level.
Range: -150 to 30 dBm

Measurement Modes

DEMFL1XEVDO

Examples

```
:SENSe:FL1XEVDO:PVTime:RCHannel:LEVel -10dBm
```

sets the reference channel level to -10 dBm for the gated output power measurement in the 1xEV-DO forward link analysis.

Related Commands

[:SENSe]:FL1XEVDO:PVTime:RCHannel:MODE

[:SENSe]:FL1XEVDO:PVTime:RCHannel:MODE (?)

Sets or queries the mode of the reference channel level to measure the power level in dB.

Syntax

```
[:SENSe]:FL1XEVDO:PVTime:RCHannel:MODE {AUTO|MANual}

[:SENSe]:FL1XEVDO:PVTime:RCHannel:MODE?
```

Arguments

AUTO the reference level is measured from the input signal.
MANual the reference level can be defined by the [:SENSe]:FL1XEVDO:PVTime :RCHannel:LEVel command.

Measurement Modes

DEMFL1XEVDO

Examples

```
:SENSe:FL1XEVDO:PVTime:RCHannel:MODE AUTO
```

sets the mode of the reference channel level to AUTO for the gated output power measurement in the 1xEV-DO forward link analysis.

Related Commands

[:SENSe]:FL1XEVDO:PVTime:RCHannel:LEVel

[:SENSe]:FL1XEVDO:PVTime:SLOT[:TYPE] (?)

Sets or queries the slot type for the gated output power measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:PVTime:SLOT {IDLE|ACTive}
```

```
[:SENSe]:FL1XEVDO:PVTime:SLOT?
```

Arguments

`IDLE` selects the idle slot including the pilot and MAC channels.
`ACTive` selects the active slot including the pilot, MAC, and data channels.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:PVTime:REFerence:SLOT:TYPE IDLE
```

sets the slot type to IDLE for the gated output power measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SEMask Subgroup

The [:SENSe]:*Standard*:SEMask commands set up the conditions related to the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis.

Command Tree

```
[:SENSe]
   :FL1XEVDO|RL1XEVDO
      :SEMask
         :BANDwidth|BWIDth
            :INTegration          <numeric_value>
         :BURSt
            :OFFSet               <numeric_value>
            :SYNC                 REDGe|MPOint|TPOSition
         :FILTer
            :COEFficient          <numeric_value>
            :TYPE                 RECTangle|GAUSsian|NYQuist
                                  |RNYQuist
         :LIMit
            :ISPurious
               :ZONE[1]|2|3|4|5
                  [:STATe]        <boolean>
            :OFCHannel
               :ZONE[1]|2|3|4|5
                  [:STATe]        <boolean>
         :MEASurement             OFCHannel|ISPurious
         :RCHannel
            :LEVel                <numeric_value>
            :MODE                 AUTO|MANual
         :SLOT
            :GATE                 <numeric_value>
            [:TYPE]               IDLE|ACTive
```

[:SENSe]:*Standard*:SEMask:BANDwidth|BWIDth:INTegration (?)

Sets or queries the channel bandwidth for the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BANDwidth|BWIDth:INTegration <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BANDwidth|BWIDth:INTegration?
```

Arguments

`<numeric_value>::=<NRf>` specifies the channel bandwidth.
Range: Span/20 to full span Hz

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:BANDwidth:INTegration 2.5MHz
```

sets the channel bandwidth to 2.5 MHz for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SEMask:BURSt:OFFSet (?)

Sets or queries the burst offset between the trigger position and burst position for the spectrum emission mask measurement in the 1xEV-DO forward link analysis. This command is only available when the [:SENSe]:*Standard*:SEMask:SLOT [:TYPE] command is set to IDLE and [:SENSe]:*Standard*:SEMask:BURSt:SYNC command is set to TPOSition.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BURSt:OFFSet <numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BURSt:OFFSet?
```

Arguments

`<numeric_value>::=<NRf>` specifies the burst offset.
Range: -1 E-3 to 1 E-3 s

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:BURSt:OFFSet 100us
```

sets the burst offset to 100 µs for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Related Commands

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:SLOT[:TYPE]
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BURSt:SYNC
```

[:SENSe]:*Standard*:SEMask:BURSt:SYNC (?)

Sets or queries the burst sync for the spectrum emission mask measurement in the 1xEV-DO forward link analysis. This command is only available when the [:SENSe]:*Standard*:SEMask:SLOT[:TYPE] command is set to IDLE.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BURSt:SYNC
{REDGe|MPOint|TPOSition}

[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:BURSt:SYNC?
```

Arguments

`REDGe` specifies the rising edge.
`MPOint` specifies the middle point.
`TPOSition` specifies the trigger position.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

`[:SENSe]:FL1XEVDO:SEMask:BURSt:SYNC TPOSition`
sets the burst sync to the trigger position for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Related Commands

`[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:SLOT[:TYPE]`

[:SENSe]:*Standard*:SEMask:FILTer:COEFficient (?)

Sets or queries the filter roll-off rate for the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis. This command is only available when the [:SENSe]:*Standard*:SEMask: FILTer:TYPE command is set to NYQuist or RNYQuist.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:FILTer:COEFficient
<numeric_value>

[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:FILTer:COEFficient?
```

Arguments

`<numeric_value>::=<NRf>` specifies the roll-off rate.
Range: 0.0001 to 1 (default: 0.5)

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

`:SENSe:FL1XEVDO:SEMask:FILTer:COEFficient 0.1`
sets the filter roll-off rate to 0.1 for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SEMask:FILTer:TYPE (?)

Selects or queries the filter for the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:FILTer:TYPE {RECTangle
|GAUSsian|NYQuist|RNYQuist}

[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:FILTer:TYPE?
```

Arguments The arguments and filters are listed below:

Argument	Filter
RECTangle	Rectangular
GAUSsian	Gaussian
NYQuist	Nyquist
RNYQuist	Root Nyquist

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:FILTer:TYPE NYQuist
```

selects the Nyquist filter for the spectrum emission measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5[:STATe] (?)

Sets or queries whether to enable or disable the inband spurious zone limit testing for the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5
[:STATe] <boolean>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5
[:STATe]?
```

Zones 1, 2, 3, 4, and 5 correspond to Zones A, B, C, D, and E in the limit editor, respectively.

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON or 1` enables the inband spurious zone limit testing.
`OFF or 0` disables the inband spurious zone limit testing.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:LIMit:ISPurious:ZONE1:STATe ON
```

enables the inband spurious limit testing of the zone 1 for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

[:SENSe]:***Standard***:SEMask:LIMit:OFCHannel:ZONE[1]|2|3|4|5[:STATe] (?)

Sets or queries whether to enable or disable the offset from the channel zone limit testing for the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:LIMit:OFCHannel:ZONE[1]|2|3|4|5
[:STATe] <boolean>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:LIMit:OFCHannel:ZONE[1]|2|3|4|5
[:STATe]?
```

Zones 1, 2, 3, 4, and 5 correspond to Zones A, B, C, D, and E in the limit editor, respectively.

Arguments

`<boolean>::={ON|OFF|1|0}`
`ON or 1` enables the offset from the channel zone limit testing.
`OFF or 0` disables the offset from the channel zone limit testing.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:SEMask:LIMit:OFCHannel:ZONE1:STATe ON`
enables the offset from the channel limit testing of the zone 1 for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SEMask:MEASurement (?)

Sets or queries the limit table type used for limit testing for the spectrum emission mask measurement in the 1xEV-DO forward link or reverse link analysis.

Syntax
```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:MEASurement
{OFCHannel|ISPurious}

[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:MEASurement?
```

Arguments `OFCHannel` selects the Offset From Channel type where frequency zones are specified by the difference from the center frequency.
`ISPurious` selects the Inband Spurious type in which frequency zones are specified by the absolute values.

Measurement Modes `DEMFL1XEVDO, DEMRL1XEVDO`

Examples `:SENSe:FL1XEVDO:SEMask:MEASurement ISPurious`
selects the Inband Spurious limit table for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

[:SENSe]:*Standard*:SEMask:RCHannel:LEVel (?)

Sets or queries the reference channel level to measure the spurious emission level in dBc. This command is only available when the [:SENSe]:*Standard*:SEMask :RCHannel:MODE command is set to MANual.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:RCHannel:LEVel <numeric_value>
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:RCHannel:LEVel?
```

Arguments

`<numeric_value>::=<NRf>` specifies the reference level.
Range: -150 to 30 dBm

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:RCHannel:LEVel -10dBm
```

sets the reference channel level to -10 dBm for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Related Commands

`[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:RCHannel:MODE`

[:SENSe]:*Standard*:SEMask:RCHannel:MODE (?)

Sets or queries the mode of the reference channel level to measure the spurious emission level in dBc.

Syntax

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:RCHannel:MODE {AUTO|MANual}
```

```
[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:RCHannel:MODE?
```

Arguments

`AUTO` the reference level is measured from the input signal.
`MANual` the reference level can be defined by the [:SENSe]:*Standard*:SEMask :RCHannel:LEVel command.

Measurement Modes

`DEMFL1XEVDO, DEMRL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:RCHannel:MODE AUTO
```

sets the mode of the reference channel level to AUTO for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Related Commands

`[:SENSe]:FL1XEVDO|RL1XEVDO:SEMask:RCHannel:LEVel`

[:SENSe]:FL1XEVDO:SEMask:SLOT:GATE (?)

Sets or queries the slot gate time for the spectrum emission mask measurement in the 1xEV-DO forward link analysis. This command is only available when the [:SENSe]:FL1XEVDO:SEMask:SLOT[:TYPE] command is set to IDLE.

Syntax

```
[:SENSe]:FL1XEVDO:SEMask:SLOT:GATE <numeric_value>
```

```
[:SENSe]:FL1XEVDO:SEMask:SLOT:GATE?
```

Arguments

`<numeric_value>::=<NRf>` specifies the slot gate time.
Range: 180 E-6 to 840 E-6 [s].

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:SLOT:GATE 200us
```

sets the slot gate time to 200 µs for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Related Commands

`[:SENSe]:FL1XEVDO:SEMask:SLOT[:TYPE]`

[:SENSe]:FL1XEVDO:SEMask:SLOT[:TYPE] (?)

Sets or queries the slot type (Idle or Active) for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Syntax

```
[:SENSe]:FL1XEVDO:SEMask:SLOT[:TYPE] {IDLE|ACTive}
```

```
[:SENSe]:FL1XEVDO:SEMask:SLOT[:TYPE]?
```

Arguments

`IDLE` selects the idle slot including the pilot and MAC channels.
`ACTive` selects the active slot including the pilot, MAC, and data channels.

Measurement Modes

`DEMFL1XEVDO`

Examples

```
:SENSe:FL1XEVDO:SEMask:SLOT:TYPE IDLE
```

sets the slot type to IDLE for the spectrum emission mask measurement in the 1xEV-DO forward link analysis.

Appendices

Appendix A: Specifications

Tables A-1 and A-2 list the characteristics of the 1xEV-DO forward link and reverse link measurements.

All listed specifications are guaranteed unless labeled with typical. Typical specifications are provided for your convenience but are not guaranteed.

Table A-1: 1xEV-DO forward link

Characteristics	Description
Channel power	
Minimum power at RF input	-50 dBm
Absolute power measurement accuracy (at 20 to 30 °C, excluding mismatch error), typical	±0.6 dB at conditions below: Signal frequency: 824 to 960 MHz or 1750 to 2170 MHz Signal power: 0 dBm to -50 dBm After Auto Level is performed at 10 MHz span.
Relative power measurement accuracy (at 20 to 30 °C, excluding mismatch error), typical	±0.2 dB at conditions below: Signal frequency: 824 to 960 MHz or 1750 to 2170 MHz Signal power: 0 dBm to -30 dBm After Auto Level is performed at 10 MHz span, 0 dBm input.
Resolution	0.01 dB
CCDF	
Histogram resolution	0.01 dB
Intermodulation distortion	
Measurement filter	Rectangular, Root Nyquist, Nyquist, and Gaussian
Occupied bandwidth	
Minimum carrier power at RF input	-50 dBm
Measurement accuracy	0.2%
ACPR	
Minimum carrier power at RF input	-40 dBm
Dynamic range	At -5 dBm signal input
765 kHz offset	76 dB (30 kHz BW)
1.995 MHz offset	81 dB (30 kHz BW)
3.125 MHz offset	81 dB (30 kHz BW)
4 MHz offset	82 dB (30 kHz BW)

Table A-1: 1xEV-DO forward link (cont.)

Characteristics	Description
Spectrum emission mask	
Minimum carrier power at RF input	-5 dBm
Dynamic range	
1.995 MHz offset	82 dB (30 kHz BW)
Code domain power	
Relative code domain power accuracy	±0.15 dB ±0.075 dB (typical)
QPSK EVM	
Minimum carrier power at RF input	-40 dBm
EVM floor, typical	2.0%
Modulation Accuracy (composite)	
Minimum carrier power at RF input	-40 dB
Composite EVM floor, typical	2.0%
Rho	0.999
Frequency error accuracy	±10 Hz + center frequency accuracy
Timing accuracy (tau)	±250 ns

Table A-2: 1xEV-DO reverse link

Characteristics	Description
Channel power	
Minimum power at RF input	-50 dBm
Absolute power measurement accuracy (at 20 to 30 °C, excluding mismatch error), typical	±0.6 dB at conditions below: Signal frequency: 824 to 960 MHz or 1750 to 2170 MHz Signal power: 0 dBm to -50 dBm After Auto Level is performed at 10 MHz span.
Relative power measurement accuracy (at 20 to 30 °C, excluding mismatch error), typical	±0.2 dB at conditions below: Signal frequency: 824 to 960 MHz or 1750 to 2170 MHz Signal power: 0 dBm to -30 dBm After Auto Level is performed at 10 MHz span, 0 dBm input.
Resolution	0.01 dB
CCDF	
Histogram resolution	0.01 dB
Intermodulation distortion	
Measurement filter	Rectangular, Root Nyquist, Nyquist, and Gaussian

Table A-2: 1xEV-DO reverse link (cont.)

Characteristics	Description
Occupied bandwidth	
Minimum carrier power at RF input	-50 dBm
Measurement accuracy	0.2%
ACPR	
Minimum carrier power at RF input	-40 dBm
Dynamic range	At -5 dBm signal input
765 kHz offset	74 dB (30 kHz BW)
1.995 MHz offset	83 dB (30 kHz BW)
3.125 MHz offset	83 dB (30 kHz BW)
4 MHz offset	84 dB (30 kHz BW)
Spectrum emission mask	
Minimum carrier power at RF input	-5 dBm
Dynamic range	
1.995 MHz offset	82 dB (30 kHz BW)
Code domain power	
Relative code domain power accuracy	±0.15 dB ±0.075 dB (typical)
QPSK EVM	
Minimum carrier power at RF input	-40 dBm
EVM floor, typical	2.0%
Modulation Accuracy (composite)	
Minimum carrier power at RF input	-40 dB
Composite EVM floor, typical	2.0%
Rho	0.999
Frequency error accuracy	±10 Hz + center frequency accuracy

Appendix B: Factory Default Settings

Tables B-1 and B-2 list the factory default settings of the remote commands. These default settings can be set by using the *RST command.

NOTE. *Throughout the header descriptions in this section, the word* **Standard** *in italics is substituted for either of the following two measurement standards; FL1XEVDO (1xEV-DO forward link) or RL1XEVDO (1xEV-DO reverse link).*

Table B-1: Factory default settings-:DISPlay commands

Header	Default settings
:DISPlay:***Standard***:CCDF subgroup	
:DISPlay:*Standard*:CCDF:LINE:GAUSsian[:STATe]	ON
:DISPlay:*Standard*:CCDF:LINE:REFerence[:STATe]	OFF
:DISPlay:*Standard*:CCDF:X[:SCALe]:AUTO	ON
:DISPlay:*Standard*:CCDF:X[:SCALe]:MAXimum	150 dB
:DISPlay:*Standard*:CCDF:X[:SCALe]:OFFSet	0
:DISPlay:*Standard*:CCDF:Y[:SCALe]:MAXimum	100%
:DISPlay:*Standard*:CCDF:Y[:SCALe]:MINimum	10 μ%
:DISPlay:***Standard***:DDEMod subgroup	
:DISPLay:*Standard*:DDEMod:SVIew:FORMat	SPECtrum
:DISPLay:*Standard*:DDEMod:SVIew:X[:SCALe]OFFSet	20.5 MHz
:DISPLay:*Standard*:DDEMod:SVIew:X[:SCALe]:RANGe	5 MHz
:DISPLay:*Standard*:DDEMod:SVIew:Y[:SCALe]:OFFSet	0
:DISPLay:*Standard*:DDEMod:SVIew:Y[:SCALe]:RANGe	100 dB
:DISPLay:***Standard***:SPECtrum subgroup	
:DISPLay:*Standard*:SPECtrum:X[:SCALe]:OFFSet	1.4925 GHz
:DISPLay:*Standard*:SPECtrum:X[:SCALe]:PDIVision	1.5 MHz/div
:DISPLay:*Standard*:SPECtrum:Y[:SCALe]:OFFSet	0
:DISPLay:*Standard*:SPECtrum:Y[:SCALe]:PDIVision	10 dB/div
:DISPLay:***Standard***:WAVeform subgroup	
:DISPLay:*Standard*:WAVeform:X[:SCALe]:OFFSet	-40 μs
:DISPLay:*Standard*:WAVeform:X[:SCALe]:PDIVision	4 μs/div
:DISPLay:*Standard*:WAVeform:Y[:SCALe]:OFFSet	-100 dBm
:DISPLay:*Standard*:WAVeform:Y[:SCALe]:PDIVision	100 dB/div

Table B-2: Factory default settings-:SENSe commands

Header	Default settings
[:SENSe]:***Standard*** subgroup	
[:SENSe]:*Standard*:ACQuisition:CHIPs	6144
[:SENSe]:*Standard*:ACQuisition:HISTory	0
[:SENSe]:*Standard*:ACQuisition:SEConds	4.998 ms
[:SENSe]:*Standard*:ANALysis:INTerval	6
[:SENSe]:*Standard*:ANALysis:OFFSet	0
[:SENSe]:*Standard*:BLOCk:	0
[:SENSe]:*Standard*:MEASurement	OFF
[:SENSe]:*Standard*:SPECtrum:OFFSet	0
[:SENSe]:***Standard***:ACPower subgroup	
[:SENSe]:*Standard*:ACPower:BANDwidth|BWIDth:INTegration	1.23 MHz
[:SENSe]:*Standard*:ACPower:FILTer:TYPe	RECTangle
[:SENSe]:*Standard*:ACPower:LIMit:ADJacent[1]|2|3..|12[:STATe]	1 to 5: OFF 6 to 12: ON
[:SENSe]:***Standard***:CCDF subgroup	
[:SENSe]:*Standard*:CCDF:THReshold	-150 dBm
[:SENSe]:***Standard***:CDPower subgroup	
[:SENSe]:*Standard*:CDPower:ACCThreshold	FL1XEVDO: -27 dB RL1XEVDO: -21 dB
[:SENSe]:FL1XEVDO:CDPower:CHANnel[:TYPE]	MAC
[:SENSe]:*Standard*:CDPower:FILTer:MEASurement	FL1XEVDO: EQComp RL1XEVDO: COMP
[:SENSe]:*Standard*:CDPower:IQSWap	OFF
[:SENSe]:RL1XEVDO:CDPower:LCMask:I	#H0,#H0,#H0
[:SENSe]:RL1XEVDO:CDPower:LCMask:Q	#H0,#H0,#H0
[:SENSe]:*Standard*:CDPower:MLEVel	SYMBol
[:SENSe]:FL1XEVDO:CDPower:PNOFfset	0
[:SENSe]:*Standard*:CDPower:SELect:CODE	0
[:SENSe]:*Standard*:CDPower:SELect:HSLot	0

Table B-2: Factory default settings-:SENSe commands (cont.)

Header	Default settings
[:SENSe]:*Standard*:CHPower subgroup	
[:SENSe]:*Standard*:CHPower:BANDwidth|BWIDth:INTegration	1.23 MHz
[:SENSe]:*Standard*:CHPower:FILTer:TYPE	RECTangle
[:SENSe]:*Standard*:CHPower:LIMit[:STATe]	OFF
[:SENSe]:*Standard*:IM subgroup	
[:SENSe]:*Standard*:IM:BANDwidth|BWIDth:INTegration	1.23 MHz
[:SENSe]:*Standard*:IM:FILTer:TYPE	RECTangle
[:SENSe]:*Standard*:IM:LIMit:FORDer[:STATe]	ON
[:SENSe]:*Standard*:IM:LIMit:TORDer[:STATe]	ON
[:SENSe]:*Standard*:IM:SCOFfset	1.25 MHz
[:SENSe]:*Standard*:MACCuracy subgroup	
[:SENSe]:*Standard*:MACCuracy:ACCThreshold	FL1XEVDO: -27 dB RL1XEVDO: -21 dB
[:SENSe]:FL1XEVDO:MACCuracy:CHANnel[:TYPE]	PILot
[:SENSe]:*Standard*:MACCuracy:FILTer:MEASurement	FL1XEVDO: EQComp RL1XEVDO: COMP
[:SENSe]:*Standard*:MACCuracy:IQSWap	OFF
[:SENSe]:RL1XEVDO:MACCuracy:LCMask:I	#H0,#H0,#H0
[:SENSe]:RL1XEVDO:MACCuracy:LCMask:Q	#H0,#H0,#H0
[:SENSe]:*Standard*:MACCuracy:LIMit:EVM:REAK[:STATe]	OFF
[:SENSe]:*Standard*:MACCuracy:LIMit:EVM:RMS[:STATe]	OFF
[:SENSe]:*Standard*:MACCuracy:LIMit:PCDerror[:STATe]	OFF
[:SENSe]:*Standard*:MACCuracy:LIMit:RHO[:STATe]	ON
[:SENSe]:*Standard*:MACCuracy:LIMit:TAU[:STATe]	ON
[:SENSe]:*Standard*:MACCuracy:MLEVel	SYMBol
[:SENSe]:FL1XEVDO:MACCuracy:PNOFfset	0
[:SENSe]:*Standard*:MACCuracy:SELect:CODE	0
[:SENSe]:*Standard*:MACCuracy:SELect:HSLot	0
[:SENSe]:*Standard*:OBWidth subgroup	
[:SENSe]:*Standard*:OBWidth:LIMit[:STATe]	ON
[:SENSe]:*Standard*:OBWidth:PERcent	99%

Table B-2: Factory default settings-:SENSe commands (cont.)

Header	Default settings
[:SENSe]:***Standard***:PCCHannel subgroup	
[:SENSe]:*Standard*:PCCHannel:ACCThreshold	FL1XEVDO: -27 dB RL1XEVDO: -21 dB
[:SENSe]:FL1XEVDO:PCCHannel:CHANnel[:TYPE]	MAC
[:SENSe]:*Standard*:PCCHannel:FILTer:MEASurement	FL1XEVDO: EQComp RL1XEVDO: COMP
[:SENSe]:*Standard*:PCCHannel:IQSWap	OFF
[:SENSe]:RL1XEVDO:PCCHannel:LCMask:I	#H0,#H0,#H0
[:SENSe]:RL1XEVDO:PCCHannel:LCMask:Q	#H0,#H0,#H0
[:SENSe]:*Standard*:PCCHannel:LIMit:PHASe[:STATe]	ON
[:SENSe]:*Standard*:PCCHannel:LIMit:TIME[:STATe]	ON
[:SENSe]:FL1XEVDO:PCCHannel:PNOFfset	0
[:SENSe]:*Standard*:PCCHannel:SELect:CODE	0
[:SENSe]:*Standard*:PCCHannel:SELect:HSLot	0
[:SENSe]:FL1XEVDO:PVTime subgroup	
[:SENSe]:FL1XEVDO:PVTime:BURSt:OFFSet	416.67 µs
[:SENSe]:FL1XEVDO:PVTime:BURSt:SYNC	MPOint
[:SENSe]:FL1XEVDO:PVTime:LIMit:ZONE[1]|2|3|4|5[:STATe]	ON
[:SENSe]:FL1XEVDO:PVTime:RCHannel:LEVel	30 dBm
[:SENSe]:FL1XEVDO:PVTime:RCHannel:MODE	AUTO
[:SENSe]:FL1XEVDO:PVTime:SLOT[:TYPE]	IDLE
[:SENSe]:***Standard***:SEMask subgroup	
[:SENSe]:*Standard*:SEMask:BANDwidth|BWIDth:INTegration	1.2288 MHz
[:SENSe]:*Standard*:SEMask:BURSt:OFFSet	416.67 µs
[:SENSe]:*Standard*:SEMask:BURSt:SYNC	MPOint
[:SENSe]:*Standard*:SEMask:FILTer:TYPE	RECTangle
[:SENSe]:*Standard*:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5[:STATe]	OFF
[:SENSe]:*Standard*:SEMask:LIMit:OFCHannel:ZONE[1]|2|3|4|5 [:STATe]	OFF
[:SENSe]:*Standard*:SEMask:MEASurement	OFCHannel
[:SENSe]:*Standard*:SEMask:RCHannel:LEVel	0
[:SENSe]:*Standard*:SEMask:RCHannel:MODE	AUTO
[:SENSe]:*Standard*:SEMask:SLOT:GATE	200 µs
[:SENSe]:*Standard*:SEMask:SLOT[:TYPE]	IDLE

Appendix C: Setting Range

This section lists the setting range of the horizontal and vertical scale for the views.

Table C-1: Display format and scale

Display format	Horizontal range	Vertical range
Spectrum	0 Hz to 3 GHz (WCA230A) 0 Hz to 8 GHz (WCA280A)	-200 to 100 dBm
Spectrogram	0 Hz to 3 GHz (WCA230A) 0 Hz to 8 GHz (WCA280A)	-15999 to 0 frame -63999 to 0 frame (Option 02)
Code domain power	Forward link: MAC: 64 codes Pilot: 32 codes Data: 16 codes Preamble: 32 codes Reverse link: 16 codes	Relative: -200 to 100 dB Absolute: 140 to -160 dBm
Modulation accuracy	fixed	fixed
EVM	Foward link: Channel Chip Symbol Overall 1024 ------- MAC 128 2 Pilot 96 3 Data max 800 max 50 Preamble max 800 max 25 Reverse link: Chip: 1024 Symbol: max 256	-100 to 200%
Amplitude (Mag) error	same as the horizontal range of EVM	-300 to 300%
Phase error	same as the horizontal range of EVM	-675 to 675 degree
Power codogram	same as the horizontal range of Code domain power	-6144 to 0 frame -24579 to 0 frame (Option 02)
Symbol table	Forward link: MAC: 2 Pilot: 3 Data: max 50 Preamble: max 25 Reverse link: max 256	NA
IQ power graph	same as the horizontal range of EVM	-6144 to 0 frame -24579 to 0 frame (Option 02)
Constellation	fixed	fixed

Appendix D: SCPI Conformance Information

All of the Option 26 commands are based on SCPI Version 1999.0. Tables D-1 through D-6 list all commands supported by the option 26. The columns to the right show whether a command is defined in the SCPI 1999.0 Standard or not.

Table D-1: SCPI conformance information-:CONFigure commands

Command			Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
:CONFigure	:Standard	:ACPower		✓
		:CCDF		✓
		:CDPower		✓
		:CHPower		✓
		:IM		✓
		:MACCuracy		✓
		:OBWidth		✓
		:PCCHannel		✓
		:PVTime		✓
		:SEMask		✓

Table D-2: SCPI conformance information-:DISPlay commands

Command						Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
:DISPlay	:Standard	:CCDF	:LINE	:GAUSsian	[:STATe]		✓
				:REFerence	[:STATe]		✓
					:STORe		✓
			:X	[:SCALe]	:AUTO		✓
					:MAXimum		✓
					:OFFSet		✓
			:Y	[:SCALe]	:FIT		✓
					:FULL		✓
					:MAXimum		✓
					:MINimum		✓

Table D-2: SCPI conformance information-:DISPlay commands (cont.)

Command						Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
	:DDEMod	:MVIew	:CORDer				✓
			:FORMat				✓
			:X	[:SCALe]	:OFFSet		✓
					:RANGe		✓
			:Y	[:SCALe]	:FIT		✓
					:FULL		✓
					:OFFSet		✓
					:PUNit		✓
					:RANGe		✓
		:SVIew	:FORMat				✓
			:X	[:SCALe]	:OFFSet		✓
					:RANGe		✓
			:Y	[:SCALe]	:FIT		✓
					:FULL		✓
					:OFFSet		✓
					:RANGe		✓
	:SPECtrum	:X	[:SCALe]	:OFFSet			✓
				:PDIVision			✓
		:Y	[:SCALe]	:FIT			✓
				:FULL			✓
				:OFFSet			✓
				:PDIVision			✓
	:WAVeform	:X	[:SCALe]	:OFFSet			✓
				:PDIVision			✓
		:Y	[:SCALe]	:FIT			✓
				:FULL			✓
				:OFFSet			✓
				:PDIVision			✓

Table D-3: SCPI conformance information-:FETCh commands

Command				Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
:FETCh	:Standard	:ACPower?			✓
		:CCDF?			✓
		:CDPower?			✓
		:CHPower?			✓
		:IM?			✓
		:MACCuracy?			✓
		:OBWidth?			✓
		:PCCHannel?			✓
		:PVTime?			✓
		:SEMask?			✓
		:DISTribution	:CCDF?		✓
		:TAMPlitude	:PVTime?		✓
			:SEMask?		✓
		:SPECtrum	:ACPower?		✓
			:CHPower?		✓
			:IM?		✓
			:OBWidth?		✓

Table D-4: SCPI conformance information-:MMEMory commands

Command			Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
:MMEMory	:LOAD	:LIMit		✓
	:STORe	:LIMit		✓
		:STABle		✓

Table D-5: SCPI conformance information-:READ commands

Command					Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
:READ	:Standard	:ACPower?				✓
		:CCDF?				✓
		:CHPower?				✓
		:IM?				✓
		:OBWidth?				✓
		:PVTime?				✓
		:SEMask?				✓
		:DISTribution	:CCDF?			✓
		:TAMPlitude	:PVTime?			✓
		:SPECtrum	:ACPower?			✓
			:CHPower?			✓
			:IM?			✓
			:OBWidth?			✓

Table D-6: SCPI conformance information-:SENSe commands

Command					Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
[:SENSe]	:Standard	:ACQuisition	:CHIPs			✓
			:HISTory			✓
			:SEConds			✓
		:ANALysis	:INTerval			✓
			:OFFSet			✓
		:BLOCk				✓
		[:IMMediate]				✓
		:MEASurement				✓
		:SPECtrum	:OFFSet			✓
			:TINTerval			✓
		:ACPower	:BANDwidth |BWIDth	:INTegration		✓
			:FILTer	:COEFficient		✓
				:TYPE		✓
			:LIMit	:ADJacent [1]|2|3..|12 [:STATe]		✓

Table D-6: SCPI conformance information-:SENSe commands (cont.)

Command						Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
	:CCDF	:RMEasurement					✓
		:THReshold					✓
	:CDPower	:ACCThreshold					✓
		:CHANnel	[:TYPE]				✓
		:FILTer	:MEASurement				✓
		:IQSWap					✓
		:LCMask	:I				✓
			:Q				✓
		:MLEVel					✓
		:PNOFfset					✓
		:SELect	:CODE				✓
			:HSLot				✓
	:CHPower	:BANDwidth |BWIDth	:INTegration				✓
		:FILTer	:COEFficient				✓
			:TYPE				✓
		:LIMit	[:STATe]				✓
	:IM	:BANDwidth |BWIDth	:INTegration				✓
		:FILTer	:COEFicient				✓
			:TYPE				✓
		:LIMit	:FORDer	[:STATe]			✓
			:TORDer	[:STATe]			✓
		:SCOFfset					✓
	:MACCuracy	:ACCThreshold					✓
		:CHANnel	[:TYPE]				✓
		:FILTer	:MEASurement				✓
		:IQSWap					✓
		:LCMask	:I				✓
			:Q				✓
		:LIMit	:EVM	:PEAK	[:STATe]		✓
				:RMS	[:STATe]		✓
			:PCDerror	[:STATe]			✓
			:RHO	[:STATe]			
			:TAU	[:STATe]			
		:MLEVel					✓
		:PNOFfset					✓
		:SELect	:CODE				✓

Table D-6: SCPI conformance information-:SENSe commands (cont.)

Command					Defined in SCPI 1999.0	Not Defined in SCPI 1999.0
			:HSLot			✓
	:OBWidth	:LIMit	[:STATe]			✓
		:PERcent				✓
	:PCCHannel	:ACCThreshold				✓
		:CHANnel	[:TYPE]			✓
		:FILTer	:MEASurement			✓
		:IQSWap				✓
		:LCMask	:I			✓
			:Q			✓
		:LIMit	:PHASe	[:STATe]		✓
			:TIME	[:STATe]		✓
		:PNOFfset				✓
		:SELect	:CODE			✓
			:HSLot			✓
	:PVTime	:BURSt	:OFFSet			✓
			:SYNC			✓
		:LIMit	:ZONE[1]|2|3|4|5	[:STATe]		✓
		:RCHannel	:LEVel			✓
			:MODE			✓
		:SLOT	[:TYPE]			✓
	:SEMask	:BANDwidth|BWIDth	:INTegration			✓
		:BURSt	:OFFSet			✓
			:SYNC			✓
		:FILTer	:COEFficient			✓
			:TYPE			✓
		:LIMit	:ISPurious	:ZONE[1]|2|3|4|5 [:STATe]		✓
			:OFCHannel	:ZONE[1]|2|3|4|5 [:STATe]		✓
		:MEASurement				✓
		:RCHannel	:LEVel			✓
			:MODE			✓
		:SLOT	:GATE			✓
			[:TYPE]			✓

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