User Manual

Tektronix

WCA230A & WCA280A Option 28 TD-SCDMA Analysis Software

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This document applies to firmware version 2.40 and above.

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Preface

This manual provides operating instructions for the WCA230A & WCA280A Portable Wireless Communication Analyzers Option 28 TD-SCDMA (Time Division Synchronous Code Division Multiple Access) analysis software.

Option 28 supports TD-SCDMA as described in the 3GPP Release 4 LCR Uplink/Downlink (3GPP TS25.142, TS25.102) standard.

About This Manual

This manual is composed of the following chapters:

- *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, and factory default settings.

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) lists the programming commands for instrument operation and the W-CDMA standard commands.

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Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.

Getting Started

Getting Started

This chapter provides an overview of the capabilities added to the WCA230A & WCA280A with Option 28.

Product Description

The TD-SCDMA standard contains elements of frequency division, time division, and code division multiple access technologies. Combining these technologies allows the reuse of frequency channels for uplink and downlink communication. A single frequency channel is shared between uplink and downlink, and among users. The use of a single channel is accomplished by allocating timeslots to each transmit direction and to each user.

The WCA230A & WCA280A Wireless Communication Analyzers Option 28 is an analysis software option that adds transmitter measurement capability for TD-SCDMA uplink and downlink (3GPP TDD LCR) to the analyzers.

You can perform the following TD-SCDMA measurements:

- Demodulation measurements

    - Subframe summary

    - Modulation accuracy

    - Code domain power

    - Timeslot summary

    - Transmit on/off mask

    - Symbol table

- RF measurements

    - Channel power

    - OBW (occupied bandwidth)

    - ACLR (adjacent channel leakage ratio)

    - Spectrum emission mask

    - Intermodulation

In addition, the option provides user-defined measurement limits for many measurement results. Using these measurement limits, you can easily check that the input signal meets the specification.

Operating Basics

Functional Overview

This chapter provides an overview of the Option 28 measurement functions.

Figure 2–1 shows the measurement functions and how to access each measurement function from the front-panel menu key.
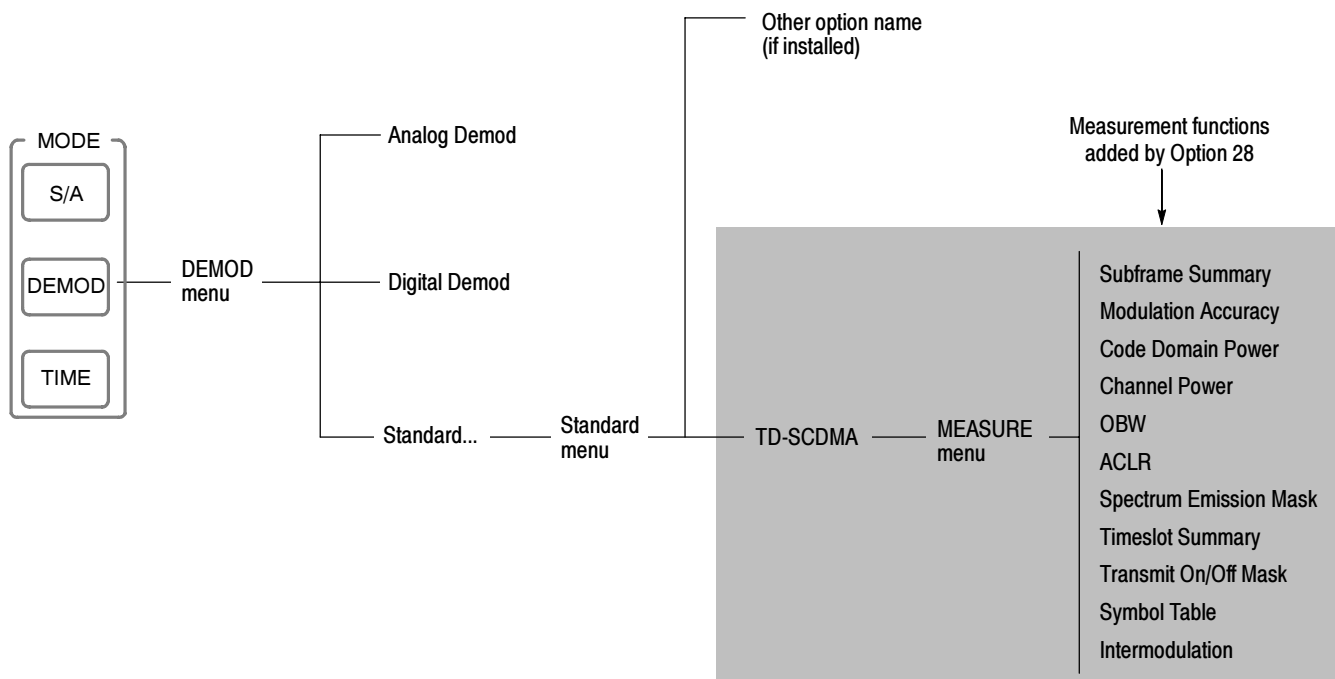
Figure 2‑1: Menu diagram showing measurement functions available in Option 28

Accessing a Measurement Function

All of the measurement functions available in Option 28 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 **TD-SCDMA** side key to select the TD-SCDMA standard and open the MEASURE menu for the standard.

4. Press a side key 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** side key to go to the next MEASURE menu page.

5. If needed, set the 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.

NOTE. *Most TD-SCDMA measurements are optimized for a 2 MHz or 5 MHz span.*

Versatile Display Capability

The display of the WCA230A & WCA280A analyzers with Option 28 provide you with a versatile tool for viewing different aspects of a measurement domain or viewing two different measurement domains.

When two measurements of the same domain are displayed in the subview and mainview (such as two views from the modulation accuracy domain), the measurement markers are linked together.

Placing a measurement view of one domain in the subview and a measurement display of another domain in the mainview gives you the ability to monitor both at the same time.
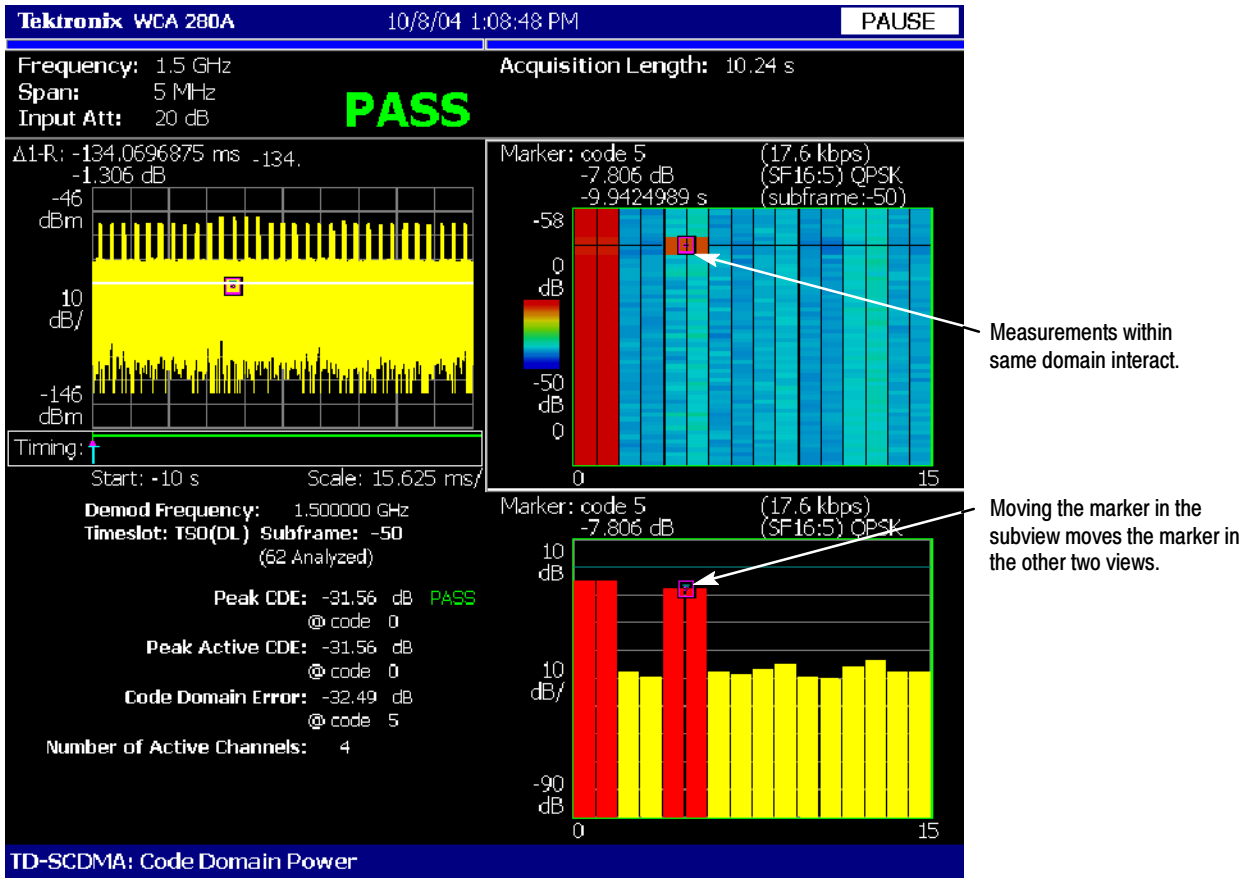
Figure 2‑2: Measurements of same domain interact
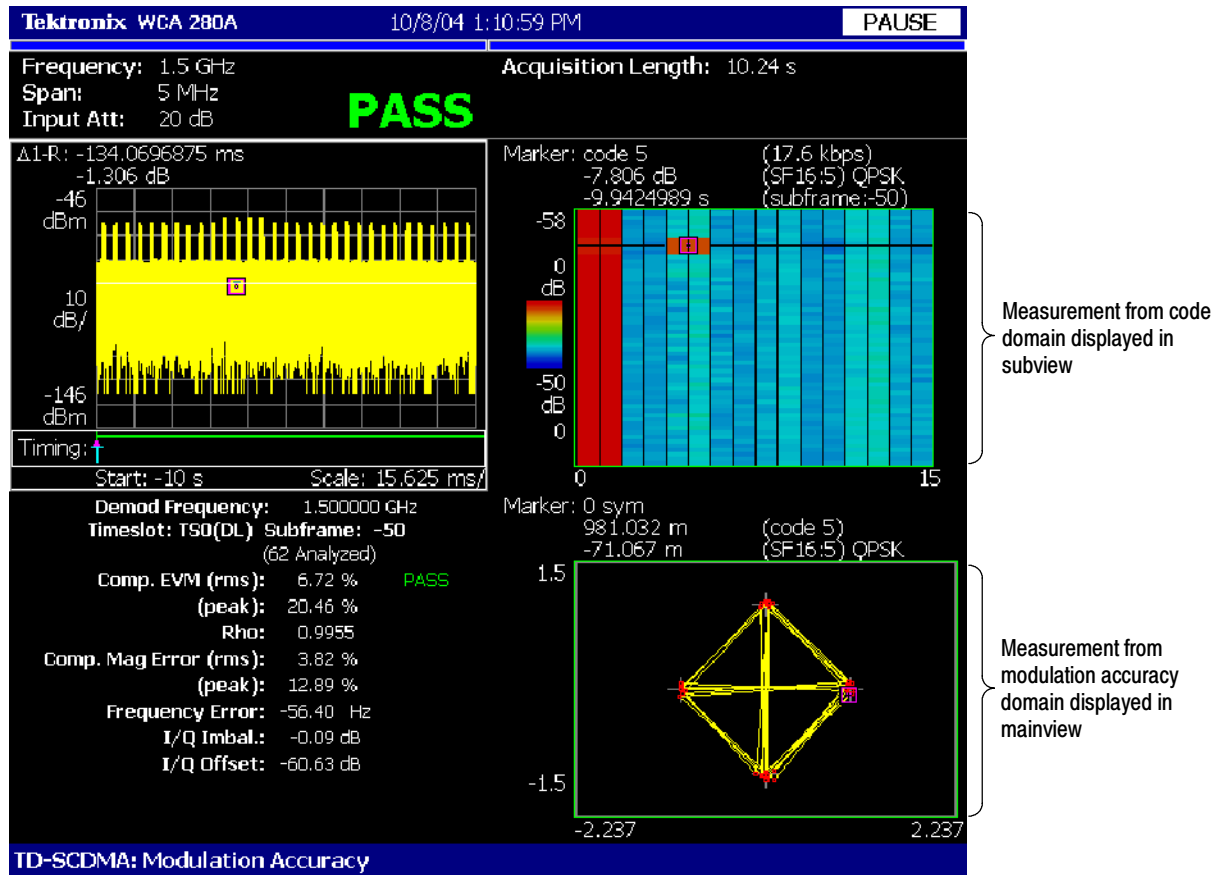
Figure 2-3: Instrument capable of displaying multiple domains

TD-SCDMA Measurements

This section describes the functions and features of the TD-SCDMA 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:

- Subframe summary

- Modulation accuracy

- Code domain power

- Channel power

- OBW (occupied bandwidth)

- ACLR (adjacent channel leakage ratio)

- Spectrum emission mask (SEM)

- Timeslot summary

- Transmit on/off mask

- Symbol table

- Intermodulation

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.*

Subframe Summary

The subframe summary measurement displays a power versus time graph of the selected subframe, along with all general parameters discovered while analyzing the subframe. The subframe summary waveform is available whenever subframe timing can be determined using either DwPts or an external subframe trigger as a time reference. Figure 2-4 shows an example of the subframe summary.

The measured values for subframe are described the section *Subframe Measurement Readouts* beginning on page 2-8.
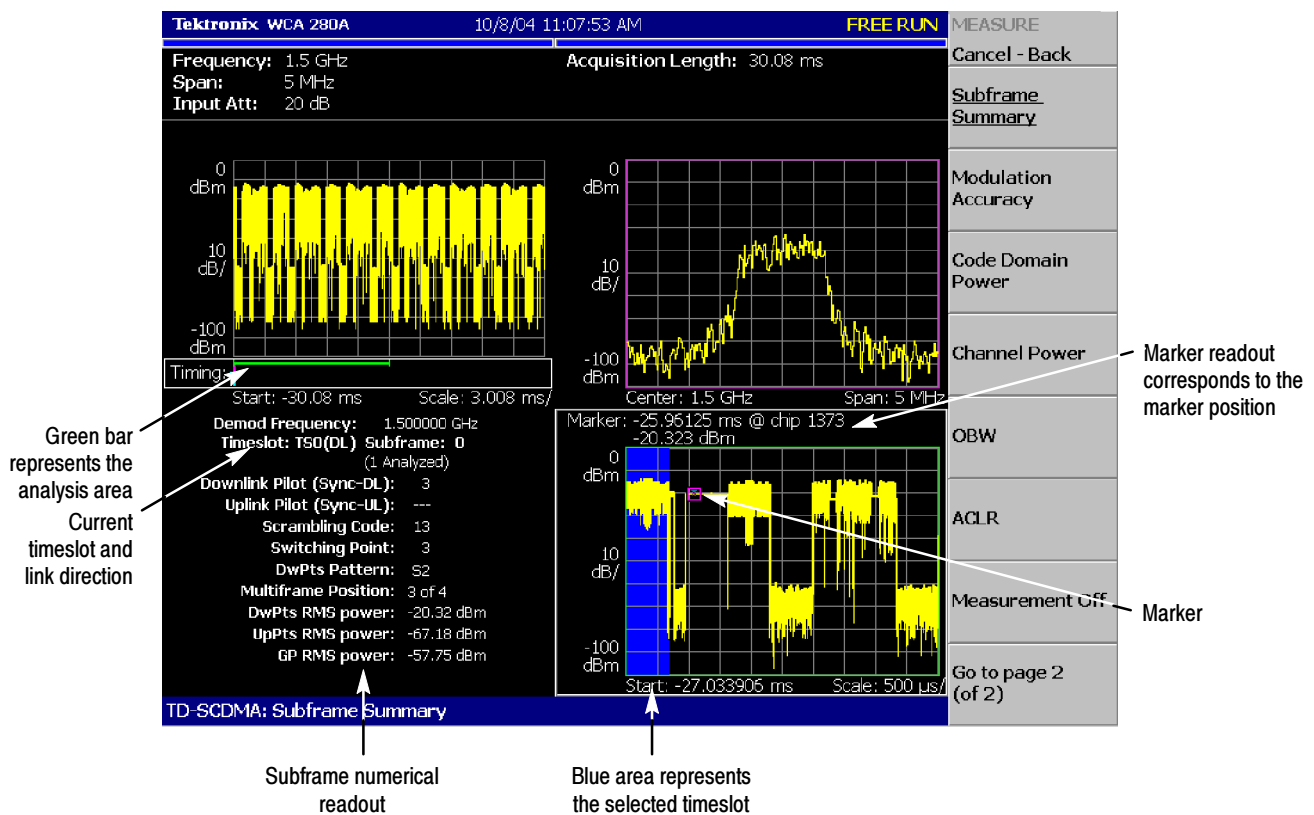
NOTE: *The subframe marker is linked to overview window. Turn on the overview marker to see position of the subframe within overall acquisition.*

Figure 2-4: Subframe summary

Display Elements   The following information is shown in the subframe summary measurement display:

■ **Overview**: The overview display area can contain the power versus time or spectrogram measurement displays.

- **Subview**: The subview display area can contain any of the TD-SCDMA demodulation measurements or the spectrum display.

- **Mainview**: The mainview display area displays only the power versus time graph.

To change the contents in each of the views, use the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2--7 for more information.

Setting the Timing Parameters

You can set timing parameters for the subframe summary acquisition by using the TIMING menu. Press the **TIMING** key to open the menu. Refer to *Timing Parameters for Demodulation Measurements,* beginning on page 2--61, for a description of the timing parameter settings.

NOTE. The timing parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements.

Setting the Measurement Parameters

You can set the measurement parameters for the subframe summary measurements by using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the menu. Refer to *Measurement Parameters for Demodulation Measurements,* beginning on page 2--62, for a description of the measurement parameters.

NOTE. The measurement parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements. Most of the modulation parameters and analysis control settings do not take effect until the next run or analysis cycle.

Changing the View Contents

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

- **Show Views**: Selects the view style on the screen. You can select Single or Multi. Multi shows all three views and Single expands the display to only show the view currently selected. Press the **SELECT** key to change the selected view.

- **Overview Content...**: The overview content display can be changed to display either the Spectrogram or Waveform (power versus time).

- **Subview Content...**: The subview content display can be changed to display any of the TD-SCDMA demodulation measurements or the spectrum display.

- **Mainview Content...**: The mainview content display can not be changed from Subframe summary.

- **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 Mainview

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

- **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

- **Horizontal Scale (s):** Sets the scale of the horizontal axis (number of chips or symbols).

- **Horizontal Start (s):** Sets the chip number or symbol number of the first (left) value of the horizontal axis.

- **Vertical Scale (dB):** Sets the scale of the vertical axis.

- **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

- **Full Scale:** Sets all scale values to their default full-scale value.

- **Step Size (Horizontal Start / Vertical Stop):** Sets the step size (amount per click of the general purpose knob) for changes to the Horizontal Start or Vertical Stop settings.

  The step size menu choices only display when selecting the Horizontal Start or Vertical Stop menus.

Subframe Measurement Readouts

This section describes the measurement readouts displayed in the mainview of the subframe measurement.

Readout	Description
Downlink Pilot (Sync-DL)	The code number of the downlink pilot pattern.
Uplink Pilot (Sync-UL)	The code number of the uplink pilot pattern.
Scrambling Code	The scrambling code.
Switching Point	The timeslot switching point.
DwPts Pattern	The rotation pattern (None, S1, S2) of the downlink pilot.
Multiframe Position	The subframe position (1 to 4) within a multiframe.
DwPts RMS power	The RMS power of the downlink pilot.
UpPts RMS power	The RMS power of the uplink pilot.
GP RMS power	The RMS power in the subframe guard period.

Modulation Accuracy Measurement

The modulation accuracy measurement measures EVM (Error Vector Magnitude), Rho, magnitude error, phase error, frequency error, I/Q imbalance, and I/Q offset. Figure 2-5 shows an example of the modulation accuracy measurement.
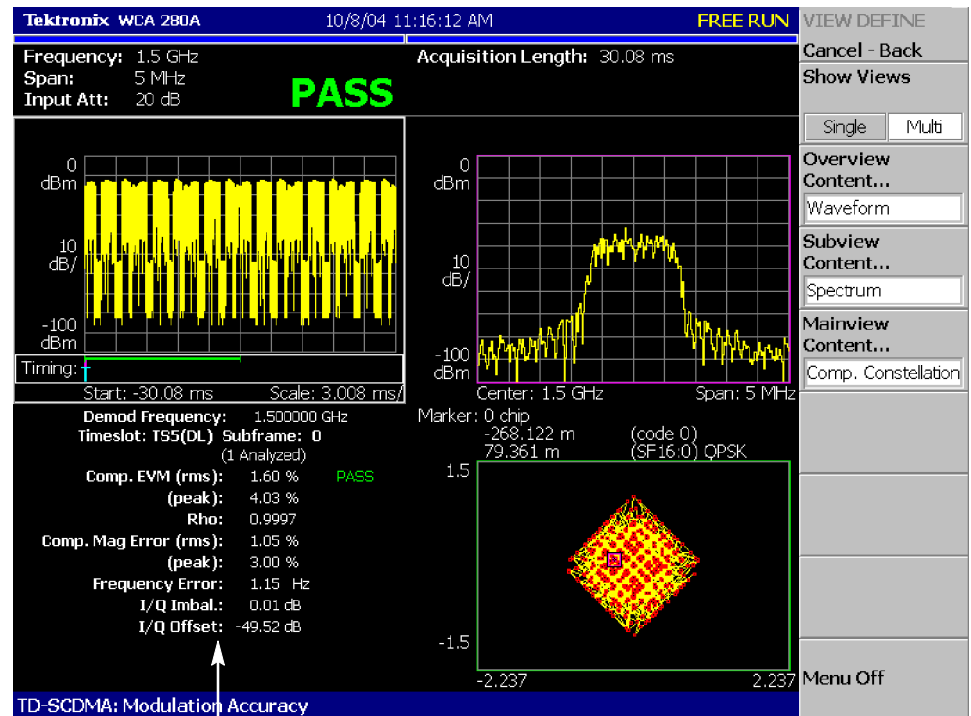
Condensed measurement
results displayed when
mainview is not selected

Figure 2- 5: Modulation accuracy measurement

Display Elements

The following elements are shown in the modulation accuracy measurement display:

■ **Overview**: The overview display area can contain the power versus time or spectrogram measurement displays.

■ **Subview**: The subview display area can contain any of the TD-SCDMA demodulation measurements or the spectrum display. Measurement results typically associated with a measurement are not displayed when the measurement is displayed in the subview.

■ **Mainview**: The mainview display area can contain one of the modulation accuracy related measurements along with a condensed set of numerical

measurement results with a Pass or Fail message (determined by the Limits settings) for each measurement result. If all measurements pass, PASS is displayed at the top of the screen. If any measurement fails, FAIL is displayed at the top of the screen.

To change the contents in each of the views, use the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2--10 for more information.

Setting the Timing Parameters

You can set timing parameters for the modulation accuracy acquisition by using the TIMING menu. Press the **TIMING** key to open the menu. Refer to *Timing Parameters for Demodulation Measurements,* beginning on page 2--61, for a description of the timing parameter settings.

NOTE. The timing parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements.

Setting the Measurement Parameters

You can set the measurement parameters for the modulation accuracy measurements by using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the menu. Refer to *Measurement Parameters for Demodulation Measurements,* beginning on page 2--62, for a description of the measurement parameters.

NOTE. The measurement parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements. Most of the modulation parameters and analysis control settings do not take effect until the next run or analysis cycle.

Changing the View Contents

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

■ **Show Views**: Selects the view style on the screen. You can select Single or Multi. Multi shows all three views and Single expands the display to only show the view currently selected. Press the **VIEW SELECT** key to change the selected view.

■ **Overview Content...**: The overview content display can be changed to display either the Spectrogram or Waveform (power versus time).

■ **Subview Content...**: The subview content display can be changed to display any of the TD-SCDMA demodulation measurements or the spectrum display.

■ **Mainview Content...**: The mainview content display can be changed to display one of the modulation accuracy related measurements with its numerical measurement results. You can select Composite Constellation, Symbol Constellation, Symbol Error Vector Magnitude, Magnitude Error, or Phase Error.

When selecting the mainview, the expanded numerical measurement results are displayed. (The overview content display is removed.)

A Pass or Fail message for each measurement is displayed if limit testing is turned on in the Limits menu. If all measurements pass, PASS is displayed at the top of the screen. If any measurement fails, FAIL is displayed at the top of the screen.

Refer to *Scale and Format in the Mainview,* beginning on page 2–12, for more information about the mainview content selections.

■ **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 Mainview

This section describes the scale settings and display format in the mainview.

Comp. Constellation Display. When you select Mainview Content from the VIEW DEFINE menu and then select Comp. Constellation from the Mainview Content submenu, an IQ rectangular graph is displayed showing the I/Q values for all chips in the current timeslot, including midamble. See Figure 2-6.

The measured values for modulation accuracy are described the section *Modulation Accuracy Measurement Readouts* beginning on page 2-21.

Figure 2-6 caption callouts:
- Chip number I/Q values
- Expanded measurement results displayed when mainview is selected
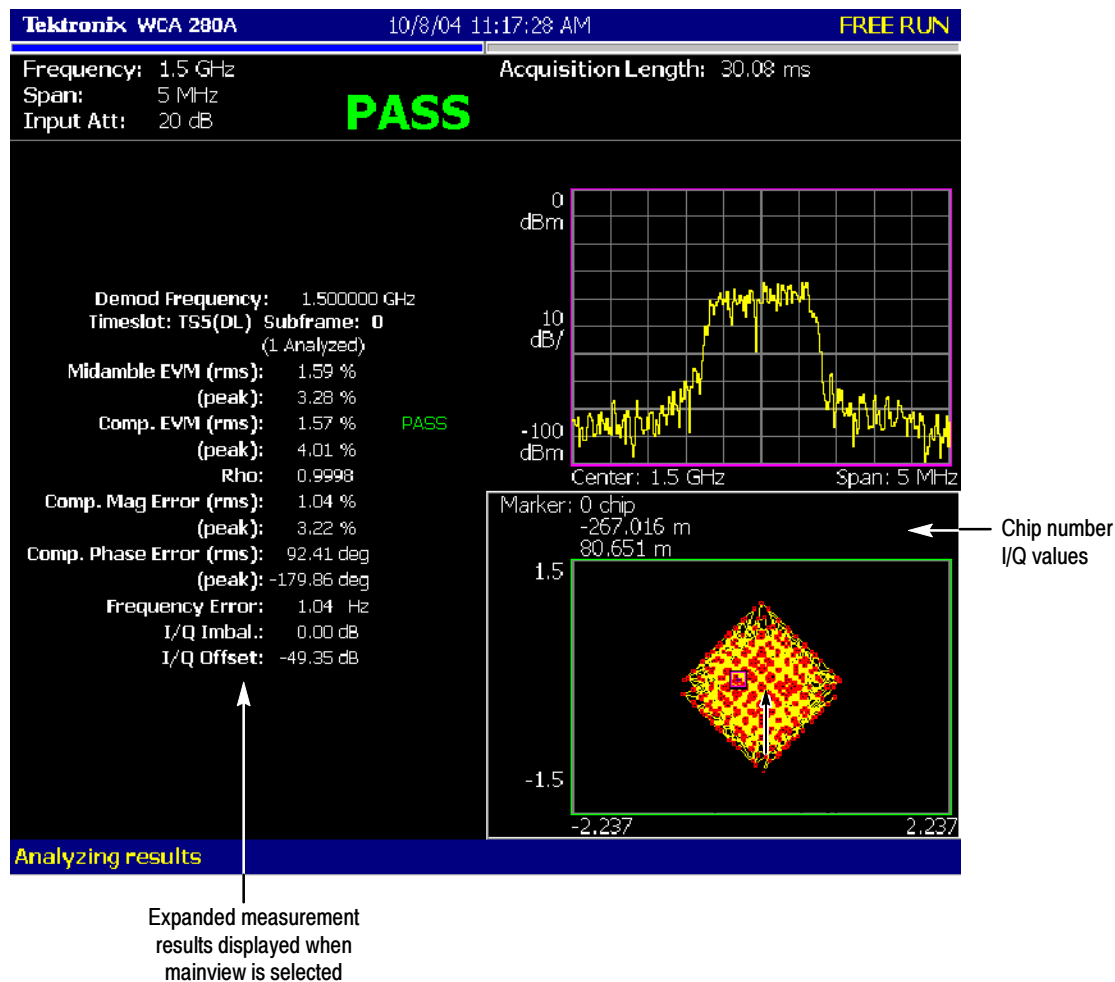
Figure 2-6: Comp. constellation display

You can set the scale of the display using the VIEW SCALE menu. Press the **VIEW 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. Each red point indicates a 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.

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

Symbol Constellation Display. When you select Mainview Content from the VIEW DEFINE menu and then select Symbol Constellation from the Mainview Content submenu, an IQ rectangular graph is displayed showing the constellation for Data1 and Data2 symbols selected by the currently selected code (set in the Meas Setup menu). See Figure 2-7.

The measured values for modulation accuracy are described the section *Modulation Accuracy Measurement Readouts* beginning on page 2-21.
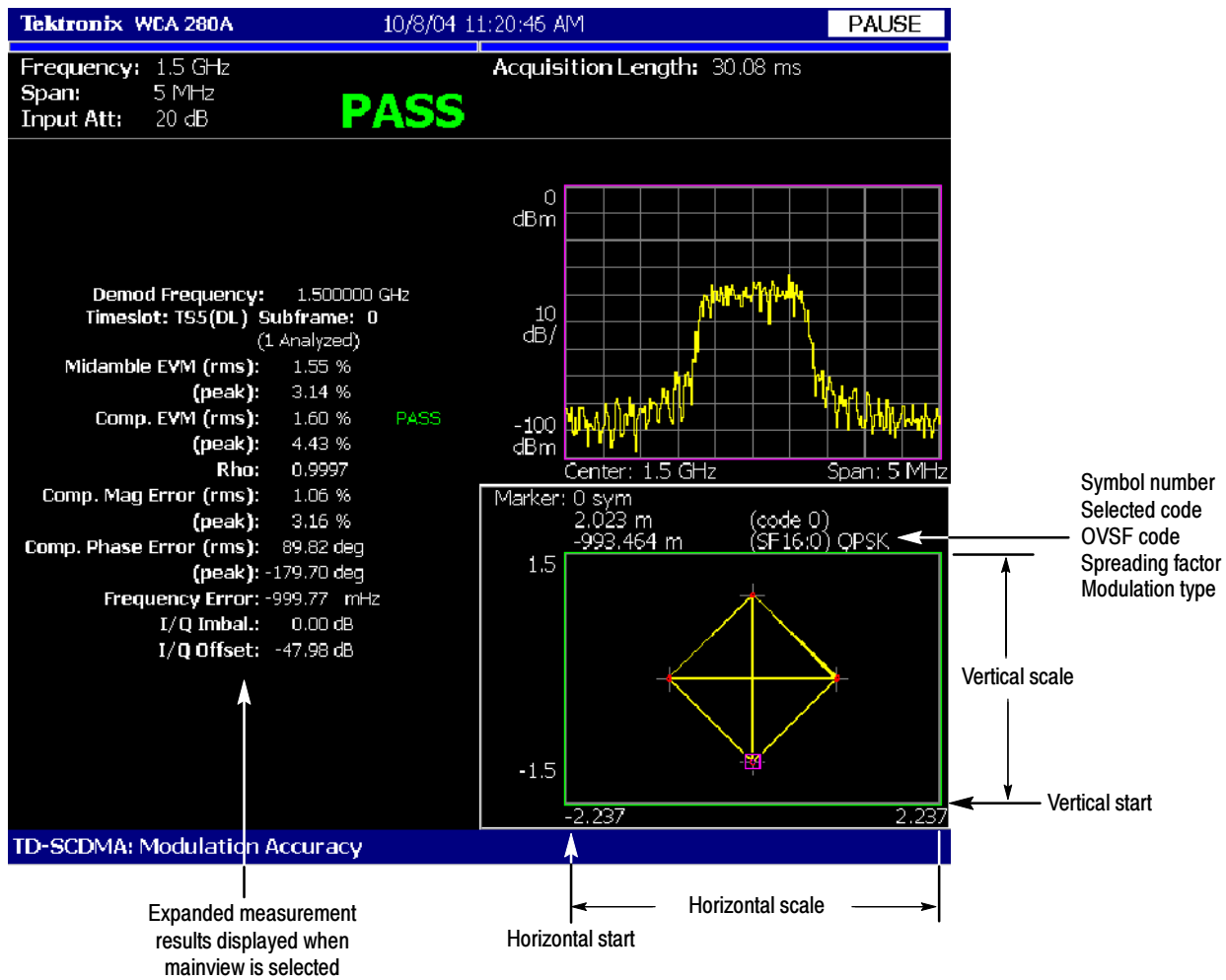
Figure 2-7: Symbol constellation display

You can set the scale of the display using the VIEW SCALE menu. Press the **VIEW 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. Each red point indicates a 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.

Symbol EVM Display. When you select Mainview Content from the VIEW DEFINE menu and then select Symbol EVM from the Mainview Content submenu, changes of Symbol EVM (Error Vector Magnitude) over time are displayed for each symbol (calculated on a single code channel). See Figure 2–8.

The measured values for modulation accuracy are described the section *Modulation Accuracy Measurement Readouts* beginning on page 2-21.
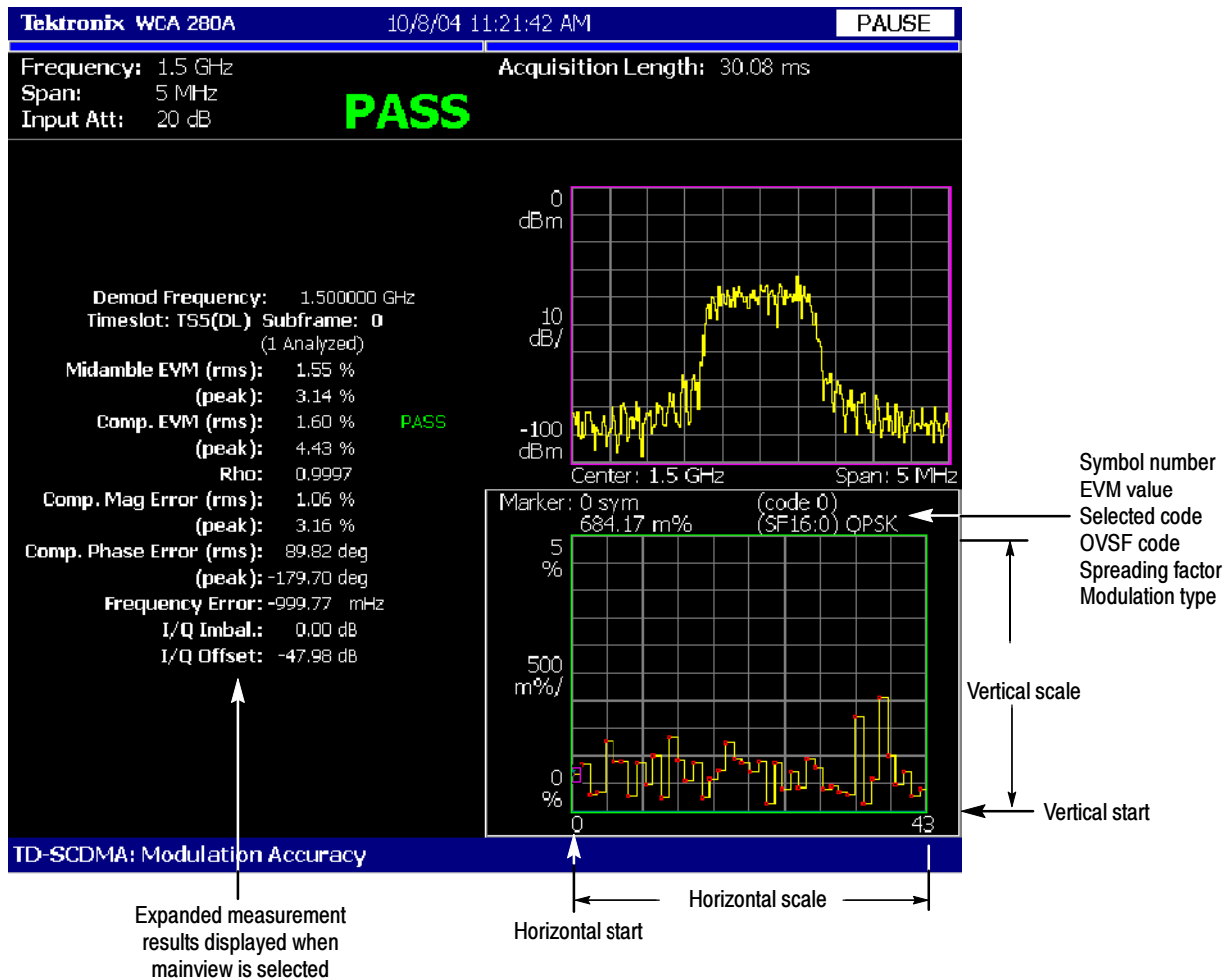
Figure 2- 8: Symbol EVM display

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

- **Auto Scale (Amplitude):** 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 symbols).

- **Horizontal Start:** Sets the 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 (default scaling):** Sets all scale values to their default full-scale value.

- **Step Size (Horizontal Start / Vertical Start):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

  A step size menu only displays if the Horizontal Start or Vertical Start menu is selected.

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 for a single code channel are displayed for each symbol. See Figure 2-9.

The measured values for modulation accuracy are described the section *Modulation Accuracy Measurement Readouts* beginning on page 2-21.
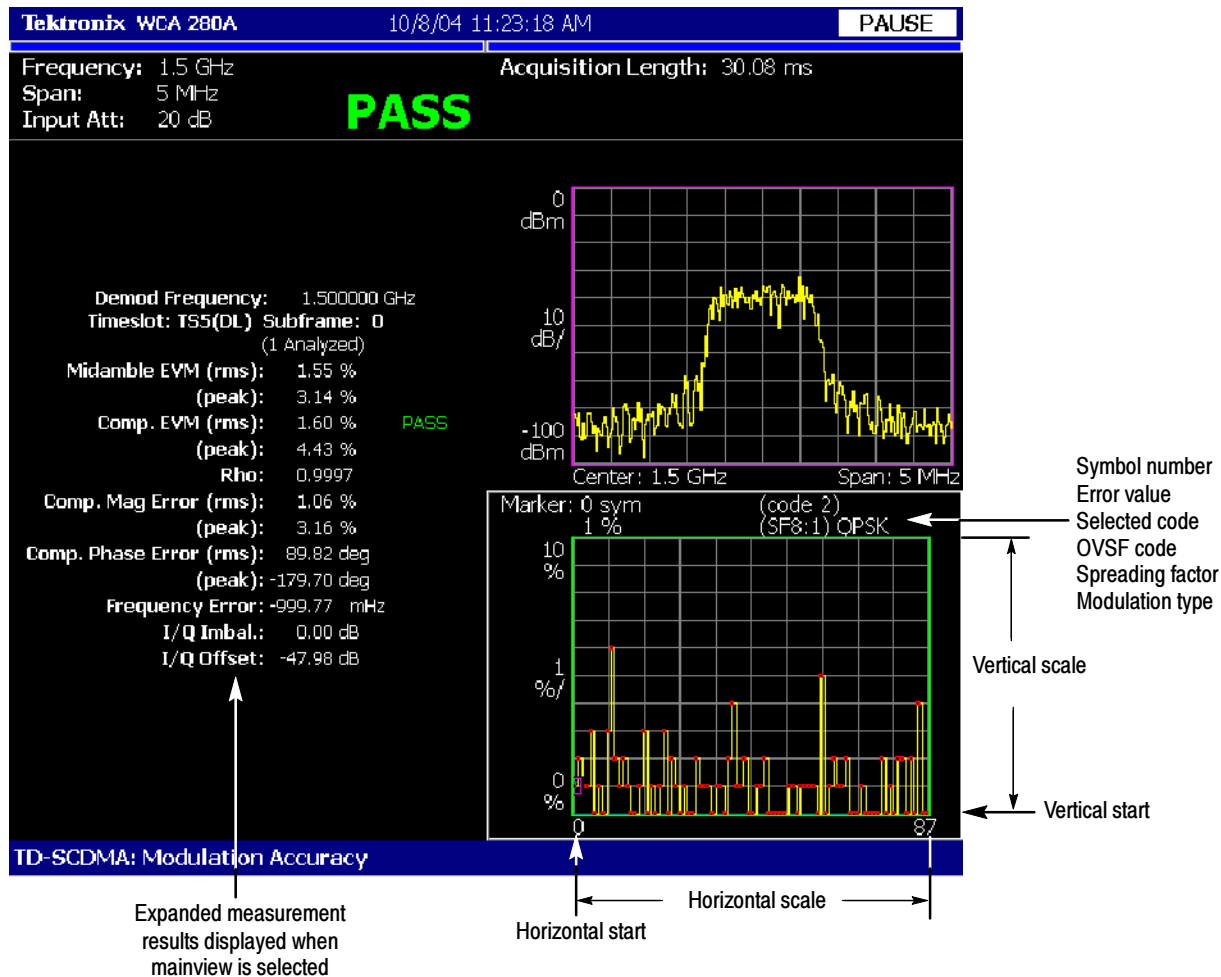
Figure 2-9: MagErr display

You can set the scale of the display using the VIEW SCALE menu. Press the **VIEW 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 symbols).

- **Horizontal Start**: Sets the symbol number of the first (left) value of the horizontal axis.

- **Vertical Scale (%)**: Sets the scale of the vertical axis.

- **Vertical Start (%)**: Sets the start value of the vertical axis. You can set the value from –200% to 200%.

- **Full Scale (default scaling)**: Sets all scale values to their default full-scale value.

- **Step Size (Horizontal Start / Vertical Offset):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Offset settings.

   A step size menu only displays if the Horizontal Start or Vertical Offset menu is selected.

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 for a single code channel are displayed for each symbol. See Figure 2–10.

The measured values for modulation accuracy are described the section *Modulation Accuracy Measurement Readouts* beginning on page 2–21.

Figure 2‑10: PhaseErr display

You can set the scale of the display using the VIEW SCALE menu. Press the **VIEW 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 symbols).

■ **Horizontal Start**: Sets the 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 all scale values to their default full-scale value.

■ **Step Size (Horizontal Start / Vertical Offset):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Offset settings.

A step size menu only displays if the Horizontal Start or Vertical Offset menu is selected.

Modulation Accuracy Measurement Readouts

This section describes the measurement readouts displayed in the mainview of the modulation accuracy measurements. The numerical measurement results reported are identical for each of the modulation accuracy measurement displays.

Readout	Description
Midamble EVM (rms):	The RMS error vector magnitude calculated over the midamble of the signal. The result is optimized for the midamble and expressed as a percentage. EVM measures the noise in the input signal relative to a reference signal.
Midamble EVM (peak):	The maximum value of the instantaneous error vector magnitude calculated over the midamble of the signal and expressed as a percentage.
Comp. EVM (rms):	The RMS error vector magnitude calculated on the composite signal over the entire timeslot (both data bursts and the midamble) and expressed as a percentage.
Comp. EVM (peak):	The maximum value of the instantaneous error vector magnitude calculated on the composite signal over the entire timeslot (both data bursts and the midamble) and expressed as a percentage.
Rho:	A measure of the desired part of the signal relative to a reference signal.
Comp. Mag Error (rms):	The RMS error of the composite signal due to magnitude errors in the signal.
Comp. Mag Error (peak):	The maximum value of the instantaneous magnitude error of the composite signal.

Readout	Description
Comp. Phase Error (rms):	The RMS phase error of the composite signal.
	This measurement is most useful with a constant amplitude signal like a phase-shift keyed signal like QPSK when a single channel is active in a timeslot.
	Large phase errors can occur if more than one channel is active since the constellation can have a symbol at or near the origin (0,0).
Comp. Phase Error (peak):	The maximum of the instantaneous phase error of the composite signal.
Frequency Error:	The error between the center frequency and the estimated frequency that is derived from the input signal. The estimated frequency is based either on the downlink pilot (DwPTS) or the midamble of the timeslot, selected with the Freq. & Phase Reference... setting in the measurement setup menu.
I/Q Imbal.:	The imbalance between the level of the I channel to the level of the Q channel. A value of 0.0 dB means that there is no imbalance (the I and Q channels have the same level).
I/Q Offset:	This measures how far the origin of the constellation of the composite signal is from the true origin (0,0).
	The I/Q offset is included in the EVM calculations unless it is turned off in the measurement setup menu.

Code Domain Power Measurement

The code domain power measurement measures the distribution of signal power across the set of code channels. The display can be in absolute power or normalized to the total timeslot power (defined by the Y Axis... setting in the View Scale menu). A bar graph is displayed that represents the power of each channel. This measurement allows you to verify that each code channel is operating at its proper level. Figure 2–11 shows an example of the code domain power measurement.
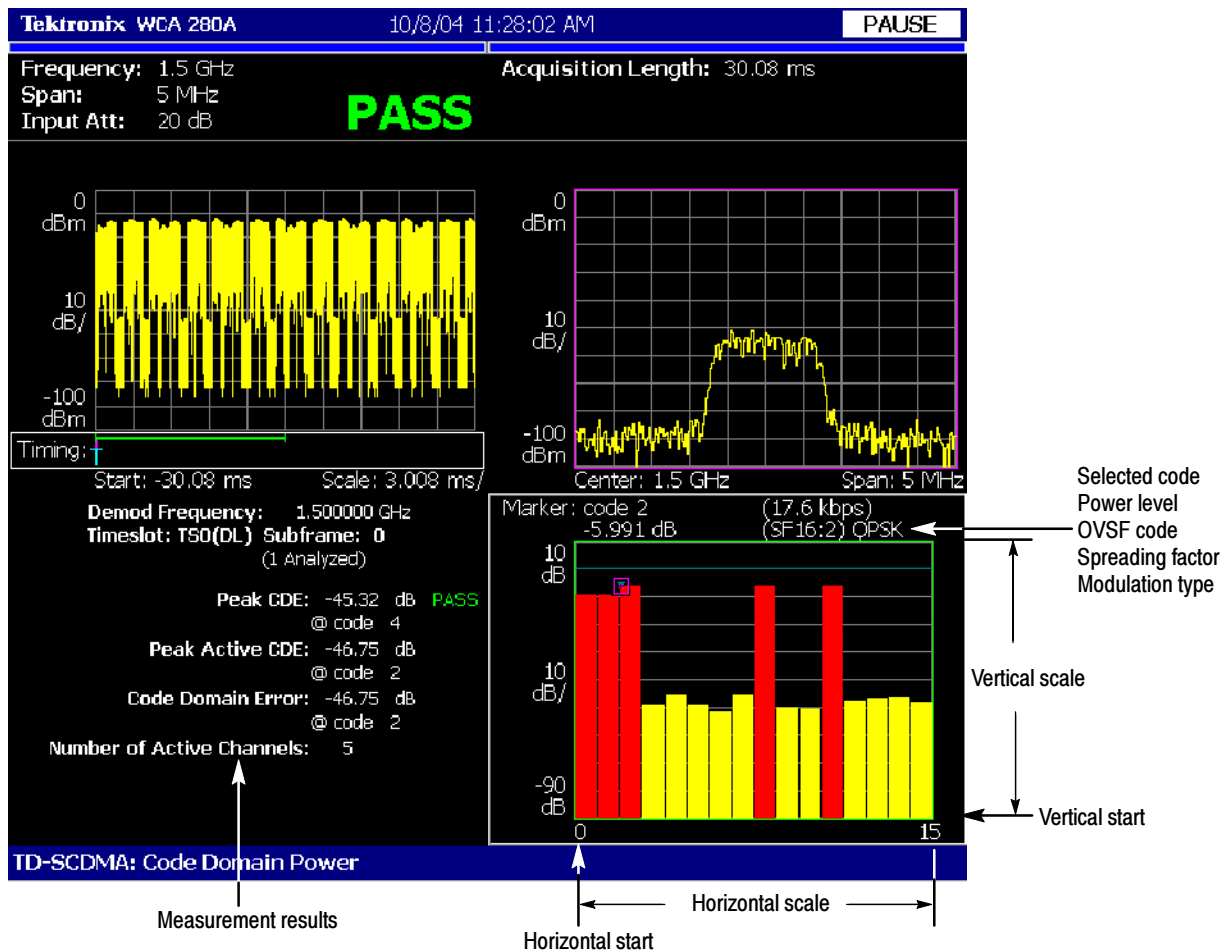
Figure 2‑11: Code domain power measurement

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

■ **Overview**: The overview display area can contain the power versus time or spectrogram measurement displays.

- ■ **Subview**: The subview display area can contain any of the TD-SCDMA demodulation measurements or the spectrum display.

- ■ **Mainview**: The mainview display area can contain one of the code domain power related measurements.

  The mainview also displays the numerical measurement results of the selected display. A Pass or Fail message (determined by the Limits settings) for each measurement is displayed. If all measurements pass, PASS is displayed at the top of the screen. If any measurement fails, FAIL is displayed at the top of the screen.

To change the contents in each of the views, use the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2–24 for more information.

Setting the Timing Parameters

You can set timing parameters for the code domain power acquisition by using the TIMING menu. Press the **TIMING** key to open the menu. Refer to *Timing Parameters for Demodulation Measurements,* beginning on page 2–61, for a description of the timing parameter settings.

NOTE. The timing parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements.

Setting the Measurement Parameters

You can set the measurement parameters for the code domain power measurements by using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the menu. Refer to *Measurement Parameters for Demodulation Measurements,* beginning on page 2–62, for a description of the measurement parameters.

NOTE. The measurement parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements. Most of the modulation parameters and analysis control settings do not take effect until the next run or analysis cycle.

Changing the View Contents

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

- ■ **Show Views**: Selects the view style on the screen. You can select Single or Multi. Multi shows all three views and Single expands the display to only show the view currently selected. Press the **VIEW SELECT** key to change the selected view.

- **Overview Content...**: The overview content display can be changed to display either the Spectrogram or Waveform (power versus time).

- **Subview Content...**: The subview content display can be changed to display any of the TD-SCDMA demodulation measurements or the spectrum display.

- **Mainview Content...**: The mainview content display can be changed to display one of the code domain related measurements. You can select Code Domain Power, Code Domain Power by Subframe, Code Domain Power by Symbol, or Power Codogram. The mainview also displays the numerical measurement results of the selected display. A Pass or Fail message (determined by the Limits settings) for each measurement is displayed. If all measurements pass, PASS is displayed at the top of the screen. If any measurement fails, FAIL is displayed at the top of the screen.

    Refer to *Scale and Format in the Mainview,* beginning on page 2‑25, for more information about the mainview content selections.

- **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 Mainview

This subsection describes the scale settings and display format in the mainview.

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 2‑12). The code domain power display shows the power in all code channels in the two-data bursts of the selected timeslot and subframe.

The measured values for code domain power are described the section *Code Domain Power Measurement Readouts* beginning on page 2‑32.
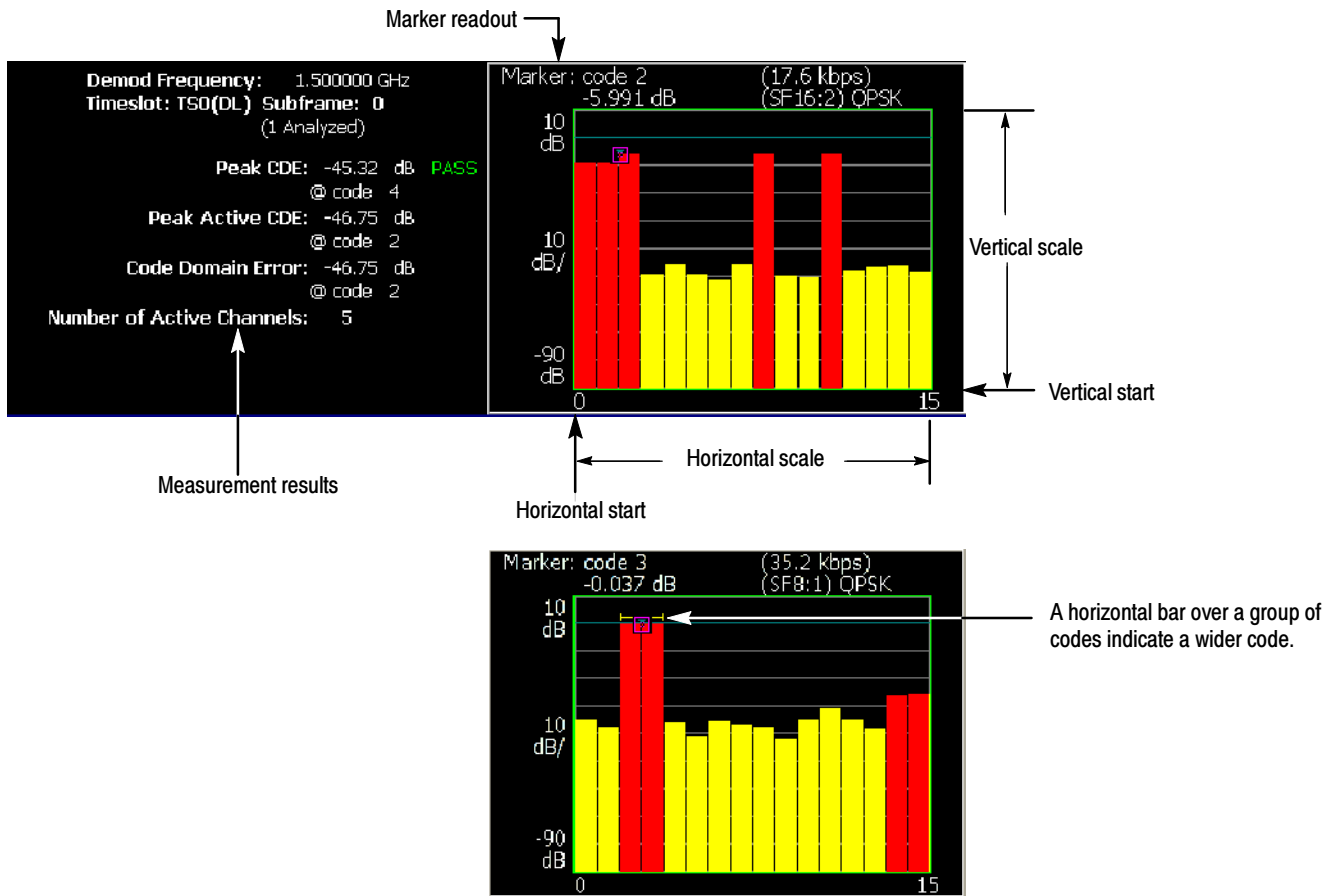
Figure 2‑12: Code domain power display

The power bars use colors to distinguish between active channels and inactive channels. Red indicates active, yellow indicates inactive.

A yellow horizontal bar above a set of active codes indicates that these codes have been detected as belonging to a single code channel at a spreading factor lower than 16. For example, a yellow bar over 2 codes means that this code is actually a single code channel with a spreading factor of 8.

*NOTE. Whether a channel is active or inactive is determined by the* ACTIVE CHANNEL THRESHOLD *setting in the* MEAS SETUP *menu.*

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

- **Auto Scale (Amplitude):** 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 codes).

- **Horizontal Start:** Sets the code number of the first (left) value of the horizontal axis.

- **Vertical Scale (dB):** Sets the scale of the vertical axis.

- **Vertical Stop (dB):** Sets the maximum (top) value of the vertical axis.

- **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

  A step size menu only displays if the Horizontal Start or Vertical Stop menu is selected.

- **Full Scale (default scaling):** Sets all scale values to their default full-scale value.

- **Y Axis...:** Selects whether to represent the Y 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.

CDP by Subframe Display. When you select Mainview Content from the VIEW
DEFINE menu and then select CDP by Subframe from the Mainview Content
submenu, the code domain power in a single code channel is displayed for each
subframe that has been analyzed (see Figure 2--13). The code domain power by
subframe display shows the power in a single code channel in the selected
timeslot for each subframe.

CDP by subframe is useful for tracking the changes in the power of an active
channel over time due to power control.

For the number of subframes analyzed (N), subframe 0 is the most recent and
subframe N--1 is the oldest.

The measured values for code domain power are described the section *Code
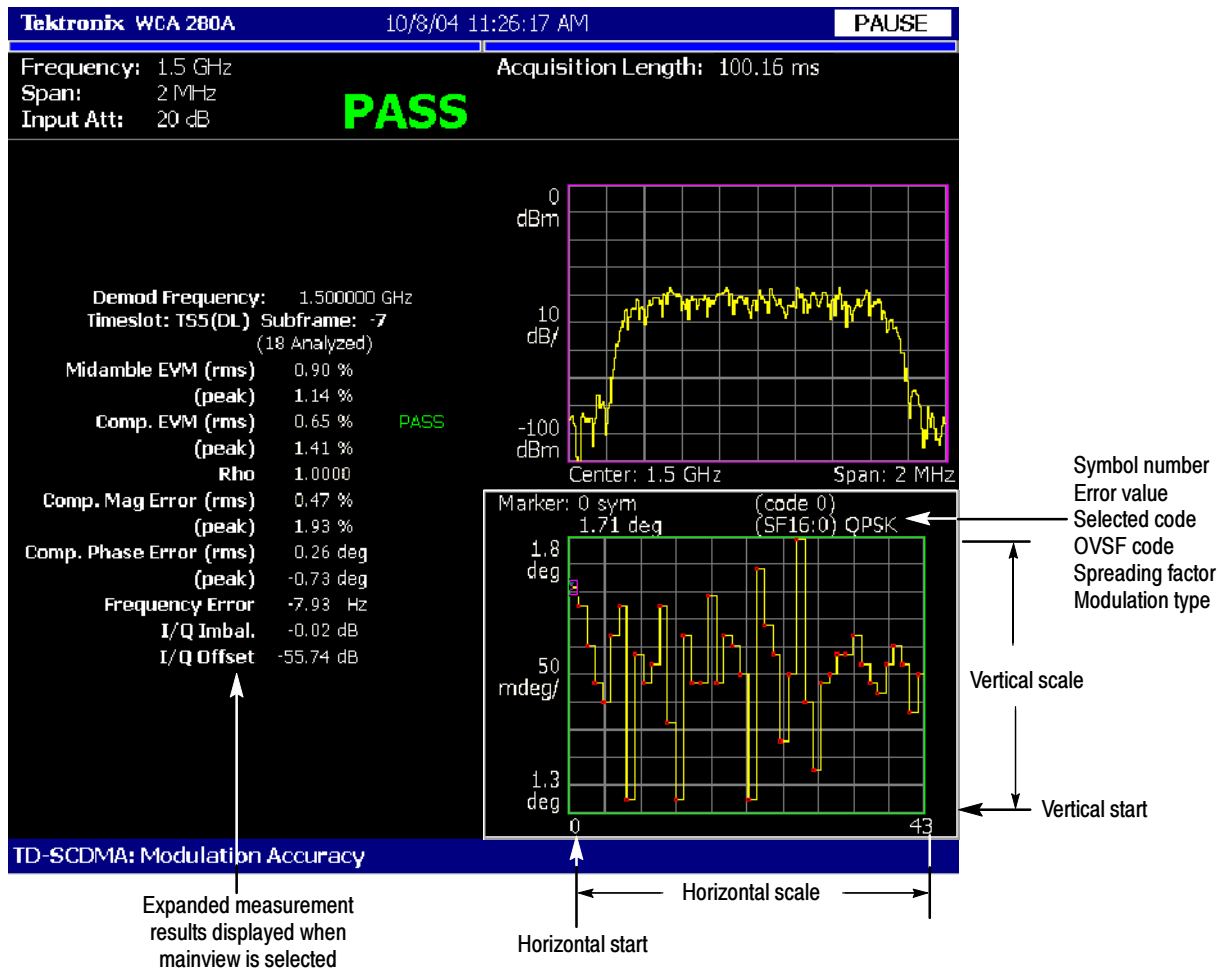Domain Power Measurement Readouts* beginning on page 2--32.
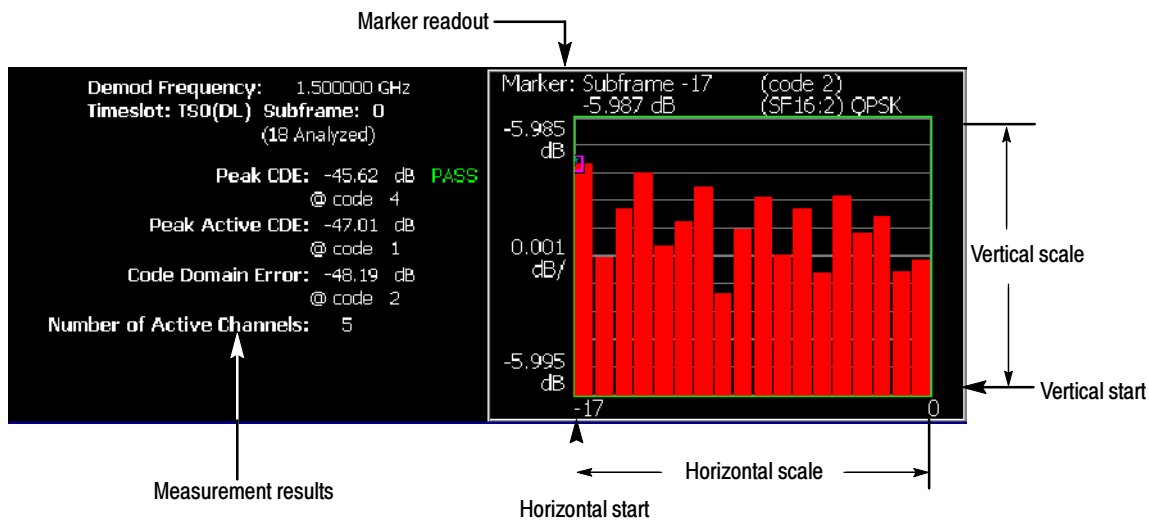
Figure 2--13: CDP by subframe display

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

■ **Auto Scale (Amplitude):** 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 sub-
frames).

■ **Horizontal Start:** Sets the subframe number of the first (left) value of the
horizontal axis.

■ **Vertical Scale (dB):** Sets the scale of the vertical axis.

■ **Vertical Stop (dB):** Sets the maximum (top) value of the vertical axis.

■ **Full Scale (default scaling):** Sets all scale values to their default full-scale value.

■ **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

A step size menu only displays if the Horizontal Start or Vertical Stop menu is selected.

■ **Y Axis...**: Selects whether to represent the Y 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.

CDP by Symbol Display. When you select Mainview Content from the VIEW DEFINE menu and then select CDP by Symbol from the Mainview Content submenu, the code domain power for the symbols is displayed (see Figure 2‑14). The code domain power by symbol shows the despread power for each symbol period of the selected code, subframe, and timeslot.

The measured values for code domain power are described the section *Code Domain Power Measurement Readouts* beginning on page 2‑32.
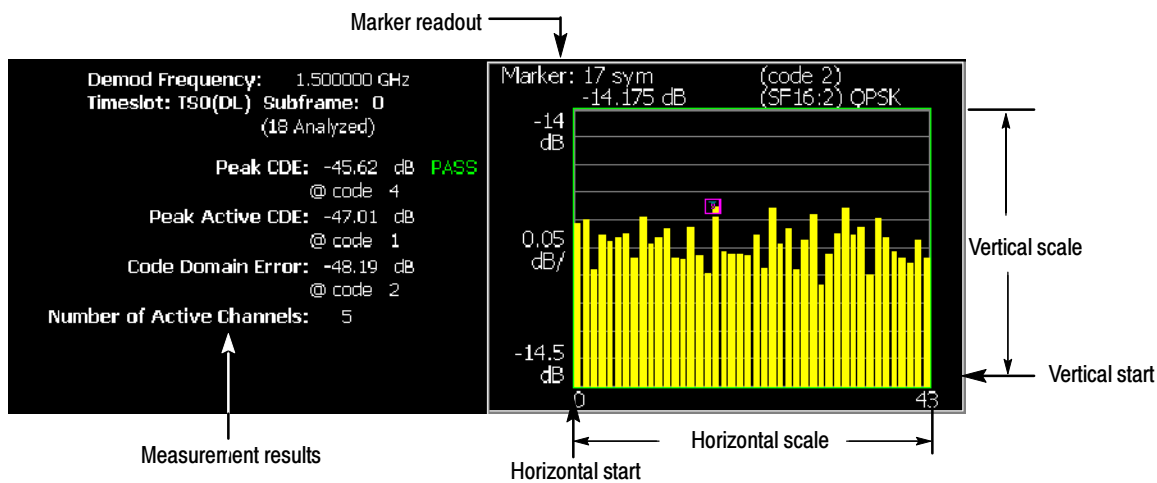
Figure 2‑14: CDP by symbol display

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

■ **Auto Scale (Amplitude):** 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 symbols).

- **Horizontal Start:** Sets the symbol number of the first (left) value of the horizontal axis.

- **Vertical Scale (dB):** Sets the scale of the vertical axis.

- **Vertical Stop (dB):** Sets the maximum (top) value of the vertical axis.

- **Full Scale (default scaling):** Sets all scale values to their default full-scale value.

- **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

  A step size menu only displays if the Horizontal Start or Vertical Stop menu is selected.

- **Y Axis...:** Selects whether to represent the Y 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.

- ■ **Vertical Start**: Sets the subframe 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 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.

Code Domain Power Measurement Readouts

This section describes the measurement readouts displayed in the mainview of the code domain power measurements. The numerical measurement results reported are identical for each of the code domain power measurement displays.

Readout	Description
Peak CDE:	The peak code domain error is a measure of the power in the residual error of each code. The residual error is calculated by subtracting a reference signal from the input signal. The peak code domain error is the maximum code domain error of all the codes (including both active and inactive channels). The Peak CDE readout shows the Peak CDE measurement and which code contained the peak error.
Peak Active CDE:	The peak active code domain error is similar to the Peak CDE measurement but is the maximum of the code domain error of just the active channels, excluding the inactive channels from the calculation.
Code Domain Error:	The code domain error shows the error of the currently selected code. The readout shows the code domain error and the selected code. The code is selected with the Select Code setting in the measurement menu.
Number of Active Channels:	This is the number of active channels that have been detected in the current timeslot.

Channel Power Measurement

The channel power measurement measures the channel power within a specified bandwidth and the power spectral density in dBm/Hz.

The channel power measurement is a single view display, unlike the demodulation measurements such as modulation accuracy or code domain power. The channel power measurement cannot be displayed in the subviews of the demodulation measurements.

Figure 2-16 shows an example of the channel power measurement.

Figure 2-16: Channel power measurement

Setting the Timing Parameters

The channel power measurement only operates in freerun mode and therefore does not display timing settings when pressing the TIMING menu.

Timeslot alignment (from the start of a subframe) for the channel power measurement is determined by analyzing a sufficiently long IQ capture.

Setting the Measurement Parameters

Once you've selected the channel power measurement, you can set the measurement parameters for the channel power using the MEAS SETUP menu. Most of the channel power measurement parameters are not shared with other measurements. Press the **MEAS SETUP** key to open the menu.

- **Switching Point (timeslot)**: Sets the point where the timeslots switch from uplink to downlink timeslots. You can set the value from 1 to 6. The timeslot switching point selection is a global setting for all TD-SCDMA demodulation and RF measurements.

- **Select Timeslot**: Sets the timeslot for the measurement. The control cycles through TS0, DP (downlink pilot), UP (uplink pilot), TS1, TS2, TS3, TS4, TS5, and TS6. The timeslot selection is a global selection for all TD-SCDMA demodulation and RF measurements.

- **Channel Bandwidth (Hz):** Sets the channel bandwidth for the measurement.

- **Measurement Filter Shape...**: Sets the filter to be used for the measurement. You can select None, RootRaisedCosine, or RaisedCosine. The filters only affect the numerical measurement readouts, not the waveform display.

- **Time Reference:** Selects the timing reference. This setting is global to all RF measurements.

  - **DwPts:** Sets the downlink pilot as a time reference for each subframe. This setting should only be used when the downlink pilot is present in the signal under test.

  - **Uplink TS Pattern:** Sets the timeslots indicated in the Uplink TS Pattern setting as the time reference for each subframe. Specifying the timeslot pattern allows the instrument to determine proper timeslot identification in the absence of the downlink pilot time reference.

- **Uplink TS Pattern:** Specifies which timeslots are the active uplink timeslots. The uplink timeslot pattern is a concatenation of the uplink timeslots. For example, an uplink TS pattern of 13 indicates TS1 and TS3 are active uplink timeslots. The default pattern of 123 indicates TS1, TS2, and TS3 are active uplink timeslots. Integer patterns between 1 and 123456 are valid. This setting is used when the Time Reference is set to Uplink TS Pattern.

NOTE. UpPts can also be active, but does not need to be explicitly listed.

Downlink signals can not be active when using the pattern method to determine subframe timing.

- **Active Timeslot Threshold (dB):** Sets the threshold that determines if a timeslot is active or inactive. A timeslot that is transmitting above this level is considered active.

- **Limits...**: Displays the limits editor to set the pass/fail limits for measurements. The limits editor that displays is either the uplink or downlink editor, determined by whether the selected timeslot is an uplink or downlink timeslot. Refer to *Editing the Measurement Limits,* on page 2-65, for more information.

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

Changing the View Contents

You can change the contents in the view using the VIEW DEFINE menu. Press the **VIEW DEFINE** key to open the menu.

- **Grid Style**: Sets the grid style in the view. You can select Off, Fix, or Flex. For Flex, the grid is changed depending on frequency or span setting.

- **Menu Off**: Hides the side menu. To display the menu again, press the **MENU** side key or **VIEW: DEFINE** key.

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

- **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

- **Horizontal Scale (Hz):** Sets the scale of the horizontal axis.

- **Horizontal Start (Hz):** Sets the first (left) value of the horizontal axis.

- **Vertical Scale (dB):** Sets the scale of the vertical axis.

- **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

- **Full Scale (default scaling):** Sets all scale values to their default full-scale value.

- **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

  A step size menu only displays when the Horizontal Start or Vertical Stop menu is selected.

OBW Measurement

The OBW (Occupied Bandwidth) measurement measures the bandwidth that contains a certain percentage of the total integrated power of one timeslot using the percentage and timeslot you specify. The measured bandwidth is centered at the center frequency.

Figure 2–17 shows an example of the OBW measurement.
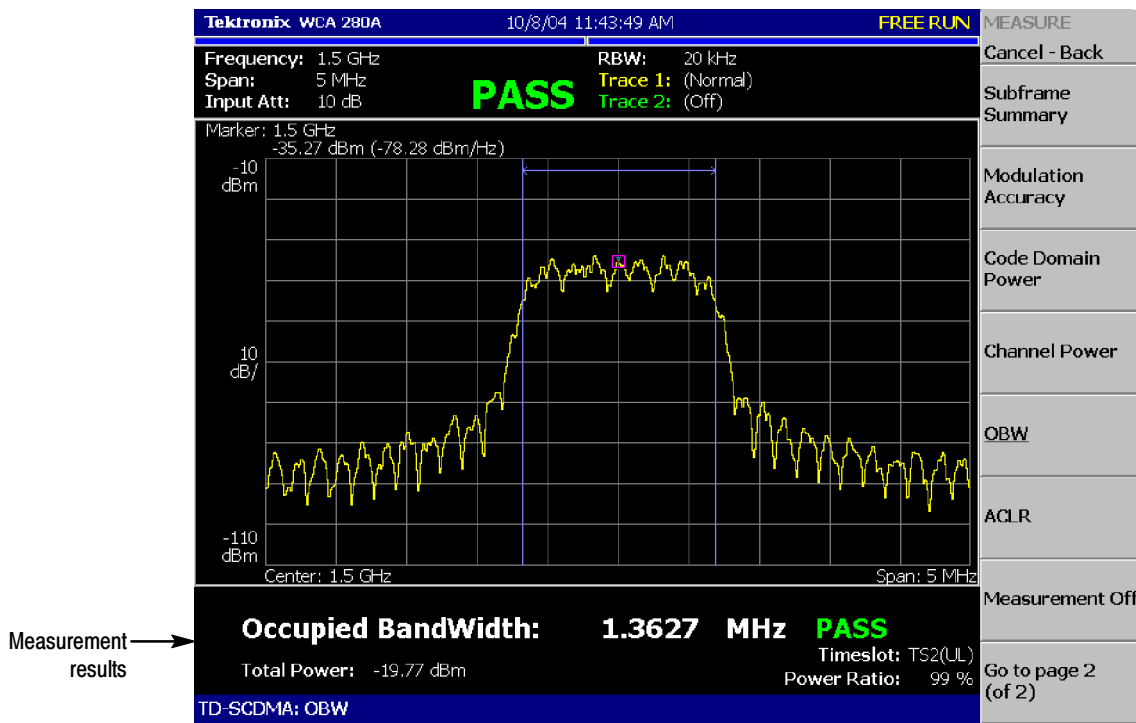
Figure 2‑17: OBW measurement

Setting the Timing Parameters

The TD-SCDMA OBW measurement only operates in freerun mode and therefore does not display timing settings when pressing the TIMING menu.

Timeslot alignment (from the start of a subframe) for the channel power measurement is determined by analyzing a sufficiently long IQ capture.

Setting the Measurement Parameters

Once you've selected the OBW measurement, you can set the measurement parameters for OBW using the MEAS SETUP menu. Most of the OBW measurement parameters are not shared with other measurements. Press the **MEAS SETUP** key to open the menu.

■ **Switching Point (timeslot)**: Sets the point where the timeslots switch from uplink to downlink timeslots. You can set the value from 1 to 6. The timeslot switching point selection is a global setting for all TD-SCDMA demodulation and RF measurements.

■ **Select Timeslot**: Sets the timeslot for the measurement. The control cycles through timeslots 0, DP (downlink pilot), UP (uplink pilot), TS1, TS2, TS3, TS4, TS5, and TS6. The timeslot selection is a global selection for all TD-SCDMA demodulation and RF measurements.

■ **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%.

■ **Channel Bandwidth (Hz):** Sets the channel bandwidth for the measurement.

■ **Measurement Filter Shape...**: Filters are not implemented for the OBW measurement.

■ **Time Reference:** Selects the timing reference. This setting is global to all RF measurements.

  ■ **DwPts:** Sets the downlink pilot as a time reference for each subframe. This setting should only be used when the downlink pilot is present in the signal under test.

  ■ **Uplink TS Pattern:** Sets the timeslots indicated in the Uplink TS Pattern setting as the time reference for each subframe. Specifying the timeslot pattern allows the instrument to determine proper timeslot identification in the absence of the downlink pilot time reference.

■ **Uplink TS Pattern:** Specifies which timeslots are the active uplink timeslots. The uplink timeslot pattern is a concatenation of the uplink timeslots. For example, an uplink TS pattern of 13 indicates TS1 and TS3 are active uplink timeslots. The default pattern of 123 indicates TS1, TS2, and TS3 are active uplink timeslots. Integer patterns between 1 and 123456 are valid. This setting is used when the Time Reference is set to Uplink TS Pattern.

NOTE. UpPts can also be active, but does not need to be explicitly listed.

Downlink signals can not be active when using the pattern method to determine subframe timing.

■ **Active Timeslot Threshold (dB):** Sets the threshold that determines if a timeslot is active or inactive. A timeslot that is transmitting above this level is considered active.

■ **Limits...**: Displays the limits editor to set the pass/fail limits for measurements. The limits editor that displays is either the uplink or downlink editor, determined by whether the selected timeslot is an uplink or downlink timeslot. Refer to *Editing the Measurement Limits,* on page 2--65, for more information.

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

Changing the View Contents

You can change the contents in the view using the VIEW DEFINE menu. Press the **VIEW DEFINE** key to open the menu.

■ **Grid Style**: Sets the grid style in the view. You can select Off, Fix, or Flex. For Flex, the grid is changed depending on frequency or span setting.

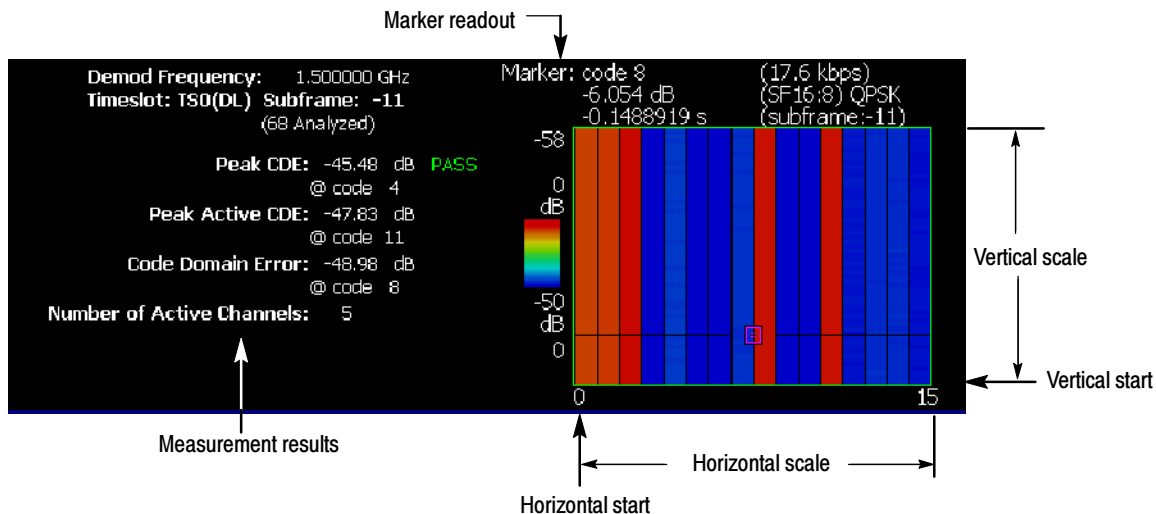■ **Menu Off**: Hides the side menu. To display the menu again, press the **MENU** side key or **VIEW DEFINE** key.

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

■ **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

■ **Horizontal Scale (Hz):** Sets the scale of the horizontal axis.

■ **Horizontal Start (Hz):** Sets the first (left) value of the horizontal axis.

■ **Vertical Scale (dB):** Sets the scale of the vertical axis.

■ **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

■ **Full Scale:** Sets all scale values to their default full-scale value.

■ **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

A step size menu only displays when the Horizontal Start or Vertical Stop menu is selected.

ACLR Measurement

The Adjacent Channel Leakage Ratio (ACLR) measurement measures the amount of power leakage from the desired channel (active channel signal) to a nearby inactive channel by computing the ratio of the power in the active channel to the power in the inactive channel. The nearby channels can be one of the channels to the immediate left or right (adjacent channels) of the active channel or one channel further away (the alternate channels).

Since the ACLR measurement is made on multiple channels, it's recommended that you set the analyzer to at least a 10 MHz span to allow the ACLR to be measured on the two adjacent and two alternate channels. A span of 5 MHz reduces the ACLR measurement to just the immediate adjacent channels. If the span setting is not wide enough for at least three channels, ACLR cannot be measured.

Figure 2--18 shows an example of the ACLR measurement.

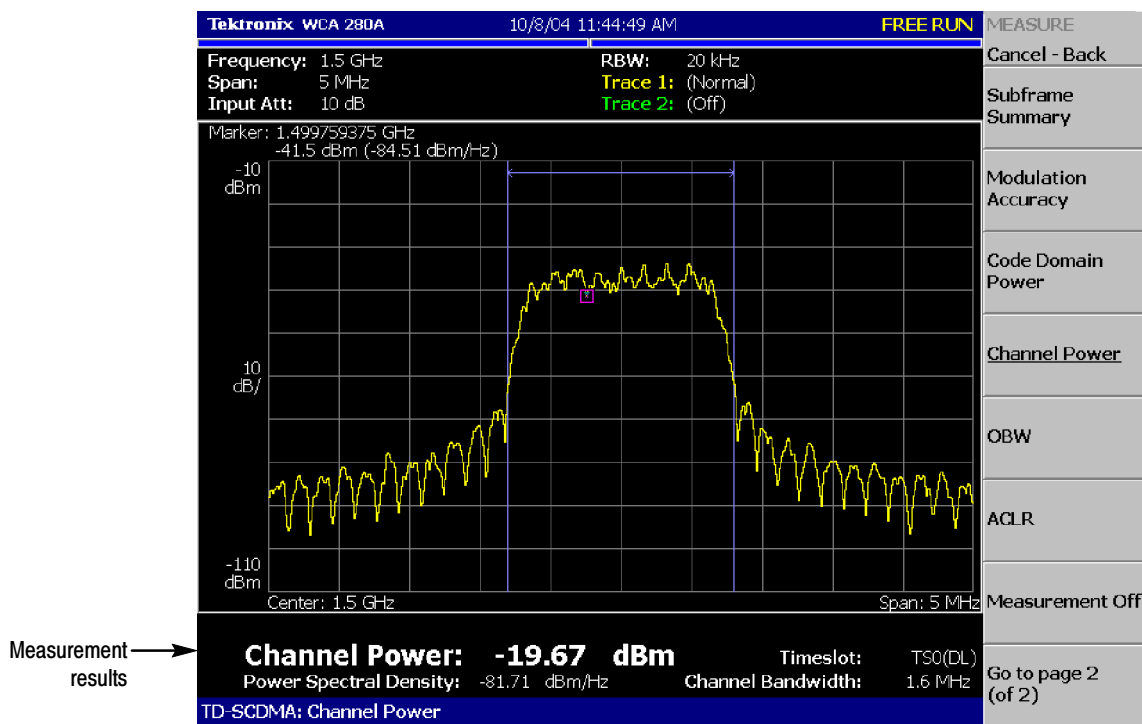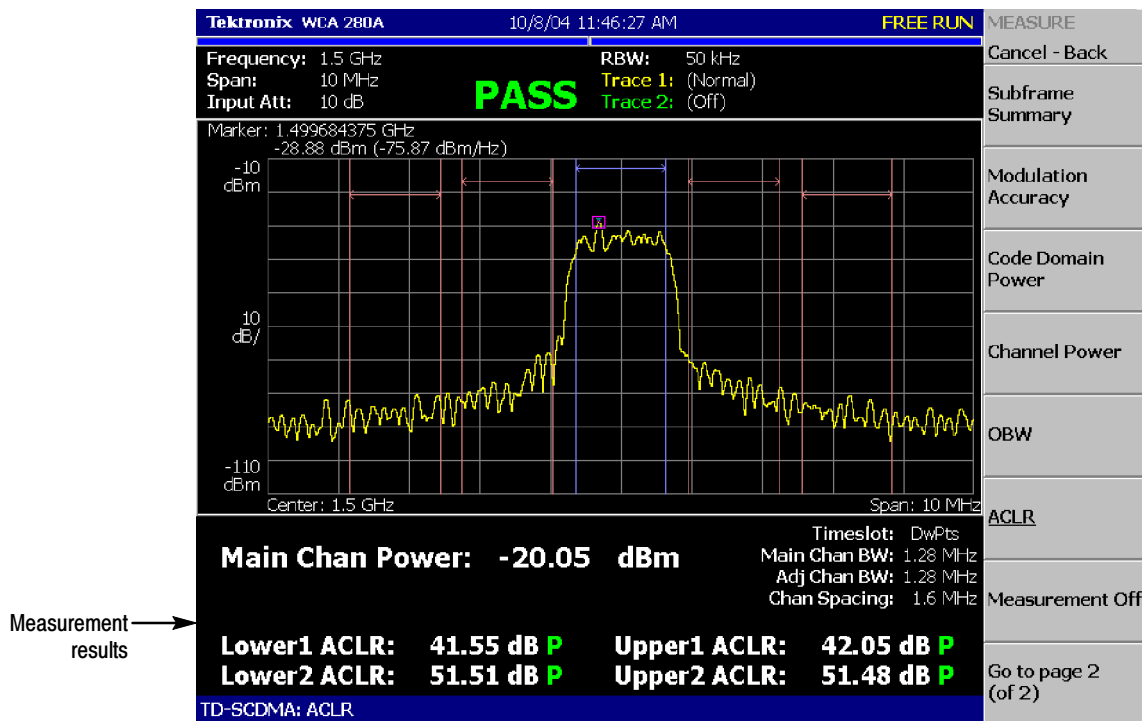**Figure 2--18: ACLR measurement**

Setting the Timing Parameters

The ACLR measurement only operates in freerun mode and therefore does not display timing settings when pressing the TIMING menu.

Timeslot alignment (from the start of a subframe) for the channel power measurement is determined by analyzing a sufficiently long IQ capture.

Setting the Measurement Parameters

Once you've selected the ACLR measurement, you can set the measurement parameters for ACLR using the MEAS SETUP menu. Most of the ACLR measurement parameters are not shared with other measurements. Press the **MEAS SETUP** key to open the menu.

- **Switching Point (timeslot)**: Sets the point where the timeslots switch from uplink to downlink timeslots. You can set the value from 1 to 6. The timeslot switching point selection is a global setting for all TD-SCDMA demodulation and RF measurements.

- **Select Timeslot**: Sets the timeslot for the measurement. The control cycles through timeslots 0, DP (downlink pilot), UP (uplink pilot), TS1, TS2, TS3, TS4, TS5, and TS6. The timeslot selection is a global selection for all TD-SCDMA demodulation and RF measurements.

- **Measurement Filter Shape...**: Sets the filter to be used for the measurement. You can select None, RootRaisedCosine, or RaisedCosine. The filters only affect the numerical measurement readouts, not the waveform display.

- **Time Reference:** Selects the timing reference. This setting is global to all RF measurements.

  - **DwPts:** Sets the downlink pilot as a time reference for each subframe. This setting should only be used when the downlink pilot is present in the signal under test.

  - **Uplink TS Pattern:** Sets the timeslots indicated in the Uplink TS Pattern setting as the time reference for each subframe. Specifying the timeslot pattern allows the instrument to determine proper timeslot identification in the absence of the downlink pilot time reference.

- **Uplink TS Pattern:** Specifies which timeslots are the active uplink timeslots. The uplink timeslot pattern is a concatenation of the uplink timeslots. For example, an uplink TS pattern of 13 indicates TS1 and TS3 are active uplink timeslots. The default pattern of 123 indicates TS1, TS2, and TS3 are active uplink timeslots. Integer patterns between 1 and 123456 are valid. This setting is used when the Time Reference is set to Uplink TS Pattern.

> *NOTE. UpPts can also be active, but does not need to be explicitly listed.*
>
> *Downlink signals can not be active when using the pattern method to determine subframe timing.*

- **Active Timeslot Threshold (dB):** Sets the threshold that determines if a timeslot is active or inactive. A timeslot that is transmitting above this level is considered active.

- **Limits...**: Displays the limits editor to set the pass/fail limits for measurements. The limits editor that displays is either the uplink or downlink editor, determined by whether the selected timeslot is an uplink or downlink timeslot. Refer to *Editing the Measurement Limits,* on page 2–65, for more information.

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

Setting the Span Parameters

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

- **Span (Hz):** Sets frequency range to be analyzed. This affects the number of channels that are analyzed.

- **Start Freq (Hz):** Sets the minimum value of the frequency axis. The stop frequency automatically adjusts according to the span setting.

- **Stop Freq (Hz):** Sets the maximum value of the frequency axis. The start frequency automatically adjusts according to the span setting.

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

Changing the View Contents

You can change the contents in the view using the VIEW DEFINE menu. Press the **VIEW DEFINE** key to open the menu.

- **Grid Style**: Sets the grid style in the view. You can select Off, Fix, or Flex. For Flex, the grid is changed depending on frequency or span setting.

- **Menu Off**: Hides the side menu. To display the menu again, press the **MENU** side key or **VIEW DEFINE** key.

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

- **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

- **Horizontal Scale (Hz):** Sets the scale of the horizontal axis.

- **Horizontal Start (Hz):** Sets the first (left) value of the horizontal axis.

- **Vertical Scale (dB):** Sets the scale of the vertical axis.

- **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

- **Full Scale:** Sets all scale values to their default full-scale value.

- **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

  A step size menu only displays when the Horizontal Start or Vertical Stop menu is selected.

Spectrum Emission Mask Measurement

The spectrum emission mask (SEM) measurement verifies that the base station is not transmitting excessive power outside of its designated channel. The SEM measurement is not gated so it does not operate on any particular timeslot.

There are two SEM measurements available (selected from the measurement setup menu) based on different sets of limits: Offset From Channel and Inband Spurious. Figures 2–19 and 2–20 show examples of the spectrum emission mask measurements.

Measurement results
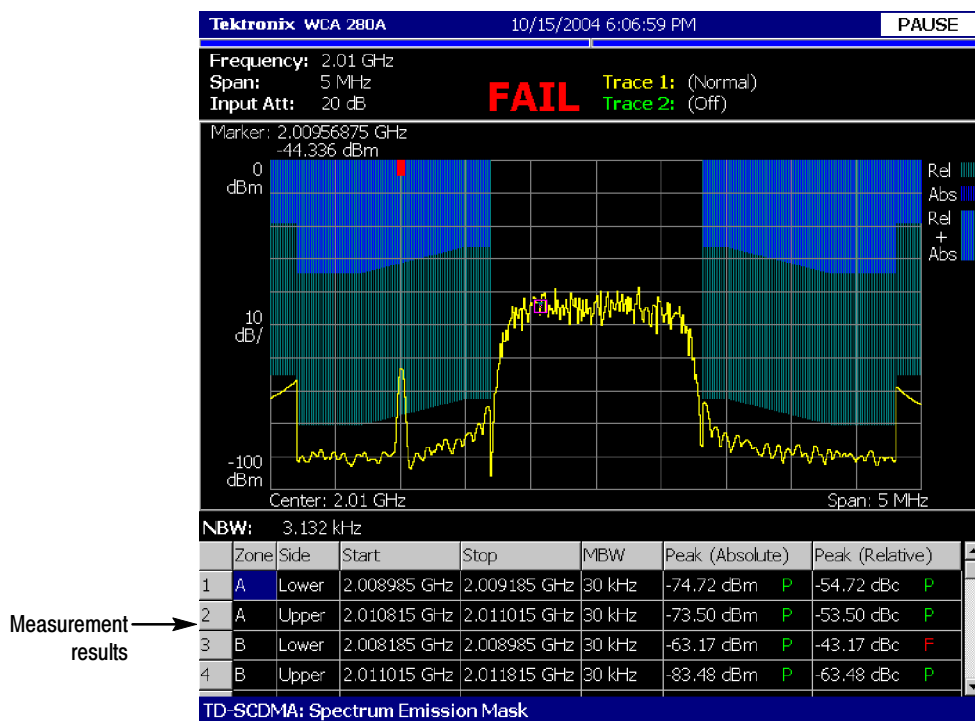
Figure 2-19: Spectrum emission mask (offset from channel) measurement

Measurement results →
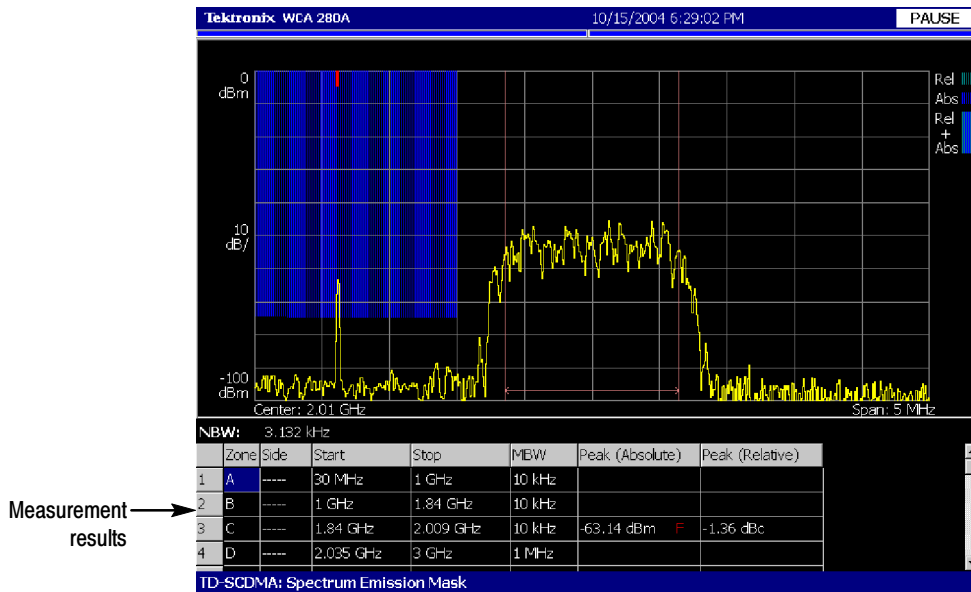
Figure 2‑20: Spectrum emission mask (inband spurious) measurement

Setting the Timing Parameters

The TD-SCDMA spectrum emission mask measurement only operates in freerun mode and therefore does not display timing settings when pressing the TIMING menu.

Setting the Measurement Parameters

Once you've selected the spectrum emission mask measurement, you can set the measurement parameters for SEM using the MEAS SETUP menu. Most of the SEM measurement parameters are not shared with other measurements. Press the **MEAS SETUP** key to open the menu.

■ **Transmit Direction:** Selects which limits table (uplink or downlink) is used for limit checking. Changing the transmit direction for the SEM measurement may change the timeslot selection for other measurements depending on how the timeslots are defined for uplink and downlink.

■ **Measurement...:** Selects the SEM measurement and limits table.

■ **Offset From Channel:** The Offset From Channel limits are used where the frequency zones are specified by the difference from the center frequency.

■ **Inband Spurious:** The Inband Spurious limits are used where the 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 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 (dBm)**: Sets or displays the reference level used to measure the spectrum emission level. You can only set the reference level when the Ref. Channel Select is set to Man (manual) with a range from –150 dBm to 30 dBm.

- **Channel Bandwidth (Hz)**: Sets the channel bandwidth for the measurement.

- **Measurement Filter Shape**: Sets the filter to be used for the measurement. You can select None, RootRaisedCosine, or RaisedCosine. This setting is only available when Ref. Channel Select is set to Auto. The filters only affect the numerical measurement readouts, not the waveform display.

- **Limits...**: Displays the limits editor to set the pass/fail limits for measurements. The limits editor that displays is either the uplink or downlink editor, determined by whether the selected timeslot is an uplink or downlink timeslot. Refer to *Editing the Measurement Limits,* on page 2-65, for more information.

- **Scroll Table**: Scrolls the table displayed in the view.

Changing the View Contents

You can change the contents in the view using the VIEW DEFINE menu. Press the **VIEW DEFINE** key to open the menu.

- **Grid Style**: Sets the grid style in the view. You can select Off, Fix, or Flex. For Flex, the grid is changed depending on frequency or span setting.

- **Menu Off**: Hides the side menu. To display the menu again, press the **MENU** side key or **VIEW DEFINE** key.

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

- **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

- **Horizontal Scale (Hz):** Sets the scale of the horizontal axis.

- **Horizontal Start (Hz):** Sets the first (left) value of the horizontal axis.

- **Vertical Scale (dB):** Sets the scale of the vertical axis.

- **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

- **Full Scale:** Sets all scale values to their default full-scale value.

■ **Step Size (Horizontal Start / Vertical Stop):** Sets the step size of the up and down keys when changing the Horizontal Start or Vertical Stop settings.

A step size menu only displays when the Horizontal Start or Vertical Stop menu is selected.

Timeslot Summary

The timeslot summary measurement displays a power versus time graph of the selected timeslot within the selected subframe, and displays several timeslot-related statistics. The timeslot summary includes eight chips before timeslot, and eight chips after timeslot for visual reference. Figure 2-21 shows an example of the timeslot summary.

The measured values are described in *Timeslot Summary Measurement Readouts* on page 2-50.
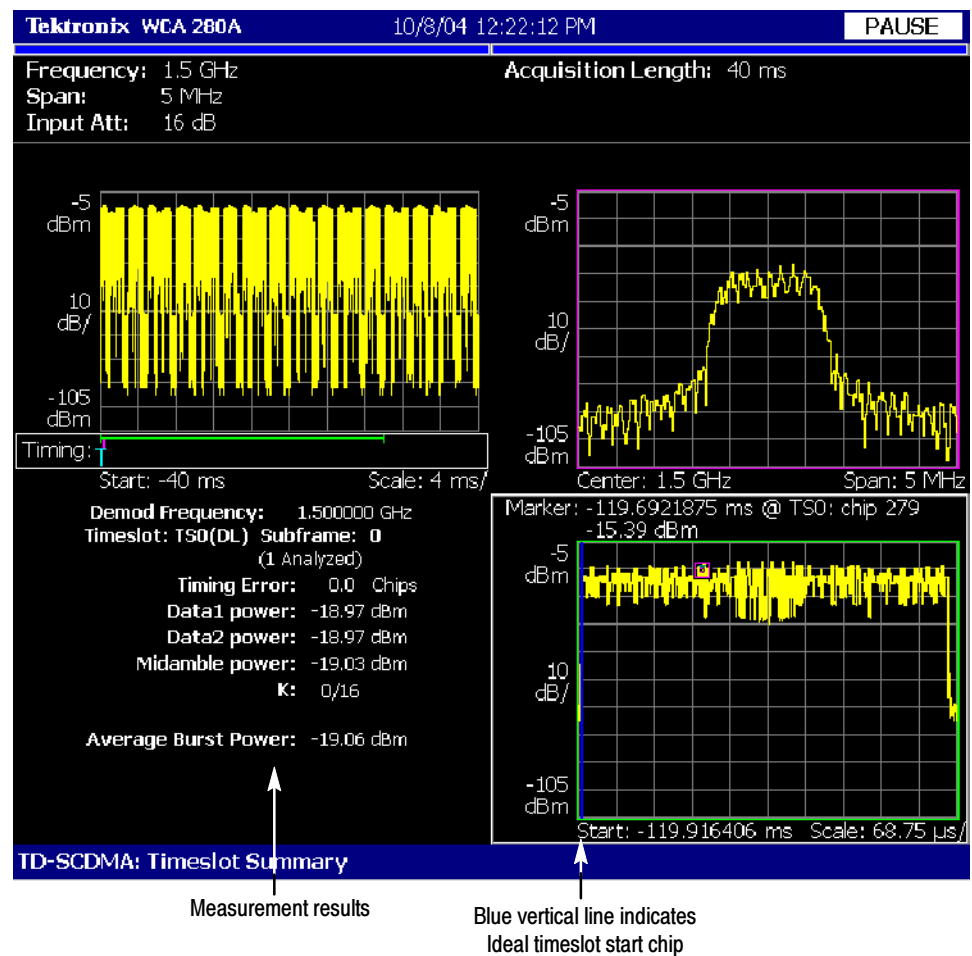
Figure 2-21: Timeslot summary

Display Elements   The following information is shown in the timeslot summary measurement display:

- **Overview**: The overview display area can contain the power versus time or spectrogram measurement displays.

- **Subview**: The subview display area can contain any of the TD-SCDMA demodulation measurements or the spectrum display.

- **Mainview**: The mainview display area is fixed to display only the timeslot summary measurement.

To change the contents in each of the views, use the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-48 for more information.

Setting the Timing Parameters

You can set timing parameters for the timeslot summary acquisition by using the TIMING menu. Press the **TIMING** key to open the menu. Refer to *Timing Parameters for Demodulation Measurements,* beginning on page 2-61, for a description of the timing parameter settings.

NOTE. The timing parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements.

Setting the Measurement Parameters

You can set the measurement parameters for the timeslot summary measurement by using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the MEAS SETUP menu. Refer to *Measurement Parameters for Demodulation Measurements,* beginning on page 2-62, for a description of the measurement parameters.

NOTE. The measurement parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements. Most of the modulation parameters and analysis control settings do not take effect until the next run or analysis cycle.

Changing the View Contents

You can change the view contents in the overview, subview using the VIEW DEFINE menu. Press the **VIEW DEFINE** key to open the menu.

- **Show Views**: Selects the view style on the screen. You can select Single or Multi. Multi shows all three views and Single expands the display to only show the view currently selected. Press the **VIEW SELECT** key to change the selected view.

- **Overview Content...**: The overview content display can be changed to display either the Spectrogram or Waveform (power versus time).

■ **Subview Content...**: The subview content display can be changed to display any of the TD-SCDMA demodulation measurements or the spectrum display.

■ **Mainview Content...**: The mainview content display can not be changed from timeslot summary but the mainview can be zoomed to the region tested for timeslot error.

■ **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 Mainview

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

■ **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

■ **Horizontal Scale (s):** Sets the scale of the horizontal axis (number of chips or symbols).

■ **Horizontal Start (s):** Sets the chip number or symbol number of the first (left) value of the horizontal axis.

■ **Vertical Scale (dB):** Sets the scale of the vertical axis.

■ **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

■ **Full Scale:** Sets all scale values to their default full-scale value.

■ **Step Size (Horizontal Start / Vertical Stop):** Sets the step size (amount per click of the general purpose knob) for changes to the Horizontal Start or Vertical Stop settings.

The step size menus only display when selecting the Horizontal Start or Vertical Stop menus.

■ **Zoom to Timeslot Start:** Zooms the display into the region tested for the timing error. Eight chips are shown before the timeslot and 60 chips after. A blue line is drawn to indicate the ideal timeslot start chip. The default scale for the timeslots is based on the width (number of chips) of the timeslot.

Blue vertical line indicates
Ideal timeslot start chip
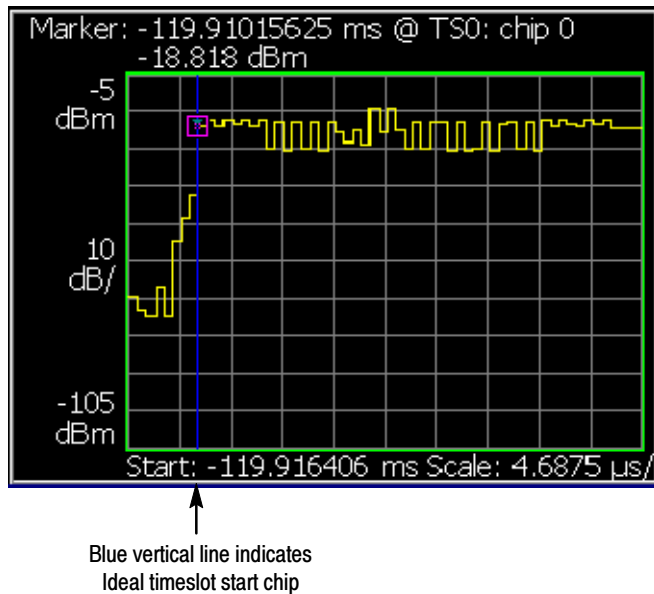
Figure 2‑22: Timeslot summary, display zoomed

Timeslot Summary Measurement Readouts

This section describes the measurement readouts displayed in the mainview of the timeslot summary measurement.

Readout	Description
Timing Error	The measured difference between the measured start of a timeslot and the ideal start of the timeslot (relative to the selected subframe time reference).
Data1 power	The RMS power in the data1 burst.
Data2 power	The RMS power in the data2 burst.
Midamble power	The RMS power in the midamble burst.
K	The value of K for this timeslot. K is the maximum number of midamble codes that can be used in the midamble of the current timeslot. See the 3GPP TDD LCR standard for detailed information.
Average burst power	The RMS power over the entire timeslot.

Transmit On/Off Mask

The Transmit On/Off Mask measurement verifies that the Node--B or UE turns off its transmitter when it is not supposed to be emitting power. A power versus time graph of the selected subframe is overlaid on a limit mask. The instantaneous power is compared against the mask and a PASS/FAIL determination is made. Figure 2--23 shows an example of the transmit on/off mask.

The measured values are described in *Transmit On/Off Mask Measurement Readouts* on page 2--54.
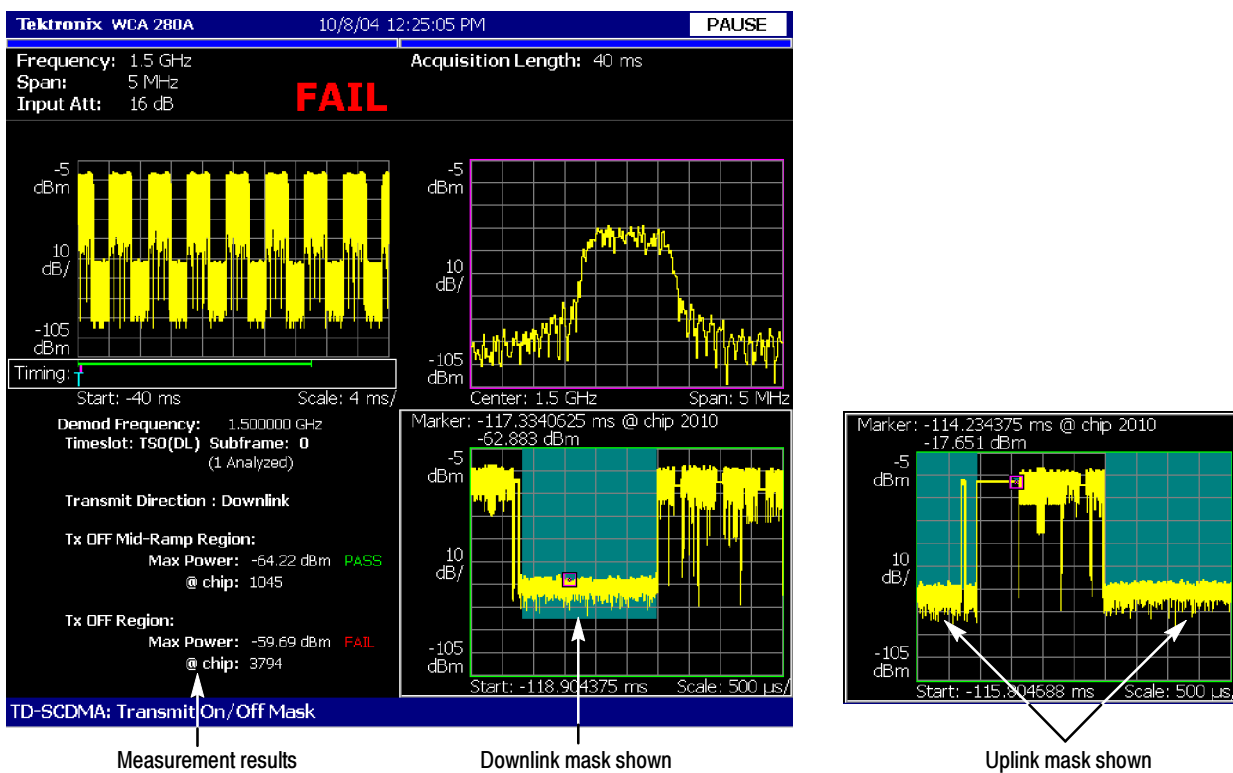
Figure 2--23: Transmit on/off mask

Display Elements The following information is shown in the timeslot summary measurement display:

■ **Overview**: The overview display area can contain the power versus time or spectrogram measurement displays.

■ **Subview**: The subview display area can contain any of the TD-SCDMA demodulation measurements or the spectrum display.

■ **Mainview**: The mainview display area is fixed to display only the transmit on/off mask measurement.

To change the contents in each of the views, use the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-52 for more information.

Setting the Timing Parameters

You can set timing parameters for the transmit on/off mask acquisition by using the TIMING menu. Press the **TIMING** key to open the menu. Refer to *Timing Parameters for Demodulation Measurements,* beginning on page 2-61, for a description of the timing parameter settings.

NOTE. The timing parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements.

Setting the Measurement Parameters

You can set the measurement parameters for the transmit on/off mask measurements by using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the menu. Refer to *Measurement Parameters for Demodulation Measurements,* beginning on page 2-62, for a description of the measurement parameters.

NOTE. The measurement parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements. Most of the modulation parameters and analysis control settings do not take effect until the next run or analysis cycle.

Changing the View Contents

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

■ **Show Views**: Selects the view style on the screen. You can select Single or Multi. Multi shows all three views and Single expands the display to only show the view currently selected. Press the **SELECT** key to change the selected view.

■ **Overview Content...**: The overview content display can be changed to display either the Spectrogram or Waveform (power versus time).

■ **Subview Content...**: The subview content display can be changed to display any of the TD-SCDMA demodulation measurements or the spectrum display.

■ **Mainview Content...**: The mainview content display can not be changed from timeslot summary.

■ **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 Mainview

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

■ **Auto Scale (Amplitude):** Sets the start value and the scale of the vertical axis to display the entire waveform.

■ **Horizontal Scale (s):** Sets the scale of the horizontal axis. This affects both the normal and zoomed displays.

■ **Horizontal Start (s):** Sets the chip number or symbol number of the first (left) value of the horizontal axis.

■ **Vertical Scale (dB):** Sets the scale of the vertical axis.

■ **Vertical Stop (dBm):** Sets the maximum (top) value of the vertical axis.

■ **Full Scale:** Sets all scale values to their default full-scale value. This affects both the normal and zoomed displays.

■ **Mask Zoom Controls...:** The zoom controls let you display a narrow region of the mask, allowing you to quickly zoom in and analyze important parts of the mask. Figure 2–24 shows an example of a zoomed display.

   ■ **Zoom to Tx Mask Start:** Zooms in to the beginning of the mask.

   ■ **Zoom to Tx Mask End:** Zooms in to the end of the mask.

   ■ **Zoom to Max Mid-Ramp Power:** Zooms to the part of the mask that is above the OFF power level but below the average ON power. For the downlink, it is near the ON to OFF transition and for the uplink, it is near the OFF to ON transition.

   ■ **Zoom to Max Tx OFF Power:** Zooms to the location of the maximum power of the input signal in the OFF portion of the mask.

   ■ **Horizontal Scale (s):** Sets the scale of the horizontal axis. This affects both the zoomed and normal displays.

   ■ **Full Scale:** Sets all scale values to their default full-scale value. This affects both the zoomed and normal displays.

■ **Step Size (Horizontal Start / Vertical Stop):** Sets the step size (amount per click of the general purpose knob) for changes to the Horizontal Start or Vertical Stop settings.

The step size menu choices only display when selecting the Horizontal Start or Vertical Stop menus.
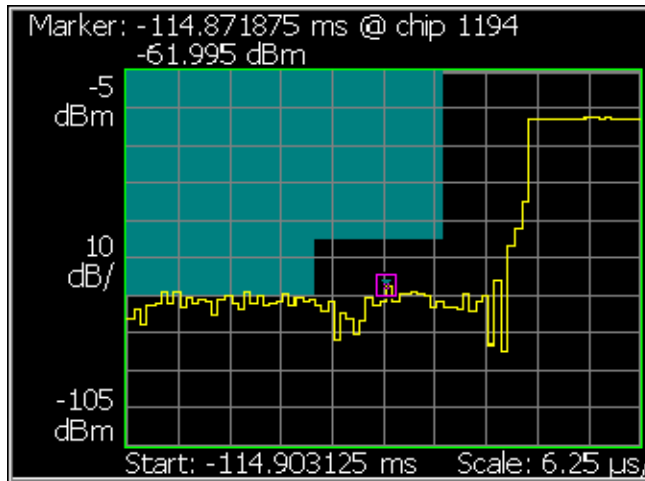
Figure 2‑24: Zoom to Max Mid-Ramp Power selected

Transmit On/Off Mask Measurement Readouts

This section describes the measurement readouts displayed in the mainview of the transmit on/off mask measurement.

Readout	Description
Tx OFF Mid-Ramp Region	
Max Power @ Chip	The maximum mid-ramp power (in dBm) within the mid-ramp region. The chip value is the location where it occurs.
Tx OFF Region	
Max Power @ Chip	The maximum power (in dBm) within the mask region that is not part of the mid-ramp region. The chip value is the location where it occurs.

Symbol Table Display

The symbol table display shows the received data symbols in a code channel after descrambling and despreading. Figure 2-25 shows an example of the symbol table display.
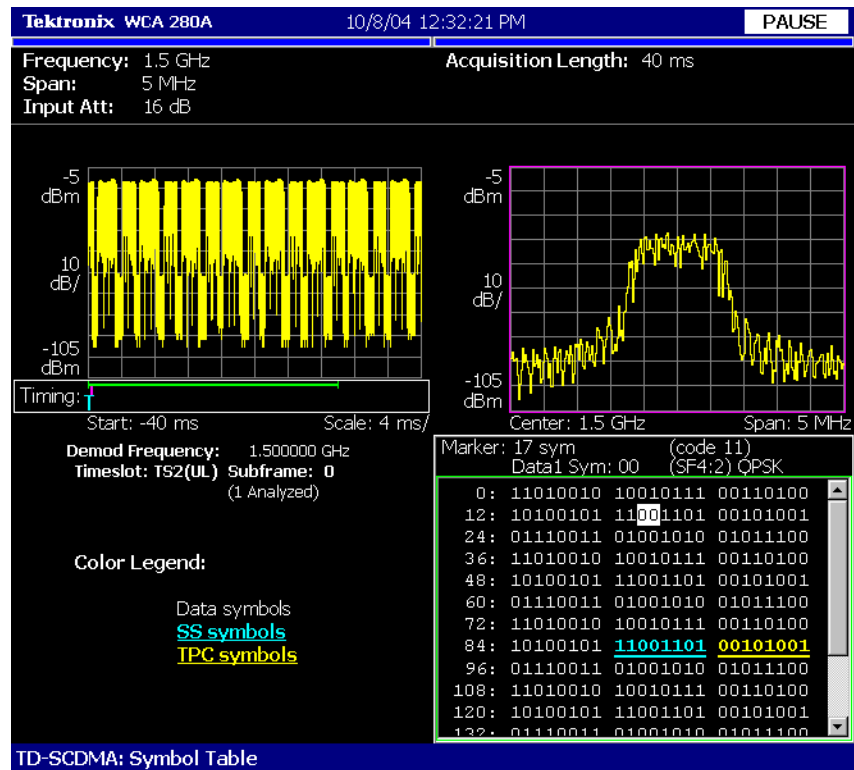
Figure 2-25: Symbol table display

Display Elements   The following information is shown in the symbol table measurement display:

■   **Overview**: The overview display area can contain the power versus time or spectrogram measurement displays.

■   **Subview**: The subview display area can contain any of the TD-SCDMA demodulation measurements or the spectrum display.

■   **Mainview**: The mainview display area is fixed to display only the symbol table.

To change the contents in each of the views, use the VIEW DEFINE menu. Refer to *Changing the View Contents* on page 2-56 for more information.

Setting the Timing Parameters

You can set timing parameters for the symbol table acquisition by using the TIMING menu. Press the **TIMING** key to open the TIMING menu. Refer to *Timing Parameters for Demodulation Measurements,* beginning on page 2‑61, for a description of the timing parameter settings.

NOTE. The timing parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements.

Setting the Measurement Parameters

You can set the measurement parameters for the symbol table measurement by using the MEAS SETUP menu. Press the **MEAS SETUP** key to open the menu. Refer to *Measurement Parameters for Demodulation Measurements,* beginning on page 2‑62, for a description of the measurement parameters.

NOTE. The measurement parameters for demodulation measurements are global settings for all TD-SCDMA demodulation measurements. Most of the modulation parameters and analysis control settings do not take effect until the next run or analysis cycle.

Changing the View Contents

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

- **Show Views**: Selects the view style on the screen. You can select Single or Multi. Multi shows all three views and Single expands the display to only show the view currently selected. Press the **SELECT** key to change the selected view.

- **Overview Content...**: The overview content display can be changed to display either the Spectrogram or Waveform (power versus time).

- **Subview Content...**: The subview content display can be changed to display any of the TD-SCDMA demodulation measurements or the spectrum display.

- **Mainview Content...**: The mainview content display can not be changed from Timeslot summary.

- **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 Mainview

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

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

Intermodulation Measurement

The intermodulation measurement measures the distortion the base station generates when both the desired signal and an interfering signal are present. For this measurement, an interfering signal is defined as being synchronized with the desired signal and is 30 dB lower.

Figure 2‑26 shows an example of the intermodulation measurement.
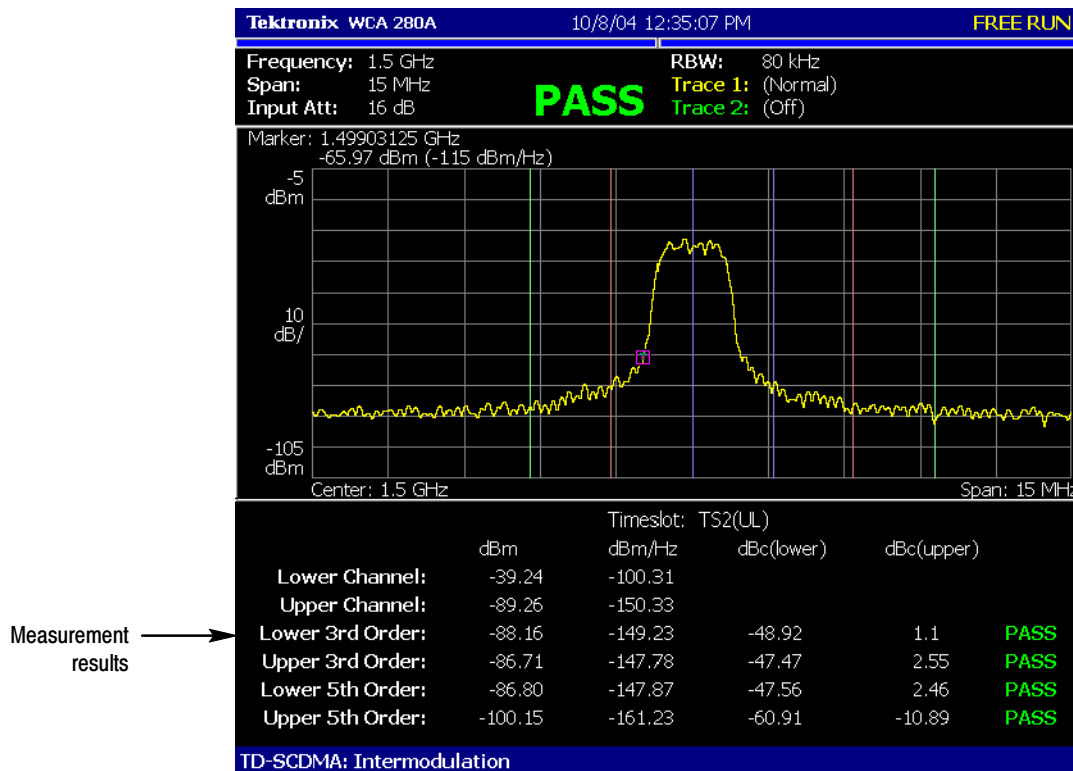
Figure 2‑26: Intermodulation measurement

Setting the Timing Parameters

The intermodulation measurement only operates in freerun mode and therefore does not display timing settings when pressing the TIMING menu.

Timeslot alignment (from the start of a subframe) for the channel power measurement is determined by analyzing a sufficiently long IQ capture.

Setting the Span Parameters

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

- **Span (Hz):** Sets frequency range to be analyzed. This affects the number of channels that are analyzed.

- **Start Freq (Hz):** Sets the minimum value of the frequency axis. The stop frequency automatically adjusts according to the span setting.

- **Stop Freq (Hz):** Sets the maximum value of the frequency axis. The start frequency automatically adjusts according to the span setting.

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

Setting the Measurement Parameters

Once you've selected the intermodulation measurement, you can set the measurement parameters for intermodulation using the MEAS SETUP menu. Most of the intermodulation measurement parameters are not shared with other measurements. Press the **MEAS SETUP** key to open the menu.

- **Switching Point (timeslot):** Sets the point where the timeslots switch from uplink to downlink timeslots. You can set the value from 1 to 6. The timeslot switching point selection is a global setting for all TD-SCDMA demodulation and RF measurements.

- **Select Timeslot:** Sets the timeslot for the measurement. The control cycles through timeslots 0, DP (downlink pilot), UP (uplink pilot), TS1, TS2, TS3, TS4, TS5, and TS6. The timeslot selection is a global selection for all TD-SCDMA demodulation and RF measurements.

- **2nd Channel Offset:** Sets the center frequency of the second channel. Use this menu item when the interfering carrier may be outside of the analysis span.

- **Main Channel Integration BW:** Sets the 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 None, RootRaisedCosine, or RaisedCosine. The filters only affect the numerical measurement readouts, not the waveform display.

- **Time Reference:** Selects the timing reference. This setting is global to all RF measurements.

  - **DwPts:** Sets the downlink pilot as a time reference for each subframe. This setting should only be used when the downlink pilot is present in the signal under test.

  - **Uplink TS Pattern:** Sets the timeslots indicated in the Uplink TS Pattern setting as the time reference for each subframe. Specifying the timeslot pattern allows the instrument to determine proper timeslot identification in the absence of the downlink pilot time reference.

■ **Uplink TS Pattern:** Specifies which timeslots are the active uplink timeslots. The uplink timeslot pattern is a concatenation of the uplink timeslots. For example, an uplink TS pattern of 13 indicates TS1 and TS3 are active uplink timeslots. The default pattern of 123 indicates TS1, TS2, and TS3 are active uplink timeslots. Integer patterns between 1 and 123456 are valid. This setting is used when the Time Reference is set to Uplink TS Pattern.

NOTE. UpPts can also be active, but does not need to be explicitly listed.

Downlink signals can not be active when using the pattern method to determine subframe timing.

■ **Limits...**: Displays the limits editor to set the pass/fail limits for measurements. The limits editor that displays is either the uplink or downlink editor, determined by whether the selected timeslot is an uplink or downlink timeslot. Refer to *Editing the Measurement Limits,* on page 2-65, for more information.

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

Changing the View Contents

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

■ **Grid Style**: Sets the grid style in the view. You can select Off, Fix, or Flex. For Flex, the grid is changed depending on frequency or span setting.

■ **Menu Off**: Hides the side menu. To display the menu again, press the **MENU** side key or **VIEW:DEFINE** key.

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

■ **Auto Scale (Amplitude):** 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 Stop:** Sets the maximum (top) value of the vertical axis.

■ **Full Scale:** Sets all scale values to their default full-scale value.

Timing Parameters for Demodulation Measurements

The timing parameters for the measurements requiring demodulation are global settings; all demodulation measurements use the same parameters. The parameters listed in Table 2--1 affect the following measurements:

Subframe Summary   Timeslot Summary
Modulation Accuracy   Transmit On/Off Mask
Code Domain Power   Symbol Table

You can set the following timing parameters using the TIMING menu when a demodulation measurement is selected. Press the **TIMING** key to open the TIMING menu.

Table 2- 1: Global demodulation timing parameter settings

Parameter	Description
Acquisition Subframes:	Sets the acquisition length in subframes. The range depends on the acquisition memory size and the span setting. A minimum of three subframes is required when phase reference is set to midamble. Seven subframes are required when phase reference is set to pilot.
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 (chips):	Sets the analysis interval in chips. The range depends on the acquisition length. A minimum of three subframes are required when phase reference is set to midamble. Seven subframes are required when phase reference is set to pilot.
Analysis Offset (chips):	Sets the start point of the analysis with respect to the trigger position. In free run, the trigger position is at the left edge of the display. When triggered, the trigger position is set by the trigger position control.
Spectrum Length:	Displays the time length for spectrum processing displayed in the subview. This value is equivalent to one frame acquisition length.
Spectrum Offset (s):	Sets the beginning of the Spectrum Length with respect to the trigger position.

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

Measurement Parameters for Demodulation Measurements

The measurement parameters for the measurements requiring demodulation are global settings; all demodulation measurements use the same parameters. The parameters listed in Table 2-2 affect the following measurements:

Subframe Summary   Timeslot Summary
Modulation Accuracy   Transmit On/Off Mask
Code Domain Power   Symbol Table

You can set the following measurement parameters using the MEAS SETUP menu when a demodulation measurement is selected. Press the **MEAS SETUP** key to open the MEAS SETUP menu.

Table 2-2: Global demodulation measurement parameter settings

Parameter	Description
Analyze	Performs analysis for the time slots in the analysis range. The acquisition must be paused and an acquisition record must be present before an analysis can be made.
Analysis Control...	**NOTE:** *Most analysis control changes do not take effect until the next Run cycle or analysis cycle.*
Demod Frequency Offset (Hz)	Specifies the location of the carrier signal to be analyzed relative to the center frequency. This value is used as a starting point for the demodulation analysis.
Active Channel Threshold (dB)	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 -50 dB to 50 dB.
Time Reference...	
DwPts	Sets the downlink pilot as the time reference for each subframe. This setting should only be used when the downlink pilot is present in the signal under test.
Trigger	Selects the external trigger input connector as the source for the timing reference. An external subframe trigger signal must be supplied to mark the beginning of the subframe. The trigger source setting in the Trigger menu should be set to External. The trigger time reference is useful if the signal under test does not contain a downlink pilot or if the signal level is very low.
Freq. & Phase Reference...	
Midamble	Selects the detected midamble of each timeslot as the frequency and phase reference for demodulation of the remainder of each timeslot. This setting is useful if the signal under test does not contain a downlink pilot.
DwPts	Selects the downlink pilot as the frequency and phase reference for the timeslot. Because there is only one DwPTS per subframe, when the DwPTS is used as a reference, a single phase and frequency estimate is used for every timeslot in the subframe. This reference method should only be used if the DwPTS is active and the timeslots to be analyzed are modulated at the same source as the DwPTS.

Table 2‑2: Global demodulation measurement parameter settings (cont.)

Parameter	Description
Timeslot(s) to be Analyzed...	Determines which timeslots to analyze.
All Active TS	Measurement results are calculated for all active timeslots. Inactive timeslots are ignored. Active timeslots are determined by the Active Timeslot Threshold Level setting.
Current TS Only	Only the currently selected timeslot is analyzed in each subframe. All other timeslots are ignored, even if active. This setting may decrease measurement calculation times.
	With this selection, measurement results are only available for the selected timeslot.
Active Timeslot Threshold (dB)	Sets the threshold that determines if a timeslot is active or inactive. A timeslot that is transmitting above this level is considered active, relative to the maximum power level.
EVM includes I/Q Offset...	Yes or No. Use this setting to include (or exclude) the I/Q offsets in the error vector magnitude results.
Modulation Parameters...	**NOTE:** *Most modulation parameter changes do not take effect until the next Run cycle or analysis cycle.*
Parameter Control...	Selects the method used to set the parameters in this menu.
Auto	The settings are automatically determined without requiring the user to set parameters for the following: Sync-DL, Sync-UL, and Scrambling Code.
Manual	All settings can be individually set without affecting other settings in the menu.
Sync–DL	Sets the code number of the downlink pilot pattern. You can set the value from 0 to 31.
Sync–UL	Sets the code number of the uplink pilot pattern. You can set the value from 0 to 255.
Scrambling Code	Selects the scrambling code. This value is also used for the basic midamble code. You can set the value from 0 to 127.
K for Timeslots 1 through 6	Sets "K" for all timeslots except 0. You can set the value from 2 to 16.
K for Timeslot 0	Sets "K" for timeslot 0. You can set the value from 2 to 16.
Switching Point (timeslot)	Sets the Switching Point between Uplink and Downlink timeslots. You can set the value from 1 to 6.
Measurement Filter Shape	Sets the filter to be used for the measurement. You can select RootRaisedCosine, RaisedCosine, or None. Select the filter based on the filter used for transmission of the signal being tested for accurate measurement results.
	For RF measurements, the filters only affect the numerical measurement readouts, not the waveform displays. For demodulation measurements, the filters can affect the numerical readouts and the waveform displays.
Select Subframe	Selects the subframe to be analyzed. The subframe selection is dependent on the number of subframes that have been analyzed, which is slightly less than the length set as the Analysis Interval in the Timing menu.
	After allowing the instrument to analyze a number of subframes, you can use this control to view the measurement results for a different subframe.

Table 2‑2: Global demodulation measurement parameter settings (cont.)

Parameter	Description
Limits...	Displays the limits editor to set the pass/fail limits for measurements. The limits editor that displays is either the uplink or downlink editor, determined by whether the selected timeslot is an uplink or downlink timeslot.
	The Spectrum Emission Mask has separate limit tables (accessed through the main table) and its own uplink/downlink controls.
	Refer to *Editing the Measurement Limits*, on page 2‑65, for more information.
Select Timeslot	Sets the timeslot (TS) for the current measurement. The control cycles through TS0, DP (downlink pilot), UP (uplink pilot), TS1, TS2, TS3, TS4, TS5, and TS6.
	The timeslot selection is a global setting for all TD‑SCDMA demodulation and RF measurements.
	The timeslot selection (whether it's an uplink or downlink timeslot) also affects the which limits editor menu is displayed (uplink or downlink).
	After allowing the instrument to analyze a number of subframes, you can use this control to view the measurement results for a different timeslot.
Select Code	Sets the channelization code in the timeslot for the measurement. The channelization codes in TD‑SCDMA are called Orthogonal Variable Spreading Factor (OVSF) codes, and can have spreading factors from 1 to 16. You can select codes from 0 to 15, based on a spreading factor of 16. If you want to select a code with a lower spreading factor than 16, you can choose any of the daughter codes at spreading factor 16 to select the mother code at the lower spreading factor. For example, to select code 1 at spreading factor 2, you could select any code from 8 to 15 since these 8 codes are the daughter codes of this mother code.
TPC and SS in Data 2	
Yes	Turns the highlighting on for the TPC and SS bits in the Data 2 burst.
No	Turns the highlighting off for the TPC and SS bits in the Data 2 burst.
TPC and SS Symbol Count	
One	Configures the symbol measurement to assume a TPC and SS symbol length of one.
16/SF	Configures the symbol measurement to assume a TPC and SS symbol length of 16 divided by the spreading factor.

Editing the Measurement Limits

This section describes how to set measurement limits to perform pass/fail testing for the TD-SCDMA measurements.

Refer to *Measurement Limit Defaults* on page 2–72 for information about the default settings of each measurement limit.

Using the Measurement Limits Editor

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

The Limits editor menu is divided into two groups, uplink and downlink limits. The limit menu that displays when you press the Limits... side key is dependent on the currently selected timeslot and the timeslot switching point (except for the SEM measurements). If the timeslot is an uplink timeslot, the uplink limits editor displays. If the timeslot is a downlink timeslot, the downlink limits editor is displayed.

The SEM Limits editor display is dependent on the Uplink or Downlink setting in the SEM measurement parameters.

NOTE. *There are six separate limits editor tables:*
Downlink limit editor (main)
Uplink limit editor (main)
SEM Offset From Channel downlink editor
SEM Offset From Channel uplink editor
SEM Inband Spurious downlink editor
SEM Inband Spurious uplink editor

Figure 2–27 shows the measurement limits editor (downlink) for the TD-SCDMA measurements.

When changing limits, the pass/fail status of the measurements do not update until the next run or analysis cycle (or changing the timeslot, subframe, switching point, or select code). In the case of the transmit on/off masks measurement, the masks are update when exiting the limits editor but the mask region doesn't change until the next run or analysis cycle.

Downlink limit
editor menu
displayed

Figure 2-27: Measurement limits editor

Table 2–3 describes all of the measurement limit items available in the measurement limits editor.

Table 2-3: 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
ACLR 1st Lower Channel	Sets the upper limit for the first lower adjacent channel in the ACLR measurement.	Not settable	-70 to 70
ACLR 1st Upper Channel	Sets the upper limit for the first upper adjacent channel in the ACLR measurement.	Not settable	-70 to 70
ACLR 2nd Lower Channel	Sets the upper limit for the second lower adjacent channel in the ACLR measurement.	Not settable	-70 to 70
ACLR 2nd Upper Channel	Sets the upper limit for the second upper adjacent channel in the ACLR measurement.	Not settable	-70 to 70
Intermod 3rd Order	Sets the upper limit of the third harmonic distortion component for the Intermodulation measurement.	Not settable	-200 to 200 dBc

Table 2‑3: Measurement limits items (cont.)

Limit item	Description	Lower limit range	Upper limit range
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 measure-ment limits editor to edit SEM offset from channel limits. Refer to page 2‑69.	------------------	------------------
SEM Inband Spurious	Select this item to access another measure-ment limits editor to edit SEM Inband spurious limits. Refer to page 2‑69.	------------------	------------------
Composite RMS EVM	Sets the upper limit for the RMS EVM measurement.	Not settable	0 to 100%
Composite 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
OBW	Sets the upper and lower limits for the OBW measurement.	0 to 30 MHz	0 to 30 MHz
Tx OFF Level	Sets the upper limit of the mask region not part of the mid-ramp region in the transmit on/off mask measurement.	Not settable	–100 to 100
Tx OFF Mid-Ramp Level	Sets the upper limit of the mid-ramp power within the mid-ramp region in the transmit on/off mask measurement.	Not settable	–100 to 100

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 menu and editor.

3. Press the **Select row to edit** side key.

4. Turn the general purpose knob or press the up/down 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.

NOTE. *The Default all limits side key resets the limit settings to their default values of the currently displayed limits editor table. Other limit editor tables are not affected.*

When you want to set limits for the spectrum emission mask, perform the following steps to open the SEM measurement limits editor:

1. Press the **Select row to edit** side key.

2. Turn the general purpose knob or press the up/down arrow keys to select SEM Offset From Channel or SEM Inband Spurious.

3. Press the **Edit SEM Offset Limits...** or **Edit SEM Inband Limits...** side key. This opens the limits editor to set more complex limits. Refer to *Setting the Spectrum Emission Mask Limits,* on page 2–69, for more information about the SEM limit tables.

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 2–28 shows the measurement limits editor for the Spectrum Emission Offset From Channel measurement.
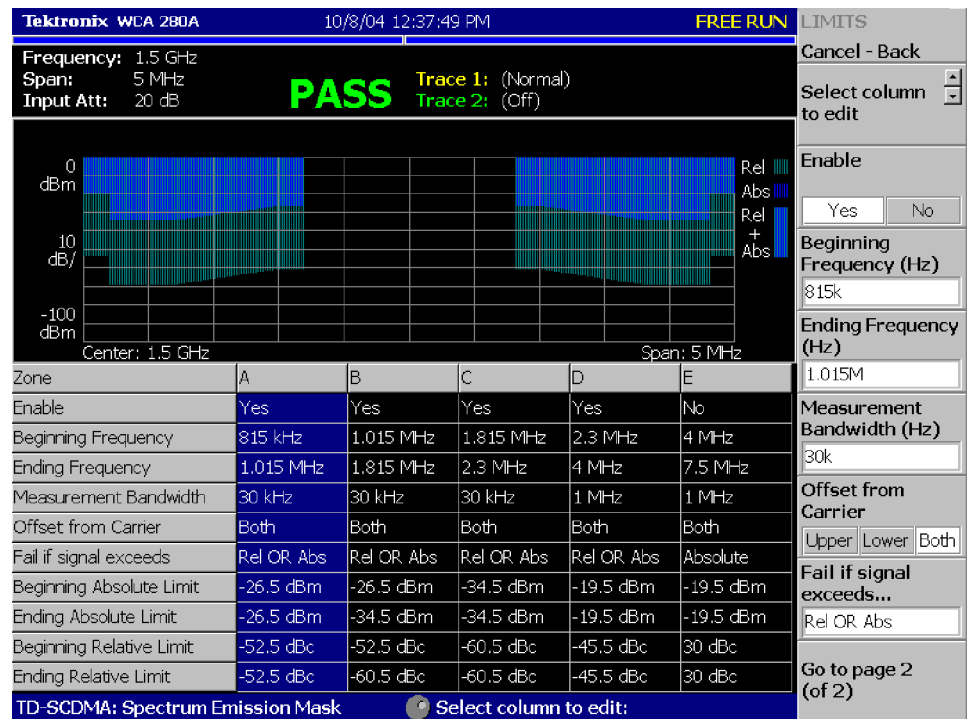
Figure 2‑28: Spectrum emission mask measurement limits editor

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

Table 2‑4: Measurement limit items for the spectrum emission mask measurements

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 GHz to 3 GHz (WCA230A) -8 GHz to 8 GHz (WCA280A)
Ending Frequency	Sets the ending frequency for the zone.	-3 GHz to 3 GHz (WCA230A) -8 GHz to 8 GHz (WCA280A)
Measurement Bandwidth	Sets the measurement bandwidth.	1kHz to 10 MHz (WCA230A) (WCA280A)

Table 2‑4: Measurement limit items for the spectrum emission mask measurements (cont.)

Item	Description	Limit ranges
Offset from Carrier [1]	Specifies which offset side is to be measured You can select Upper (positive), Lower (negative), or Both.	------------------
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 dBm to 200 dBm
Ending Absolute Limit	Sets an absolute level limit at Ending Frequency.	-200 dBm to 200 dBm
Beginning Relative Limit	Sets a relative level limit at Beginning Frequency.	-200 dBm to 200 dBc
Ending Relative Limit	Sets a relative level limit at Ending Frequency.	-200 dBm to 200 dBc

[1] The Offset from Carrier limit is only available for the SEM Offset From Channel limit editor menu.

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

1. Press the **Select column to edit** side key.

2. Turn the general purpose knob or press the up/down 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 general purpose knob or the up/down arrow keys to set the value.

5. Press the **Default limits** side key if you want to reset all limits (of the displayed limits table) to their default values. Refer to *Measurement Limit Defaults,* on page 2‑72, for the default settings of each measurement limit.

6. Press the **Rescale Graph** side key to scale the graph to match the new limits.

Saving and Loading Measurement Limits

Measurement limits set in the measurement limits editor can be saved as a file and loaded from a file. Both the uplink and downlink limits are saved in the same 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 a spectrum emission mask measurement limits editor, press the **Cancel-Back** (MENU) side key to return the measurement limit editor.

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.

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 2-9 list the default limit settings used to perform the pass/file testing for the TD-SCDMA measurements. Refer to *Using the Measurement Limits Editor* on page 2-65 for procedures to edit the measurement limits.

Tables 2-5 and 2-6 list the default limit settings for the downlink and uplink measurements (excluding SEM). Tables 2-8 through 2-9 list the default limit settings for the downlink and uplink SEM measurements.

NOTE. *The Default all limits and Default limits side keys reset the limit settings to their default values of the currently displayed limits editor table. Other limit editor tables are not affected.*

Table 2-5: Downlink main table default limits

Limit item	Enable	Lower	Upper	Units
Channel power	No	-150	N/A	dBm
ACLR 1st Lower Channel	Yes	39.2	N/A	dB
ACLR 1st Upper Channel	Yes	39.2	N/A	dB
ACLR 2nd Lower Channel	Yes	44.2	N/A	dB
ACLR 2nd Upper Channel	Yes	44.2	N/A	dB
Intermod 3rd Order	Yes	N/A	-39.2	dBc
Intermod 5th Order	Yes	N/A	-44.2	dBc
Composite RMS EVM	Yes	N/A	12.5	percent
Composite Peak EVM	No	N/A	31	percent
Peak Code Domain Error	Yes	N/A	-27	dB
Rho	No	0.9846	N/A	N/A
OBW	Yes	N/A	1.6M	Hz
Tx OFF Level	Yes	N/A	-80	dBm
Tx OFF Mid-Ramp Level	Yes	N/A	-41.3	dBm

Table 2-6: Uplink main table default limits

Limit item	Enable	Lower	Upper	Units
Channel power	No	-150	N/A	dBm
ACLR 1st Lower Channel	Yes	33	N/A	dB
ACLR 1st Upper Channel	Yes	33	N/A	dB
ACLR 2nd Lower Channel	Yes	43	N/A	dB

Table 2‑6: Uplink main table default limits (cont.)

Limit item	Enable	Lower	Upper	Units
ACLR 2nd Upper Channel	Yes	43	N/A	dB
Intermod 3rd Order	Yes	N/A	−31	dBc
Intermod 5th Order	Yes	N/A	−41	dBc
Composite RMS EVM	Yes	N/A	17.5	percent
Composite Peak EVM	No	N/A	31	percent
Peak Code Domain Error	Yes	N/A	−21	dB
Rho	No	0.9703	N/A	N/A
OBW	Yes	N/A	1.6M	Hz
Tx OFF Level	Yes	N/A	−65	dBm
Tx OFF Mid-Ramp Level	Yes	N/A	−50.0	dBm

Table 2‑7: Downlink SEM offset from channel default limits

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	No
Beginning Frequency	815 kHz	1.015 MHz	1.815 MHz	2.3 MHz	4 MHz
Ending Frequency	1.015 MHz	1.815 MHz	2.3 MHz	4 MHz	7.5 MHz
Measurement Bandwidth	30 kHz	30 kHz	30 KHz	1 MHz	1 MHz
Offset from Carrier	Both	Both	Both	Both	Both
Fail if signal exceeds	Rel OR Abs	Rel OR Abs	Rel OR Abs	Rel OR Abs	Absolute
Beginning Absolute Limit	-26.5 dBm	-26.5 dBm	-34.5 dBm	-19.5 dBm	-19.5 dBm
Ending Absolute Limit	-26.5 dBm	-34.5 dBm	-34.5 dBm	-19.5 dBm	-19.5 dBm
Beginning Relative Limit	-52.5 dBm	-52.5 dBm	-60.5 dBc	-45.5 dBc	30 dBc
Ending Relative Limit	-52.5 dBm	-60.5 dBc	-60.5 dBc	-45.5 dBc	30 dBc

Table 2‑8: Uplink SEM offset from channel default limits

Zone	A	B	C	D	E
Enable	Yes	Yes	Yes	Yes	No
Beginning Frequency	815 kHz	1.815 MHz	2.385 MHz	2.9 MHz	3.5 MHz
Ending Frequency	1.815 MHz	2.385 MHz	2.9 MHz	3.5 MHz	7.5 MHz
Measurement Bandwidth	30 kHz	30 kHz	30 KHz	1 MHz	1 MHz
Offset from Carrier	Both	Both	Both	Both	Both
Fail if signal exceeds	Rel OR Abs	Rel OR Abs	Rel OR Abs	Rel OR Abs	Absolute

Table 2‑8: Uplink SEM offset from channel default limits (cont.)

Zone	A	B	C	D	E
Beginning Absolute Limit	-55 dBm	-55 dBm	-55 dBm	-55 dBm	-55 dBm
Ending Absolute Limit	-55 dBm	-55 dBm	-55 dBm	-55 dBm	-55 dBm
Beginning Relative Limit	-35 dBm	-49 dBc	-54 dBc	-49 dBc	30 dBc
Ending Relative Limit	-49 dBc	-54 dBc	-54 dBc	-49 dBc	30 dBc

Table 2‑9: Downlink SEM inband spurious default limits

Zone	A	B	C	D	E
Enable	Yes	Yes	No	No	No
Beginning Frequency	30 MHz	1 GHz	1.84 GHz	2.035 GHz	3 GHz
Ending Frequency	1 GHz	1.84 GHz	2.035 GHz	3 GHz	8 GHz
Measurement Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz	1 MHz
Fail if signal exceeds	Absolute	Absolute	Absolute	Absolute	Absolute
Beginning Absolute Limit	-36 dBm	-30 dBm	-15 dBm	-30 dBm	-30 dBm
Ending Absolute Limit	-36 dBm	-30 dBm	-15 dBm	-30 dBm	-30 dBm
Beginning Relative Limit	30 dBc	30 dBc	30 dBc	30 dBc	30 dBc
Ending Relative Limit	30 dBc	30 dBc	30 dBc	30 dBc	30 dBc

Table 2‑10: Uplink SEM inband spurious default limits

Zone	A	B	C	D	E
Enable	Yes	Yes	No	No	No
Beginning Frequency	30 MHz	1 GHz	925 MHz	935 MHz	1.805 GHz
Ending Frequency	1 GHz	3 GHz	935 MHz	960 MHz	1.88 GHz
Measurement Bandwidth	100 kHz	100 kHz	100 kHz	100 kHz	100 kHz
Fail if signal exceeds	Absolute	Absolute	Absolute	Absolute	Absolute
Beginning Absolute Limit	-36 dBm	-30 dBm	-15 dBm	-30 dBm	-30 dBm
Ending Absolute Limit	-36 dBm	-30 dBm	-15 dBm	-30 dBm	-30 dBm
Beginning Relative Limit	30 dBc	30 dBc	30 dBc	30 dBc	30 dBc
Ending Relative Limit	30 dBc	30 dBc	30 dBc	30 dBc	30 dBc

Syntax and Commands

GPIB Commands

This section shows the organization of the Option 28 commands in a number of functional groups.

For detailed information about other commands that 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 set the measurement mode to TD-SCDMA before executing any commands for Option 28. To set the measurement mode, use the command :INSTrument[:SELect] DEMTD_SCDMA.

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

:CONFigure Commands

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

Table 3‑1: :CONFigure commands

Header	Description
:CONFigure:TD_SCDMA:ACLR	Sets up the analyzer to the adjacent channel leakage power ratio default settings.
:CONFigure:TD_SCDMA:CDPower	Sets up the analyzer to the code domain power measurement default settings.
:CONFigure:TD_SCDMA:CHPower	Sets up the analyzer to the channel power measurement default settings.
:CONFigure:TD_SCDMA:IM	Sets up the analyzer to the intermodulation measurement default settings.
:CONFigure:TD_SCDMA:MACCuracy	Sets up the analyzer to the modulation accuracy measurement default settings.
:CONFigure:TD_SCDMA:OBWidth	Sets up the analyzer to the occupied bandwidth measurement default settings.
:CONFigure:TD_SCDMA:SEMask	Sets up the analyzer to the spectrum emission mask measurement default settings.
:CONFigure:TD_SCDMA:SFSummary	Sets up the analyzer to the subframe summary measurement default settings.
:CONFigure:TD_SCDMA:STABle	Sets up the analyzer to the symbol table default settings.
:CONFigure:TD_SCDMA:TOOMask	Sets up the analyzer to the default settings for the transmit on/off mask measurement under the TD-SCDMA standard.
:CONFigure:TD_SCDMA:TSSummary	Sets up the analyzer to the timeslot summary measurement default settings.

:DISPlay Commands

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

Table 3‑2: :DISPlay commands

Header	Description
:DISPlay:TD_SCDMA:DDEMod:MVIew subgroup	
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat(?)	Sets or queries the main view display format.
:DISPlay:TD_SCDMA:DDEMod:MVIew:RADix(?)	Sets or queries the base of symbols on the main view during the TD-SCDMA analysis.

Table 3-2: :DISPlay commands (cont.)

Header	Description
:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:OFFSet(?)	Sets or queries the minimum horizontal value (left end) in the main view.
:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:PDIVision(?)	Sets or queries the horizontal, or time, scale (per division) in the mainview.
:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:RANGe(?)	Sets or queries the horizontal full-scale value in the main view.
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:FIT	Runs auto-scale on the main view.
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:FULL	Sets the main view vertical axis to the default full-scale value.
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:OFFSet(?)	Sets or queries the minimum vertical value in the main view (bottom end) during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PDIVision(?)	Sets or queries the vertical, or power, scale (per division) in the main view.
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PUNit(?)	Sets or queries the unit of the vertical axis in the main view.
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:RANGe(?)	Sets or queries the main view minimum vertical value (bottom end).
:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol[:STARt]	Sets the zoom to the transmit mask start in the main view during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:END	Sets the zoom to the transmit mask end in the main view during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:MRPower	Sets the zoom to the maximum transmit mid-ramp power in the main view during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:OPOWer	Sets the zoom to the maximum transmit off power in the main view during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:TSLot[:START]	Sets the zoom to the timeslot start in the main view during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:SVIew subgroup	
:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat(?)	Sets or queries the subview display format.
:DISPlay:TD_SCDMA:DDEMod:SVIew:RADix(?)	Sets or queries the base of symbols on the subview during the TD-SCDMA analysis.
:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:OFFSet(?)	Sets or queries the minimum horizontal value (left end) in the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:PDIVision(?)	Sets or queries the horizontal, or time, scale (per division) in the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:RANGe(?)	Sets or queries the horizontal full-scale value in the subview.

Table 3‑2: :DISPlay commands (cont.)

Header	Description
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:FIT	Runs auto-scale on the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:FULL	Sets the subview vertical axis to the default full-scale value.
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:OFFSet(?)	Sets or queries the minimum vertical value (bottom end) in the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PDIVision(?)	Sets or queries the vertical, or power, scale (per division) in the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PUNit(?)	Sets or queries the unit on the Y, or power, axis in the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:RANGe(?)	Sets or queries the vertical full-scale value in the subview.
:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol[:STARt]	Sets the zoom to the transmit mask start in the subview during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol:END	Sets the zoom to the transmit mask end in the subview during the digital modulation related measurement.
:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:TSLot[:START]	Sets the zoom to the timeslot start in the subview during the digital modulation related measurement.
:DISPlay:TD_SCDMA:SPECtrum subgroup	
:DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:OFFSet(?)	Sets or queries the minimum value (left end) of the horizontal axis (frequency) in the spectrum view.
:DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:PDIVision(?)	Sets or queries the horizontal scale in the spectrum view.
:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:FIT	Runs auto-scale on the spectrum view.
:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:FULL	Sets the vertical axis to the default full-scale value.
:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:OFFSet(?)	Sets or queries the minimum vertical value (bottom end) in the spectrum view.
:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:PDIVision(?)	Sets or queries the vertical, or power, scale in the spectrum view.

:FETCh Commands

Use the :FETCh 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 3‑3: :FETCh commands

Header	Description
:FETCh:TD_SCDMA:ACLR?	Returns the adjacent channel leakage power ratio measurement results.
:FETCh:TD_SCDMA:CDPower?	Returns the code domain power measurement results.
:FETCh:TD_SCDMA:CHPower?	Returns the channel power measurement results.
:FETCh:TD_SCDMA:IM?	Returns the intermodulation measurement results.
:FETCh:TD_SCDMA:MACCuracy?	Returns the modulation accuracy measurement results.
:FETCh:TD_SCDMA:OBWidth?	Returns the occupied bandwidth measurement results.
:FETCh:TD_SCDMA:SEMask?	Returns the spectrum emission mask measurement results.
:FETCh:TD_SCDMA:SFSummary?	Returns the subframe summary measurement results.
:FETCh:TD_SCDMA:STABle?	Returns the symbol table measurement results.
:FETCh:TD_SCDMA:TOOMask?	Returns the results of the transmit on/off mask measurement under the TD-SCDMA standard.
:FETCh:TD_SCDMA:TSSummary?	Returns the timeslot summary measurement results.
:FETCh:TD_SCDMA:SPECtrum:ACLR?	Returns the spectrum waveform data of the adjacent channel leakage power ratio (ACLR) measurement.
:FETCh:TD_SCDMA:SPECtrum:CHPower?	Returns the spectrum waveform data of the channel power measurement.
:FETCh:TD_SCDMA:SPECtrum:IM?	Returns the spectrum waveform data of the intermodulation measurement.
:FETCh:TD_SCDMA:SPECtrum:OBWidth?	Returns the spectrum waveform data of the occupied bandwidth measurement.
:FETCh:TD_SCDMA:SPECtrum:SEMask?	Returns the spectrum waveform data of the spectrum emission mask (SEM) measurement.
:FETCh:TD_SCDMA:TAMPlitude:SFSummary?	Returns the time domain amplitude data of subframe summary measurement results.
:FETCh:TD_SCDMA:TAMPlitude:TOOMask?	Returns the results of the time domain amplitude data of the transmit on/off mask measurement under the TD-SCDMA standard.
:FETCh:TD_SCDMA:TAMPlitude:TSSummary?	Returns the time domain amplitude data of timeslot summary measurement results.

:READ Commands

Use the :READ 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 3‐4: :READ commands

Header	Description
:READ:TD_SCDMA:ACLR?	Returns the adjacent channel leakage power ratio measurement results.
:READ:TD_SCDMA:CHPower?	Returns the channel power measurement results.
:READ:TD_SCDMA:IM?	Returns the intermodulation measurement results.
:READ:TD_SCDMA:OBWidth?	Returns the occupied bandwidth measurement results.
:READ:TD_SCDMA:SEMask?	Returns the spectrum emission mask measurement results.
:READ:TD_SCDMA:SPECtrum:ACLR?	Returns the spectrum waveform data of the adjacent channel leakage power ratio (ACLR) measurement.
:READ:TD_SCDMA:SPECtrum:CHPower?	Returns the spectrum waveform data of the channel power measurement.
:READ:TD_SCDMA:SPECtrum:IM?	Returns the spectrum waveform data of the intermodulation measurement.
:READ:TD_SCDMA:SPECtrum:SEMask?	Returns the spectrum waveform data of the spectrum emission mask (SEM) measurement.
:READ:TD_SCDMA:SPECtrum:OBWidth?	Returns the spectrum waveform data of the occupied bandwidth measurement.

:SENSe Commands

Use the :SENSe commands to set the detailed measurement conditions.

Table 3‑5: :SENSe commands

Header	Description
[:SENSe]:TD_SCDMA subgroup	
[:SENSe]:TD_SCDMA:BLOCk(?)	Sets or queries the number of the block to be measured.
[:SENSe]:TD_SCDMA:FILTer:MEASurement(?)	Sets or queries the measurement filter for the current measurement.
[:SENSe]:TD_SCDMA[:IMMediate]	Starts the calculation for the acquired data.
[:SENSe]:TD_SCDMA:MEASurement(?)	Sets or queries the measurement item.
[:SENSe]:TD_SCDMA:ACQuisition subgroup	
[:SENSe]:TD_SCDMA:ACQuisition:SFRames(?)	Sets or queries the acquisition length in subframes.
[:SENSe]:TD_SCDMA:ACQuisition:HISTory(?)	Sets or queries the acquisition history.
[:SENSe]:TD_SCDMA:ACQuisition:SEConds(?)	Sets or queries the acquisition length in seconds.
[:SENSe]:TD_SCDMA:ANALysis subgroup	
[:SENSe]:TD_SCDMA:ANALysis:CHANnel:THReshold(?)	Sets or queries the threshold for the channel measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:ANALysis:INTerval(?)	Sets or queries the analysis interval in chips.
[:SENSe]:TD_SCDMA:ANALysis:OFFSet[:CHIPs](?)	Sets or queries the analysis offset in chips.
[:SENSe]:TD_SCDMA:ANALysis:OFFSet:DFRequency(?)	Sets or queries the demod frequency offset.
[:SENSe]:TD_SCDMA:ANALysis:OFFSet:IQ(?)	Sets or queries the EVM includes I/Q offset.
[:SENSe]:TD_SCDMA:ANALysis:REFerence:SFRame(?)	Sets or queries the subframe reference in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:ANALysis:Reference:TFPHase(?)	Sets or queries the subframe reference in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:ANALysis:TSLot:(?)	Sets or queries the timeslot(s) to be analyzed in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:ANALysis:TSLot:THReshold(?)	Sets or queries the level relative to the pilot which must be exceeded to identify a timeslot as active.
[:SENSe]:TD_SCDMA:SPECtrum subgroup	
[:SENSe]:TD_SCDMA:SPECtrum:OFFSet(?)	Sets or queries the spectrum offset within the time window.
[:SENSe]:TD_SCDMA:SPECtrum:TINTerval(?)	Sets or queries the length of the time-domain information used to construct the spectrum trace.
[:SENSe]:TD_SCDMA:SELect subgroup	
[:SENSe]:TD_SCDMA:SELect:CODE(?)	Sets or queries the selected code.

Table 3‑5: :SENSe commands (cont.)

Header	Description
[:SENSe]:TD_SCDMA:SELect:SFRame(?)	Sets or queries the selected subframe.
[:SENSe]:TD_SCDMA:SELect:TSLot(?)	Sets or queries the selected timeslot.
[:SENSe]:TD_SCDMA:MODulation subgroup	
[:SENSe]:TD_SCDMA:MODulation:CONTrol(?)	Sets or queries the method used to set other modulation parameters.
[:SENSe]:TD_SCDMA:MODulation:K:NZERo(?)	Sets or queries the "K" for all timeslots except 0.
[:SENSe]:TD_SCDMA:MODulation:K:ZERO(?)	Sets or queries the "K" for timeslot 0.
[:SENSe]:TD_SCDMA:MODulation:SCODe(?)	Sets or queries the scrambling code.
[:SENSe]:TD_SCDMA:MODulation:SPOint(?)	Sets or queries the switching point between uplink and downlink timeslots.
[:SENSe]:TD_SCDMA:MODulation:SYNC:DOWNlink(?)	Sets or queries the Sync_DL value.
[:SENSe]:TD_SCDMA:MODulation:SYNC:UPLink(?)	Sets or queries the Sync_UL value.
[:SENSe]:TD_SCDMA:CHPower subgroup	
[:SENSe]:TD_SCDMA:CHPower:BANDwidth|BWIDth:INTegration(?)	Sets or queries the channel bandwidth for the channel power measurement.
[:SENSe]:TD_SCDMA:CHPower:DIRection?	Queries which limit table is used for the channel power measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:CHPower:LIMit[:STATe](?)	Sets or queries whether to enable or disable the limit testing for the channel power measurement.
[:SENSe]:TD_SCDMA:ACLR subgroup	
[:SENSe]:TD_SCDMA:ACLR:DIRection?	Queries which limit table is used for the ACLR measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:ACLR:LIMit:ADJacent[1]|2|3|4[:STATe](?)	Sets or queries the enable or disable adjacent limit testing for the ACLR measurement.

Table 3- 5: :SENSe commands (cont.)

Header	Description
[:SENSe]:TD_SCDMA:MACCuracy subgroup	
[:SENSe]:TD_SCDMA:MACCuracy:DIRection?	Queries which limit table is used for the modulation accuracy measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:EVM:PEAK[:STATe](?)	Sets or queries whether to enable or disable the peak EVM limit testing for the modulation accuracy measurement.
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:EVM:RMS[:STATe](?)	Sets or queries whether to enable or disable the RMS EVM limit testing for the modulation accuracy measurement.
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:PCDerror[:STATe](?)	Sets or queries whether to enable or disable the peak code domain error limit testing for the code domain power measurement.
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:RHO[:STATe](?)	Sets or queries whether to enable or disable the Rho limit testing for the modulation accuracy measurement.
[:SENSe]:TD_SCDMA:STABle subgroup	
[:SENSe]:TD_SCDMA:STABle:TPCSs:COUNt(?)	Sets or queries the TPC and SS symbol count.
[:SENSe]:TD_SCDMA:STABle:TPCSs:SELect(?)	Sets or queries the TPC and SS in the Data2 burst.
[:SENSe]:TD_SCDMA:IM subgroup	
[:SENSe]:TD_SCDMA:IM:BANDwidth|BWIDth:INTegration(?)	Sets or queries the bandwidth of the main channel for the intermodulation measurement.
[:SENSe]:TD_SCDMA:IM:DIRection?	Queries which limit table is used for the IM measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:IM:LIMit:FORDer[:STATe](?)	Sets or queries whether to enable or disable the fifth order limit testing for the intermodulation measurement.
[:SENSe]:TD_SCDMA:IM:LIMit:TORDer[:STATe](?)	Sets or queries whether to enable or disable the third order limit testing for the intermodulation measurement.
[:SENSe]:TD_SCDMA:IM:SCOFfset(?)	Sets the frequency of the second channel for the intermodulation accuracy measurement.
[:SENSe]:TD_SCDMA:SEMask subgroup	
[:SENSe]:TD_SCDMA:SEMask:BANDwidth|BWIDth:INTegration(?)	Sets or queries the channel bandwidth for the spectrum emission mask measurement.
[:SENSe]:TD_SCDMA:SEMask:DIRection(?)	Sets or queries which limit table is used for the spectrum emission mask measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5[:STATe](?)	Sets or queries whether to enable or disable the offset from the inband spurious zone limit testing for the spectrum emission mask measurement in the TD-SCDMA analysis.

Table 3‑5: :SENSe commands (cont.)

Header	Description
[:SENSe]:TD_SCDMA:SEMask:LIMitOFCHannel:ZONE[1]|2|3|4|5[:STATe](?)	Sets or queries the enable or disable zone limit checking for the spectrum emission mask measurement.
[:SENSe]:TD_SCDMA:SEMask:MEASurement(?)	Sets or queries the limit table type used for limit testing for the spectrum emission mask measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE(?)	Sets or queries the reference channel level mode for measuring the spurious emission level.
[:SENSe]:TD_SCDMA:SEMask:RCHannel:LEVel(?)	Sets or queries the reference channel level for measuring the spurious emission level.
[:SENSe]:TD_SCDMA:TOOMask subgroup	
[:SENSe]:TD_SCDMA:TOOMask:DIRection?	Queries which limit table is used for the transmit on/off mask measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:ONOFf[:STATe](?)	Sets or queries the enable or disable transmit on/off limit checking for the transmit on/off mask measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:MRAMp[:STATe](?)	Sets or queries the enable or disable transmit on/off mid-ramp level limit checking for the transmit on/off mask measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:OBWidth Subgroup	
[:SENSe]:TD_SCDMA:OBWidth:DIRection?	Queries which limit table is used for the occupied bandwidth measurement in the TD-SCDMA analysis.
[:SENSe]:TD_SCDMA:OBWidth:LIMit[:STATe](?)	Sets or queries whether to enable or disable the limit testing for the occupied bandwidth measurement.
[:SENSe]:TD_SCDMA:OBWidth:PERcent(?)	Sets or queries the occupied bandwidth for the occupied bandwidth measurement.

:MMEMory Commands

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

Table 3‑6: :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.

:CONFigure Commands

The :CONFigure commands set up the analyzer to the default settings for the specified measurement under the TD-SCDMA standard.

Command Tree

```
:CONFigure
    :TD_SCDMA
        :ACLR
        :CDPower
        :CHPower
        :IM
        :MACCuracy
        :OBWidth
        :SEMask
        :SFSummary
        :STABle
        :TOOMask
        :TSSummary
```

:CONFigure:TD_SCDMA:ACLR

Sets up the analyzer to the default settings for the ACLR measurement under the TD-SCDMA standard.

Syntax   :CONFigure:TD_SCDMA:ACLR

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :CONFigure:TD_SCDMA:ACLR
Sets up the analyzer to the default settings for the ACLR measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:CONFigure:TD_SCDMA:CDPower

Sets up the analyzer to the default settings for the code domain power measurement under the TD-SCDMA standard.

Syntax   :CONFigure:TD_SCDMA:CDPower

Arguments   None

Measurement Modes	DEMTD_SCDMA
Example	`:CONFigure:TD_SCDMA:CDPower` Sets up the analyzer to the default settings for the code domain power measurement under the TD-SCDMA standard.
Related Commands	`:INSTrument[:SELect]`

:CONFigure:TD_SCDMA:CHPower

Sets up the analyzer to the default settings for the channel power measurement under the TD-SCDMA standard.

Syntax	`:CONFigure:TD_SCDMA:CHPower`
Arguments	None
Measurement Modes	DEMTD_SCDMA
Example	`:CONFigure:TD_SCDMA:CHPower` Sets up the analyzer to the default settings for the channel power measurement under the TD-SCDMA standard.
Related Commands	`:INSTrument[:SELect]`

:CONFigure:TD_SCDMA:IM

Sets up the analyzer to the default settings for the intermodulation measurement under the TD-SCDMA standard.

Syntax	`:CONFigure:TD_SCDMA:IM`
Arguments	None
Measurement Modes	DEMTD_SCDMA
Example	`:CONFigure:TD_SCDMA:IM` Sets up the analyzer to the default settings for the intermodulation measurement under the TD-SCDMA standard.
Related Commands	`:INSTrument[:SELect]`

:CONFigure:TD_SCDMA:MACCuracy

Sets up the analyzer to the default settings for the modulation accuracy measurement under the TD-SCDMA standard.

Syntax	`:CONFigure:TD_SCDMA:MACCuracy`

Arguments	None
Measurement Modes	DEMTD_SCDMA
Example	:CONFigure:TD_SCDMA:MACCuracy Sets up the analyzer to the default settings for the modulation accuracy measurement under the TD-SCDMA standard.
Related Commands	:INSTrument[:SELect]

:CONFigure:TD_SCDMA:OBWidth

Sets up the analyzer to the default settings for the occupied bandwidth measurement under the TD-SCDMA standard.

Syntax	:CONFigure:TD_SCDMA:OBWidth
Arguments	None
Measurement Modes	DEMTD_SCDMA
Example	:CONFigure:TD_SCDMA:OBWidth Sets up the analyzer to the default settings for the occupied bandwidth measurement under the TD-SCDMA standard.
Related Commands	:INSTrument[:SELect]

:CONFigure:TD_SCDMA:SEMask

Sets up the analyzer to the default settings for the spectrum emission mask measurement under the TD-SCDMA standard.

Syntax	:CONFigure:TD_SCDMA:SEMask
Arguments	None
Measurement Modes	DEMTD_SCDMA
Example	:CONFigure:TD_SCDMA:SEMask Sets up the analyzer to the default settings for the spectrum emission mask measurement under the TD-SCDMA standard.
Related Commands	:INSTrument[:SELect]

:CONFigure:TD_SCDMA:SFSummary

Sets up the analyzer to the default settings for the subframe summary measurement under the TD-SCDMA standard.

Syntax :CONFigure:TD_SCDMA:SFSummary

Arguments None

Measurement Modes DEMTD_SCDMA

Example :CONFigure:TD_SCDMA:SFSummary
Sets up the analyzer to the default settings for the subframe summary measurement under the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:CONFigure:TD_SCDMA:STABle

Sets up the analyzer to the default settings for the symbol table under the TD-SCDMA standard.

Syntax :CONFigure:TD_SCDMA:STABle

Arguments None

Measurement Modes DEMTD_SCDMA

Example :CONFigure:TD_SCDMA:STABle
Sets up the analyzer to the default settings for the symbol table under the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:CONFigure:TD_SCDMA:TOOMask

Sets up the analyzer to the default settings for the transmit on/off mask measurement under the TD-SCDMA standard.

Syntax :CONFigure:TD_SCDMA:TOOMask

Arguments None

Measurement Modes DEMTD_SCDMA

Example :CONFigure:TD_SCDMA:TOOMask
Sets up the analyzer to the default settings for the transmit on/off mask measurement under the TD-SCDMA standard.

Related Commands   `:INSTrument[:SELect]`

:CONFigure:TD_SCDMA:TSSummary

Sets up the analyzer to the default settings for the timeslot summary under the TD-SCDMA standard.

Syntax   `:CONFigure:TD_SCDMA:TSSummary`

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   `:CONFigure:TD_SCDMA:TSSummary`
Sets up the analyzer to the default settings for the timeslot summary under the TD-SCDMA standard.

Related Commands   `:INSTrument[:SELect]`

:DISPlay Commands

The :DISPlay commands control how measurement data is shown on the screen.

:DISPlay:TD_SCDMA:DDEMod:MVIew Subgroup

The :DISPlay:TD_SCDMA:DDEMod commands control display of the mainview for the digital modulation related measurement under TD-SCDMA standard.

Command Tree

```
:DISPlay
    :TD_SCDMA
        :DDEMod
            :MView
                :FORMat              MACCuracy|SCONste|EVM|MERRor|
                                     PERRor|CDPower|CVSFrame|
                                     CVSYmbol|PCGRam|TPVTime|LPVTime|
                                     SPVTime|STable
                :RADix               BINary|OCTal|HEXadecimal
                :X
                    [:SCALe]
                        :OFFSet      <numeric_value>
                        :PDIVision   <numeric_value>
                        :RANGe       <numeric_value>
                :Y
                    [:SCALe]
                        :FIT
                        :FULL
                        :OFFSet      <numeric_value>
                        :PDIVision   <numeric_value>
                        :PUNit       RELative|ABSolute
                        :RANGe       <numeric_value>
                :ZOOM
                    :MCONtrol
                        [:STARt]
                        :END
                        :MRPower     <numeric_value>
                        :OPOWer      <numeric_value>
                    :TSLot
                        [:START]
```

:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat(?)

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

Syntax
```
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat
{MACCuracy|SCONste|EVM|MERRor|PERRor|CDPower|CVSFrame|CVSYmbol|
PCGRam|TPVTime|LPVTime|SPVTime|STABle}
```

```
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat?
```

Arguments
The arguments and display formats are listed below:

Argument	Display format
MACCuracy	Modulation accuracy
SCONste	Symbol constellation
EVM	Error vector magnitude (EVM)
MERRor	Amplitude (magnitude) error
PERRor	Phase error
CDPower	Code domain power
CVSFrame	Code domain power versus subframe
CVSYmbol	Code domain power versus symbol
PCGRam	Power codogram
TPVTime	Timeslot power versus time
SPVTime	Subframe power versus time
STABle	Symbol table

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

Measurement Modes
DEMTD_SCDMA

Example
```
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat CDPower
```
selects the code domain power measurement under the TD-SCDMA standard.

Related Commands
```
:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat
[:SENSe]:TD_SCDMA:MEASurement
```

:DISPlay:TD_SCDMA:DDEMod:MVIew:RADix(?)

Sets or queries the base of symbols on the main view during the TD-SCDMA analysis.

NOTE. This command is only valid when :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to STABle.

Syntax
:DISPlay:TD_SCDMA:DDEMod:MVIew:RADix {BINary|OCTal|HEXadecimal}

:DISPlay:TD_SCDMA:DDEMod:MVIew:RADix?

Arguments
The arguments and base display are listed below:

Argument	Base
BINary	Binary notation
OCTal	Octal notation
HEXadecimal	Hexadecimal notation

Measurement Modes
DEMTD_SCDMA

Example
:DISPlay:TD_SCDMA:DDEMod:MVIew:RADix BINary
sets the main view display to show the symbols in binary under the TD-SCDMA standard.

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

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

NOTE. This command is not available when :DISPlay:TD_SCDMA:DDE-Mod:MVIew:FORMat is set to MACCuracy.

Syntax
:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:OFFset <numeric_value>

:DISPlay:TD_SCDMA: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
DEMTD_SCDMA

Example `:DISPlay:TD_SCDMA:DDEMod:MVIew:X:SCALe:OFFSet 10`
sets the minimum horizontal value to 10 chips when the main view displays
EVM under the TD-SCDMA standard.

Related Commands `:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat`

:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:PDIVision(?)

Sets or queries the horizontal, or time, scale (per division) in the main view.

Syntax `:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:PDIVision`
`<numeric_value>`

`:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:PDIVision?`

NOTE. *This command is available when :DISPlay:TD_SCDMA:DDE-
Mod:MVIew:FORMat is set to TPVTime, LPVTime, or SPVTime.*

Arguments `<numeric_value>::=<NRf>` specifies the horizontal scale in the main view.

Measurement Modes DEMTD_SCDMA

Example `:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:PDIVision 1us`
sets the horizontal scale to 1 μs/div in the main view under the TD-SCDMA
standard.

:DISPlay:TD_SCDMA: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.

NOTE. *This command is not available when :DISPlay:TD_SCDMA:DDE-
Mod:MVIew:FORMat is set to MACCuracy.*

Syntax `:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:RANGe <numeric_value>`

`:DISPlay:TD_SCDMA: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 DEMTD_SCDMA

Example :DISPlay:TD_SCDMA: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 TD-SCDMA standard.

Related Commands :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:FIT

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:MVIew:Y:SCALe:FIT
runs auto scale on the main view under the TD-SCDMA standard.

Related Commands :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:FULL

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:MVIew:Y:SCALe:FULL
sets the main view's vertical axis to the default full-scale value under the TD-SCDMA standard.

Related Commands :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:OFFSet <numeric_value>

:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   `:DISPlay:TD_SCDMA:DDEMod:MVIew:Y:SCALe:OFFSet -1mPCT`
sets the minimum vertical value to -1m% when the main view displays EVM under the TD-SCDMA standard.

Related Commands   `:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat`

:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PDIVision(?)

Sets or queries the vertical, or power, scale (per division) in the main view.

Syntax   `:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PDIVision`
`<numeric_value>`

`:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PDIVision?`

---

*NOTE. This command is available when
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to TPVTime, LPVTime, or SPVTime.*

Arguments   <numeric_value>::=<NRf> specifies the vertical scale in the main view.

Measurement Modes   DEMTD_SCDMA

Example   `:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PDIVision 1dBm`
sets the vertical scale to 1 dBm/div in the main view under the TD-SCDMA standard.

:DISPlay:TD_SCDMA: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.

NOTE. This command is valid when :DISPlay:TD_SCDMA:DDE-Mod:MVIew:FORMat is set to CDPower, CVSYmbol, or CVSFrame.

Syntax   `:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PUNit {RELative|`
`ABSolute}`

`:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   `:DISPlay:TD_SCDMA:DDEMod:MVIew:Y:SCALe:PUNit ABSolute`
sets the Y axis unit in the main view to Absolute under the TD-SCDMA standard.

Related Commands   `:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat`

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:RANGe <numeric_value>`

`:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   `:DISPlay:TD_SCDMA: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 TD-SCDMA standard.

Related Commands   `:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat`

:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol[:STARt]

Sets the zoom to the transmit mask start in the main view during the digital modulation related measurement.

---

*NOTE. This command is only available when
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to LPVTime.*

Syntax   :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol[:STARt]

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol[:STARt]
Sets the zoom to the transmit mask start.

:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:END

Sets the zoom to the transmit mask end in the main view during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to LPVTime.

Syntax   :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:END

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:END
Sets the zoom to the transmit mask end.

:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:MRPower

Sets the zoom to the maximum transmit mid-ramp power in the main view during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to LPVTime.

Syntax   :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:MRPower

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:MRPower
Sets the zoom to the maximum transmit mid-ramp power

:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:OPOWer

Sets the zoom to the maximum transmit off power in the main view during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to LPVTime.

Syntax :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:OPOWer

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:MCONtrol:OPOWer
Sets the zoom to the maximum transmit off power.

:DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:TSLot[:START]

Sets the zoom to the timeslot start in the main view during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat is set to TPVTime.

Syntax :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:TSLot[:START]

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:MVIew:ZOOM:TSLot[:START]
Sets the zoom to the timeslot start.

:DISPlay:TD_SCDMA:DDEMod:SVIew Subgroup

The :DISPlay:TD_SCDMA:DDEMod commands control display of the subview for the digital modulation related measurement under TD-SCDMA standard.

Command Tree

```
:DISPlay
    :TD_SCDMA
        :DDEMod
            :SView
                :FORMat              SPECtrum|MACCuracy|SCONste|
                                     EVM|MERRor|PERRor|CDPower|
                                     CVSFrame|CVSYmbol|PCGRam|
                                     TPVTime|LPVTime|SPVTime|STable

                :RADix               BINary|OCTal|HEXadecimal
                :X
                    [:SCALe]
                        :OFFSet      <numeric_value>
                        :PDIVision   <numeric_value>
                        :RANGe       <numeric_value>
                :Y
                    [:SCALe]
                        :FIT
                        :FULL
                        :OFFSet      <numeric_value>
                        :PDIVision   RELative|ABSolute
                        :PUNit       RELative|ABSolute
                        :RANGe       <numeric_value>
                :ZOOM
                    :MCONtrol
                        [:STARt]
                        :END
                    :TSLot
                        [:START]
```

:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat(?)

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

Syntax
```
:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat {SPECtrum|MACCuracy|
SCONste|EVM|MERRor|PERRor|CDPower|CVSFrame|CVSYmbol|PCGRam|
TPVTime|LPVTime|SPVTime|STable}
```

```
:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat?
```

Arguments   The arguments and display formats are listed below:

Argument	Display format
SPECtrum	Spectrum
MACCuracy	Modulation accuracy
SCONste	Symbol constellation
EVM	Error vector magnitude (EVM)
MERRor	Amplitude (magnitude) error
PERRor	Phase error
CDPower	Code domain power
CVSFrame	Code domain power versus subframe
CVSYmbol	Code domain power versus symbol
PCGRam	Power codogram
TPVTime	Timeslot power versus time with ideal start time shown
LPVTime	Power versus time with limit mask
SPVTime	Subframe Power versus Time
STABle	Symbol Table

Measurement Modes   DEMTD_SCDMA

Example   `:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat SPECtrum`
displays the spectrum in the subview under the TD-SCDMA standard.

Related Commands   `:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat`

:DISPlay:TD_SCDMA:DDEMod:SVIew:RADix(?)

Sets or queries the base of symbols on the subview during the TD-SCDMA analysis.

NOTE. This command is only valid when :DISPlay:TD_SCDMA:SVIew:FORMat is set to STABle.

Syntax   :DISPlay:TD_SCDMA:DDEMod:SVIew:RADix {BINary|OCTal|HEXadecimal}

:DISPlay:TD_SCDMA:DDEMod:SVIew:RADix?

Arguments   The arguments and base display are listed below:

Argument	Base
BINary	Binary notation
OCTal	Octal notation
HEXadecimal	Hexadecimal notation

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:SVIew:RADix BINary
sets the subview display to show the symbols in binary under the TD-SCDMA standard.

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

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

NOTE. This command is not available when :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to MACCuracy.

Syntax   :DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:OFFSet <numeric_value>

:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:SVIew:X:SCALe:OFFSet 10
sets the minimum horizontal value to 10 chips when the subview displays EVM
under the TD-SCDMA standard.

Related Commands   :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat

:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:PDIVision(?)

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

Syntax   :DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:PDIVision
<numeric_value>

:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:PDIVision?

---

*NOTE. This command is available when :DISPlay:TD_SCDMA:DDE-
Mod:SVIew:FORMat is set to TPVTime, LPVTime, or SPVTime.*

Arguments   <numeric_value>::=<NRf> specifies the horizontal scale in the subview.

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:PDIVision 1us
sets the horizontal scale to 1 μs/div in the subview under the TD-SCDMA
standard.

:DISPlay:TD_SCDMA: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.

---

*NOTE. This command is not available when
:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to MACCuracy.*

Syntax   :DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:RANGe <numeric_value>

:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:SVIew:X:SCALe:RANGe 512
sets the full-scale value of the horizontal axis to 512 chips when the subview displays EVM under the TD-SCDMA standard.

Related Commands :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:FIT

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:SVIew:Y:SCALe:FIT
runs auto scale on the subview under the TD-SCDMA standard.

Related Commands :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:FULL

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:SVIew:Y:SCALe:FULL
sets the subview's vertical axis to the default full-scale value under the TD-SCDMA standard.

Related Commands :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat

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

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

NOTE. This command is not available when :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to MACCuracy.

Syntax `:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:OFFSet<numeric_value>`

`:DISPlay:TD_SCDMA: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 DEMTD_SCDMA

Example `:DISPlay:TD_SCDMA:DDEMod:SVIew:Y:SCALe:OFFSet –100dB`
sets the minimum vertical value to –100 dBm when the subview displays spectrum under the TD-SCDMA standard.

Related Commands `:DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat`

:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PDIVision(?)

Sets or queries the vertical, or power, scale (per division) in the subview.

Syntax `:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PDIVision <numeric_value>`

`:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PDIVision?`

NOTE. This command is available when :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to TPVTime, LPVTime, or SPVTime.

Arguments <numeric_value>::=<NRf> specifies the vertical scale in the subview.

Measurement Modes DEMTD_SCDMA

Example `:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PDIVision 1dBm`
sets the vertical scale to 1 dBm/div in the subview under the TD-SCDMA standard.

:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PUNit(?)

Selects or queries the unit on the Y, or power, axis in the subview during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDE-Mod:SVIew:FORMat is set to CDPower, CVSYmbol, PCGRam, or CVSFrame.

Syntax   :DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PUNit{RELative|ABSolute}

:DISPlay:TD_SCDMA:DDEMod:SVIew: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   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:DDEMod:SVIew:Y:SCALe:PUNit ABSolute
sets the Y axis unit in the subview to Absolute under the TD-SCDMA standard.

Related Commands   :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat

:DISPlay:TD_SCDMA: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:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:RANGe <numeric_value>

:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA: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 TD-SCDMA standard.

Related Commands   :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat

:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol[:STARt]

Sets the zoom to the transmit mask start in the subview during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to LPVTime.

Syntax :DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol[:STARt]

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol[:STARt]
Sets the zoom to the transmit mask start.

:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol:END

Sets the zoom to the transmit mask end in the subview during the digital modulation related measurement.

NOTE. This command is only available when :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to LPVTime.

Syntax :DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol:END

Arguments None

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:MCONtrol:END
Sets the zoom to the transmit mask end.

:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:TSLot[:START]

Sets the zoom to the timeslot start in the subview during the digital modulation related measurement.

NOTE. *This command is only available when :DISPlay:TD_SCDMA:DDEMod:SVIew:FORMat is set to TPVTime.*

Syntax   `:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:TSLot[:START]`

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   `:DISPlay:TD_SCDMA:DDEMod:SVIew:ZOOM:TSLot[:START]`
Sets the zoom to the timeslot start.

:DISPlay:TD_SCDMA:SPECtrum Subgroup

The :DISPlay:TD_SCDMA:SPECtrum commands control the spectrum display in the channel power, intermodulation, spectrum emission mask (SEM), and occupied bandwidth measurements under the TD-SCDMA standard.

Command Tree

```
:DISPlay

    :TD_SCDMA
      :SPECtrum
        :X
          [:SCALe]
            :OFFSet              <numeric_value>
            :PDIVison            <numeric_value>
        :Y
          [:SCALe]
            :FIT
            :FULL
            :OFFSet              <numeric_value>
            :PDIVison            <numeric_value>
```

:DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:OFFSet(?)

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

Syntax   :DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:OFFSet <numeric_value>

:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:SPECtrum:X:SCALe:OFFSet 100MHZ
sets the minimum horizontal value to 100 MHz in the spectrum view under the TD-SCDMA standard.

:DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:PDIVision(?)

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

Syntax   :DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:PDIVision <numeric_value>

:DISPlay:TD_SCDMA: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   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:SPECtrum:X:SCALe:PDIVision 100kHz
sets the horizontal scale to 100 kHz/div in the spectrum view under the TD-SCDMA standard.

:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:FIT

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

Syntax   :DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:FIT

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:SPECtrum:Y:SCALe:FIT
runs auto-scale on the spectrum view under the TD-SCDMA standard.

:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:FULL

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

Syntax   :DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:FULL

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :DISPlay:TD_SCDMA:SPECtrum:Y:SCALe:FULL
sets the vertical axis to the default full-scale value in the spectrum view under the TD-SCDMA standard.

:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:OFFSet(?)

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

Syntax :DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:OFFSet <numeric_value>

:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:OFFSet?

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

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:SPECtrum:Y:SCALe:OFFSet –100dBm
sets the minimum vertical value to –100 dBm in the spectrum view under the TD-SCDMA standard.

:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:PDIVision(?)

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

Syntax :DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:PDIVision <numeric_value>

:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:PDIVision?

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

Measurement Modes DEMTD_SCDMA

Example :DISPlay:TD_SCDMA:SPECTrum:Y:SCALe:PDIVision 10dB
sets the vertical scale to 10 dB/div in the spectrum view under the TD-SCDMA 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 beginning on page 3-63. The :READ commands acquire a new input signal and fetch the measurement results from the data.

Command Tree

```
:FETCh
    :TD_SCDMA
        :ACLR?
        :CDPower?          RESult|CDPower
        :CHPower?
        :IM?
        :MACCuracy?        RESult|MACCuracy|SCONste|EVM|MERRor|
                           PERRor
        :OBWidth?
        :SEMask?
        :SFSummary?
        :STABle?
        :TOOMask?
        :TSSummary?
        :SPECtrum
            :ACLR?
            :CHPower?
            :IM?
            :OBWidth?
            :SEMask?
        :TAMPlitude
            :SFSummary?
            :TOOMask?
            :TSSummary?
```

:FETCh:TD_SCDMA:ACLR?

Returns the results of the adjacent channel leakage power ratio measurement under the TD-SCDMA standard.

Syntax   :FETCh:TD_SCDMA:ACLR?

Arguments   None

Returns   <Pass_fail>,<Chpower>, or
<Pass_fail>,<Chpower>,<L_Aclr1>,<U_Aclr1>, or
<Pass_fail>,<Chpower>,<L_Aclr1>,<U_Aclr1>,<L_Aclr2>,<U_Aclr2>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Chpower>::=<NRf> is the channel power measured value in dBm.
<L_Aclr1>::=<NRf> is the first lower adjacent channel ACLR in dBc.
<U_Aclr1>::=<NRf> is the first upper adjacent channel ACLR in dBc.
<L_Aclr2>::=<NRf> is the second lower adjacent channel ACLR in dBc.
<U_Aclr2>::=<NRf> is the second upper adjacent channel ACLR in dBc.

Measurement Modes   DEMTD_SCDMA

Example   :FETCh:TD_SCDMA:ACLR?
might return 0,--2.045E+001,--6.461E+001,--4.379E+001,--6.576E+001, --6.753E+001 for the ACLR measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:CDPower?

Returns the results of the code domain power measurement under the TD-SCDMA standard.

NOTE. *There is no :READ subsystem for the :CDPower command.*

The command [:SENSe]:TD_SCDMA[:IMMediate] must be executed in order to retrieve the measurement results.

Syntax   :FETCh:TD_SCDMA:CDPower? {RESult|CDPower|CVSFrame|CVSYmbol}

Arguments   RESult: Measurement result.
CDPower: Relative/absolute power values of each code in a timeslot.
CVSFrame: Relative(dB)/Absolute(dBm) Power value of each selected code in each subframe.
CVSYmbol: Relative(dB)/Absolute(dBm) Power value of each code in each selected symbol.

Returns   RESult:
<Pass_Fail>,<Peak_CD>,<Peak_CD_Code>,<Peak_ACD>,
<Peak_ACD_Code>,<CD Error>, <CD Error Code>,<No_AC>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Peak_CD>::=<NRf> is the peak code domain error value in dBm.
<Peak_CD_Code>::=<NRf> is the peak code domain error code.
<Peak_ACD>::=<NRf> is the peak active channel code domain error value in dBm.
<Peak_ACD_Code>::=<NRf> is the peak active channel code.
<CD Error>::=<NRf> is the code domain error value dB/dBm.
<CD Error Code>::=<NR1> is the code domain error code.
<No_AC>::=<NR1> is the number of active codes.

CDPower:
#<Num_digit>,<Num_byte>,<Cpower(0)>,<Cpower(1)>,...,
<Cpower(n-1)>,<Cpower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Cpower(n)> is the relative(dB)/Absolute(dBm) power value of each code.
When the unit on the Y of main view is set to RELative, selects Relative power value. When the unit on the Y of main view is set to ABSolute, selects Absolute power value.
4-byte little endian floating-point format specified IEEE 488.2.
n ::= Max 15

CVSFrame:
#<Num_digit>,<Num_byte>,<SFPower(0)>,<SFPower(1)>,...,
<SFPower(n-1)>,<SFPower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<SFPower(n)> is the relative(dB)/Absolute(dBm) power value of each code in each subframe.
When the unit on the Y of main view is set to RELative, selects Relative power value. When the unit on the Y of main view is set to ABSolute, selects Absolute power value.
4-byte little endian floating-point format specified IEEE 488.2.
n ::= Max 2048

CVSYmbol:
#<Num_digit>,<Num_byte>,<SYPower(0)>,<SYPower(1)>,...,
<SYPower(n-1)>,<SYPower(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<SYPower(n)> is the relative(dB)/Absolute(dBm) power value of each symbol.
When the unit on the Y of main view is set to RELative, selects Relative power
value. When the unit on the Y of main view is set to ABSolute, selects Absolute
power value.
4-byte little endian floating-point format specified IEEE 488.2.
n ::= Max 704

Measurement Modes   DEMTD_SCDMA

Example   :FETCh:TD_SCDMA:CDPower? RESult
might return #1,-4.3042E+001,0,-4.3042E+001,0,-4.3042E+001,0,2 as the
results of the code domain power measurement of the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:CHPower?

Returns the results of the channel power measurement under the TD-SCDMA
standard.

Syntax   :FETCh:TD_SCDMA: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   DEMTD_SCDMA

Example   :FETCh:TD_SCDMA:CHPower?
might return 1,--2.0339E+001,--8.1238E+001 for the channel power measure-
ment under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:IM?

Returns the results of the intermodulation measurement under the TD-SCDMA standard.

Syntax :FETCh:TD_SCDMA: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 DEMTD_SCDMA

Example :FETCh:TD_SCDMA: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 TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:FETCh:TD_SCDMA:MACCuracy?

Returns the results of the modulation accuracy measurement under the TD-SCDMA standard.

NOTE. There is no :READ subsystem for the :MACCuracy command.

The command [:SENSe]:TD_SCDMA[:IMMediate] must be executed in order to retrieve the measurement results.

Syntax   :FETCh:TD_SCDMA:MACCuracy? {RESult|MACCuracy|SCONste|EVM| MERRor|PERRor}

Arguments

RESult	measurement result
MACCuracy	I/Q position of each symbol
SCONste	Symbol constellation
EVM	EVM of each symbol
MERRor	magnitude error of each symbol
PERRor	phase error of each symbol

Returns   RESult:
<Pass_Fail>,<SEVM_Peak>,<SEVM_Peak>,<CEVM_Peak>,<CEVM_RMS>, <Crho>,<CMerror_Peak>,<CMerror_RMS>,<CPerror_Peak>,<CPerror_RMS>, <Ferror>,<IQ_Imbalance>,<IQ_Offset >

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<SEVM_Peak>::=<NRf> Symbol Peak EVM (%)
<SEVM_Peak>::=<NRf> Symbol Peak EVM (%)
<CEVM_Peak>::=<NRf> Composite Peak EVM (%)
<CEVM_RMS>::=<NRf> Composite RMS EVM (%)
<Crho>::=<NRf> Composite Rho
<CMerror_Peak>::=<NRf> Composite Peak Magnitude Error (%)
<CMerror_RMS>::=<NRf> Composite RMS Magnitude Error (%)
<CPerror_Peak>::=<NRf> Composite Peak Phase Error (deg)
<CPerror_RMS>::=<NRf> Composite RMS Phase Error (deg)
<Ferror>::=<NRf> Frequency Error (Hz)
<IQ_Imbalance>::=<NRf> IQ Imbalance (dB)
<IQ_Offset >::=<NRf> IQ Offset (dB)

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.

Measurement level:
Chip: n=Max 848

SCONste:
#<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.

Measurement level:
Chip: n=Max 704

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.
Measurement level:
Chip: n=Max 704

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.
Measurement level:
Chip: n=Max 704

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.
Measurement level:
   Chip: n=Max 704

Measurement Modes   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:MACCuracy? RESult`
might return #1,3.8261E+000,2.02853E+000,4.36361E+000,2.06348E+000,
9.99574E-001,3.51029E+000,1.46589E+000,1.75665E+002,7.40321E+001,
−5.56065E+001,4.77605E−002,−3.59144E+001 as the results of the modulation
accuracy measurement of the TD-SCDMA measurement.

Related Commands   `:INSTrument[:SELect]`

:FETCh:TD_SCDMA:OBWidth?

Fetches the results of the occupied bandwidth measurement under the TD-SCDMA standard.

Syntax   `:FETCh:TD_SCDMA: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   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:OBWidth?`
might return 1,1.27333E+006 for the OBW measurement under the TD-SCDMA
standard.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:SEMask?

Fetches the results of the spectrum emission mask measurement under the TD-SCDMA standard.

Syntax   :FETCh:TD_SCDMA:SEMask?

Arguments   None

Returns   <Pass_fail>

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

Measurement Modes   DEMTD_SCDMA

Example   :FETCh:TD_SCDMA:SEMask?
might return 1, indicating that the spectrum emission mask measurement has passed.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:SFSummary?

Fetches the results of the subframe summary measurement under the TD-SCDMA standard.

NOTE. There is no :READ subsystem for the :SFSummary command.

Syntax   :FETCh:TD_SCDMA:SFSummary?

Arguments   None

Returns   <Sync_DL>,<Sync_UL>,<Scrambling_Code>,< Switching_Point>,
<DwPts_Pattern>,<Multiframe_Position>,<DwPts_RMS_Power>,
<UpPts_RMS_Power>,<GP_RMS_Power>

Where
<Sync_DL>::=<NR1> Downlink Pilot (Sync DL)
<Sync_UL>::=<NR1> Uplink Pilot (Sync UL)
<Scrambling_Code>::=<NR1> Scrambling Code
<Switching_Point>::=<NR1> Switching Point
<DwPts Pattern>::=<NR1> DwPts Pattern
<Multiframe_Position>::=<NR1> Multiframe Position
<DwPts_RMS_Power>::=<NRf> Downlink Pilot RMS Power (dBm)
<UpPts_RMS_Power>::=<NRf> Uplink Pilot RMS Power (dBm)
<GP_RMS_Power>::=<NRf> Gaurd Period RMS Power (dBm)

Measurement Modes   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:SFSummary?`
might return #0,-1000,0,3,2,2,-1.71901E+001,-5.31588E+001,-5.27454E+001
as the results of the subframe summary measurement under the TD-SCDMA
standard.

Related Commands   `:INSTrument[:SELect]`

:FETCh:TD_SCDMA:STABle?

Fetches the results of the symbol table measurement under the TD-SCDMA
standard.

Syntax   `:FETCh:TD_SCDMA:STABle?`

Arguments   None

Returns   #<Num_digit><Num_byte><sym(1)>...<Sym(n)>

Where
<Num_digit> is the number of digits in <Num_byte>.
<Num_byte> is the number of bytes of the data that follows.
<Sym(n)> Symbol Data.
<NR1>
n ::= MAX 704

Measurement Modes   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:STABle?`
might return #3176xxx... (176-bytes of integer data) as Data1+Data2 symbols
for the currently selected OVSF16 code in the symbol table measurement of the
TD'-SCDMA standard.

Related Commands   `:INSTrument[:SELect]`

:FETCh:TD_SCDMA:TOOMask?

Fetches the results of the transmit on/off mask measurement under the TD-SCDMA standard.

Syntax   `:FETCh:TD_SCDMA:TOOMask?`

Arguments   None

Returns   <Pass_Fail>,<Tx_Direction>,<Mid_Ramp_Max_Power>,<chip_offset1>,
<Tx_Off_Max_Power><chip_offset2>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Tx_Direction>::={1|0} 0: Uplink or 1: Downlink
<Mid_Ramp_Max_Power>::=<NRf> Tx ON(uplink)/OFF(downlink) Mid-ramp region Maximum power (dBm)
<chip_offset1>::=<NR1> Chip offset at <Mid_Ramp_Max_Power>
<Tx_Off_Max_Power>::=<NRf> Tx OFF region Maximum power (dBm)
<chip_offset2>::=<NR1> Chip offset at <Tx_Off_Max_Power>

Measurement Modes   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:TOOMask?`
might return #0,1,–5.25502E+001,1047,–1.20229E+001,1822 as the results of the transmit on/off mask measurement under the TD'–SCDMA standard

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:TSSummary?

Fetches the results of the timeslot summary measurement under the TD-SCDMA standard.

Syntax   `:FETCh:TD_SCDMA:TSSummary?`

Arguments   None

Returns   <Pass_Fail>,<Terror>,<D1_Power>,<D2_Power>,<Mid_Power>,
<AverageBurst_Power>,<Count_of_K_Value>,
<K1>{,<K2>{,<K3>{,<K4>{,<K5>{,<K6>{,<K7>{,K8>}}}}}}}

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Terror>::=<NRf> Timing Error (chips)
<D1_Power>::=<NRf> Data1 Power (dBm)
<D2_Power>::=<NRf> Data2 Power (dBm)
<Mid_Power>::=<NRf> Midamble Power (dBm)
<AverageBurst_Power>::=<NRf> Average burst RF Power of the timeslot

(dBm)
<Count_of_K_Value>::=<NR1> Count of K value (1 to 8)
<Kn>::=<NR1> Kn (n::= 1 to 8)

Measurement Modes DEMTD_SCDMA

Example `:FETCh:TD_SCDMA:TSSummary?`
might return
#1,0.0E+000,–1.71653E+001,–1.71807E+001,–1.71609E+001,–1.72521E+001,
2,10,16 as the results from the timeslot summary measurement under the
TD-SCDMA standard.

Related Commands `:INSTrument[:SELect]`

:FETCh:TD_SCDMA:SPECtrum:ACLR?

Returns the results of the adjacent channel leakage power ratio measurement
under the TD-SCDMA standard.

Syntax `:FETCh:TD_SCDMA:SPECtrum:ACLR?`

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 240001

Measurement Modes DEMTD_SCDMA

Example `:FETCh:TD_SCDMA:SPECtrum:ACLR?`
might return #510240xxx... (10240–bytes of floating point data) as the spectrum
waveform data of the ACLR measurement under the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:FETCh:TD_SCDMA:SPECtrum:CHPower?

Fetches the spectrum waveform data of the channel power measurement under
theTD-SCDMA standard.

Syntax `:FETCh:TD_SCDMA: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 240001

Measurement Modes   DEMTC_SCDMA

Example   :FETCh:TD_SCDMA:SPECtrum:CHPower?
might return #510240xxx... (10240-bytes of floating point data) as the spectrum waveform data of the channel power measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:SPECtrum:IM?

Fetches the spectrum waveform data of the intermodulation measurement under the TD-SCDMA standard.

Syntax   :FETCh:TD_SCDMA: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 240001.

Invalid data is returned as −1000.

Measurement Modes   DEMTC_SCDMA

Example   :FETCh:TD_SCDMA:SPECtrum:IM?
might return #510240xxx... (10240-bytes of floating point data) as the spectrum waveform data of the intermodulation measurement under the TD_SCDMA.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:SPECtrum:OBWidth?

Fetches the spectrum waveform data of the occupied bandwidth measurement under the TD-SCDMA standard.

Syntax   :FETCh:TD_SCDMA: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 240001.

Invalid data is returned as −1000.

Measurement Modes   DEMTC_SCDMA

Example   :FETCh:TD_SCDMA:SPECtrum:OBWidth?
might return #510240xxx... (10240−bytes of floating point data) as the spectrum waveform data of the occupied bandwidth measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:FETCh:TD_SCDMA:SPECtrum:SEMask?

Fetches the spectrum waveform data of the spectrum emission mask measurement under the TD-SCDMA standard.

Syntax   :FETCh:TD_SCDMA:SPECtrum:SEMask?

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 240001

Invalid data is returned as −1000.

Measurement Modes   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:SPECtrum:SEMask?`
might return #510240xxx... (10240–bytes of floating point data) as the spectrum waveform data of the spectrum emissions mask measurement under the TD-SCDMA standard.

Related Commands   `:INSTrument[:SELect]`

:FETCh:TD_SCDMA:TAMPlitude:SFSummary?

Fetches the results of the time domain amplitude data of the subframe summary measurement under the TD-SCDMA standard.

NOTE. There is no :READ subsystem for the TAMPlitude commands.

Syntax   `:FETCh:TD_SCDMA:TAMPlitude:SFSummary?`

Arguments   None

Returns   #<Num_digit><Num_byte><Data1(1)><Data1(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 follows.
<Data(n)> is the absolute power for each symbol in dBm. 4-Four-byte little endian floating-point format specified IEEE 488.2.

Measurement level:
    n: Max 6400
    Invalid data is returned as –1000

Measurement Modes   DEMTD_SCDMA

Example   `:FETCh:TD_SCDMA:TAMPlitude:SFSummary?`
might return #525600xxx... (25600–bytes of floating point data) as time domain amplitude data of the subframe summary measurement of the TD-SCDMA standard.

Related Commands   `:INSTrument[:SELect]`

:FETCh:TD_SCDMA:TAMPlitude:TOOMask?

Fetches the results of the time domain amplitude data of the transmit on/off mask measurement under the TD-SCDMA standard.

NOTE. There is no :READ subsystem for the TAMPlitude commands.

Syntax :FETCh:TD_SCDMA:TAMPlitude:TOOMask?

Arguments None

Returns #<Num_digit><Num_byte><Data1(1)><Data1(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 follows.
<Data(n)> is the absolute power for each symbol in dBm. 4-Four-byte little endian floating-point format specified IEEE 488.2.

Measurement level:
    n: Max 512000 (= 1024 points x 500 frames)
    Invalid data is returned as –1000

Measurement Modes DEMTD_SCDMA

Example :FETCh:TD_SCDMA:TAMPlitude:TOOMask?
might return #525600xxx... (25600–bytes of floating point data) as time domain amplitude data of the transmit on/off mask measurement of the TD-SCDMA standard.

:FETCh:TD_SCDMA:TAMPlitude:TSSummary?

Fetches the results of the time domain amplitude data of the timeslot summary measurement under the TD-SCDMA standard.

NOTE. There is no :READ subsystem for the TAMPlitude commands.

Syntax :FETCh:TD_SCDMA:TAMPlitude:TSSummary?

Arguments None

Returns #\<Num_digit\>\<Num_byte\>\<Data1(1)\>\<Data1(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 follows.
\<Data(n)\> is the absolute power for each symbol in dBm. 4-Four-byte little endian floating-point format specified IEEE 488.2.
    n: Max 864
    Invalid data is returned as –1000

Measurement Modes DEMTD_SCDMA

Example :FETCh:TD_SCDMA:TAMPlitude:TSSummary?
might return #43456xxx... (3456–bytes of floating point data) as time domain amplitude data of the timeslot summary measurement of the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

: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 beginning on page 3–37.

Command Tree

```
:READ
    :TD_SCDMA
        :ACLR?
        :CHPower?
        :IM?
        :OBWidth?
        :SEMask?
        :SPECtrum
            :ACLR?
            :CHPower?
            :IM?
            :SEMask?
            :OBWidth?
```

NOTE. *There are no :READ subsystem for :CDPower?, :MACCuracy?, STABle?, :SFSUMarry?, :TAMPlitude:TSSummary?, and :TAMPlitude:SFSummary? commands. These commands need to execute [:SENSe]:TD_SCDMA[:IMMediate] command in order to retrieve the measurement results.*

:READ:TD_SCDMA:ACLR?

Obtains the results of the adjacent channel leakage power ratio measurement under the TD-SCDMA standard.

Syntax :READ:TD_SCDMA:ACLR?

Arguments None

Returns <Pass_fail>,<Chpower>, or
<Pass_fail>,<Chpower>,<L_Acpr1>,<U_Acpr1>, or
<Pass_fail>,<Chpower>,<L_Acpr1>,<U_Acpr1>,<L_Acpr2>,<U_Acpr2>

Where
<Pass_fail>::={1|0} is the measurement result; 1: Pass or 0: Fail.
<Chpower>::=<NRf> is the channel power measured value in dBm.
<L_Acpr1>::=<NRf> is the first lower adjacent channel ACPR in dBc.
<U_Acpr1>::=<NRf> is the first upper adjacent channel ACPR in dBc.
<L_Acpr2>::=<NRf> is the second lower adjacent channel ACPR in dBc.
<U_Acpr2>::=<NRf> is the second upper adjacent channel ACPR in dBc.

Measurement Modes DEMTD_SCDMA

Example :READ:TD_SCDMA:ACLR?
might return 0,--2.045E+001,--6.461E+001,--4.379E+001,--6.576E+001,
--6.753E+001 for the ACLR measurement under the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:READ:TD_SCDMA:CHPower?

Obtains the results of the channel power measurement under the TD-SCDMA standard.

Syntax :READ:TD_SCDMA: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 DEMTD_SCDMA

Example   :READ:TD_SCDMA:CHPower?
might return 1,--2.0339E+001,--8.1238E+001 for the channel power measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:READ:TD_SCDMA:IM?

Obtains the results of the intermodulation measurement under the TD-SCDMA standard.

Syntax   :READ:TD_SCDMA: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   DEMTD_SCDMA

Example   :READ:TD_SCDMA: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 TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:READ:TD_SCDMA:OBWidth?

Obtains the results of the occupied bandwidth measurement under the TD-SCDMA standard.

Syntax   :READ:TD_SCDMA: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   DEMTD_SCDMA

Example   :READ:TD_SCDMA:OBWidth?
might return 1,1.27333E+006 for the OBW measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:READ:TD_SCDMA:SEMask?

Obtains the results of the spectrum emission mask measurement under the TD-SCDMA standard.

Syntax   :READ:TD_SCDMA:SEMask?

Arguments   None

Returns   <Pass_fail>

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

Measurement Modes   DEMTD_SCDMA

Example   :READ:TD_SCDMA:SEMask?
might return 1, indicating that the spectrum emission mask measurement has passed.

Related Commands   :INSTrument[:SELect]

:READ:TD_SCDMA:SPECtrum:ACLR?

Obtains the results of the adjacent channel leakage power ratio measurement under the TD-SCDMA standard.

Syntax   :READ:TD_SCDMA:SPECtrum:ACLR?

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 240001

Measurement Modes   DEMTC_SCDMA

Example   :READ:TD_SCDMA:SPECtrum:ACLR?
might return #510240xxx... (10240–bytes of floating point data) as the spectrum waveform data of the ACLR measurement under the TD-SCDMA standard.

Related Commands   :INSTrument[:SELect]

:READ:TD_SCDMA:SPECtrum:CHPower?

Obtains the spectrum waveform data of the channel power measurement under theTD-SCDMA standard.

Syntax   :READ:TD_SCDMA: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 240001

Measurement Modes   DEMTC_SCDMA

Example   :READ:TD_SCDMA:SPECtrum:CHPower?
might return #510240xxx... (10240–bytes of floating point data) as the spectrum

waveform data of the channel power measurement under the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:READ:TD_SCDMA:SPECtrum:IM?

Obtains the spectrum waveform data of the intermodulation measurement under the TD-SCDMA standard.

Syntax :READ:TD_SCDMA: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 240001.

Invalid data is returned as −1000.

Measurement Modes DEMTC_SCDMA

Example :READ:TD_SCDMA:SPECtrum:IM?
might return #510240xxx... (10240−bytes of floating point data) as the spectrum waveform data of the intermodulation measurement under the TD-SCDMA standard.

Related Commands :INSTrument[:SELect]

:READ:TD_SCDMA:SPECtrum:SEMask?

Obtains the spectrum waveform data of the spectrum emission mask measurement under the TD-SCDMA standard.

Syntax :READ:TD_SCDMA:SPECtrum:SEMask?

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 240001

Invalid data is returned as –1000.

Measurement Modes   DEMTD_SCDMA

Example   `:READ:TD_SCDMA:SPECtrum:SEMask?`
might return #510240xxx... (10240–bytes of floating point data) as the spectrum
waveform data of the spectrum emissions mask measurement under the
TD-SCDMA standard.

Related Commands   `:INSTrument[:SELect]`

:READ:TD_SCDMA:SPECtrum:OBWidth?

Obtains the spectrum waveform data of the occupied bandwidth measurement
under the TD-SCDMA standard.

Syntax   `:READ:TD_SCDMA: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 240001

Invalid data is returned as –1000.

Measurement Modes   DEMTD_SCDMA

Example   `:READ:TD_SCDMA:SPECtrum:OBWidth?`
might return #510240xxx... (10240–bytes of floating point data) as the spectrum
waveform data of the occupied bandwidth measurement under the TD-SCDMA
standard.

Related Commands   `:INSTrument[:SELect]`

:SENSe Commands

The :SENSe commands set the details for each of the measurement sessions.

[:SENSe]:TD_SCDMA Subgroup

The [:SENSe]:TD_SCDMA commands set up the conditions related to the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :BLOCk
        FILTer:
            MEASurement         {OFF|RCOSine|RRCosine}
        [:IMMediate]
        :MEASurement            CHPower|ACLR|IM|SEMask|CDPower|
                                MACCuracy|STABle|TSSummary|TOOMask|
                                OBWidth|SFSummary|OFF
```

[:SENSe]:TD_SCDMA:BLOCk(?)

Sets or queries the number of the block to measure in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:BLOCk <numeric_value>

[:SENSe]:TD_SCDMA: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 DEMTD_SCDMA

Example :SENSe:TD_SCDMA:BLOCk −5
sets the block number to −5 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:FILTer:MEASurement(?)

Sets or queries the measurement filter for the current measurement in the TD-SCDMA analysis.

NOTE. This command is not allowed if the current measurement is OBW.

Syntax   [:SENSe]:TD_SCDMA:FILTer:MEASurement {OFF|RCOSine|RRCosine}

[:SENSe]:TD_SCDMA:FILTer:MEASurement?

Arguments   The arguments and descriptions are listed below:

Argument	Description
OFF	No filter
RCOSine	The Raised Cosine filter
RRCosine	The Root Raised Cosine filter

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:FILTer:MEASurement OFF
sets the measurement filter to off for the current measurement.

[:SENSe]:TD_SCDMA[:IMMediate]

Performs calculation for the acquired data in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA[:IMMediate]

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:IMMediate
performs calculation for the acquired data in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MEASurement(?)

Selects or queries the measurement item for the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:MEASurement {CHPower|ACLR|IM|SEMask|
CDPower|MACCuracy|STABle|TSSummary|TOOMask|OBWidth|SFSummary|OFF}

[:SENSe]:TD_SCDMA:MEASurement?

Arguments   The arguments and measurement items are listed below:

Argument	Measurement item
CHPower	Channel power measurement
ACLR	Adjacent Channel Leakage power Ratio (ACLR) measurement
IM	Intermodulation measurement
SEMask	Spectrum emission mask measurement
CDPower	Code domain power measurement
MACCuracy	Modulation accuracy measurement
STABle	Symbol table
TSSummary	Timeslot summary
TOOMask	Transmit on/off mask measurement
OBWidth	Occupied bandwidth measurement
SFSummary	Subframe summary
OFF	Measurement OFF

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:MEASurement CDP`
selects the code domain power measurement for the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ACQuisition Subgroup

The [:SENSe]:TD_SCDMA commands set up the conditions related to acquisition in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :ACQuisition
            :SFRames          <numeric_value>
            :HISTory          <numeric_value>
            :SEConds          <numeric_value>
```

[:SENSe]:TD_SCDMA:ACQuisition:SFRames(?)

Sets or queries the acquisition length in subframes in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:ACQuisition:SFRames <numeric_value>

[:SENSe]:TD_SCDMA:ACQuisition:SFRames?

Arguments   <numeric_value>::=<NR1> specifies the acquisition length in subframes
Range: –4000 to no logical limitation (depends on Span and memory length).

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:ACQuisition:SFRames 10240
sets the acquisition length in subframes to 10240 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ACQuisition:SEConds?

Queries the acquisition length in seconds in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:ACQuisition:SEConds?

Arguments   None.

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:ACQuisition:SEConds?
returns the acquisition length in seconds in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA: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]:TD_SCDMA:ACQuisition:HISTory <numeric_value>`

`[:SENSe]:TD_SCDMA:ACQuisition:HISTory?`

Arguments   <numeric_value>::=<NR1> specifies the acquisition history.
Range: No logical limitation to 0 (depends on Span and memory length).

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:ACQuisition:HISTory 0`
sets the acquisition history to 0 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis Subgroup

The [:SENSe]:TD_SCDMA commands set up the analysis conditions in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :ANALysis
            :CHANnel
                :THReshold        <numeric_value>
            :INTerval             <numeric_value>
            :OFFSet
                [:CHIPs]          <numeric_value>
                :DFRequency       <numeric_value>
                :IQ               <boolean>
            :REFerence
                :SFRame           TRIGger|DWPTs
                :TFPHase          MIDamble|DWPTs
                :TIME             UTSPattern|DWPTs
                    :UTSPattern   <numeric_value>
            :TSLot                ALL|CURRent
                :THReshold           <numeric_value>
```

[:SENSe]:TD_SCDMA:ANALysis:CHANnel:THReshold(?)

Sets or queries the threshold for the channel measurement in the TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:ANALysis:CHANnel:THReshold <numeric_value>

[:SENSe]:TD_SCDMA:ANALysis:CHANnel:THReshold?

Arguments
<numeric_value>::=<NR1> specifies the analysis channel threshold in dB.
Range: –100 dB to +50 dB

Measurement Modes
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:ANALysis:CHANnel:THReshold –30dB
sets the analysis channel threshold to –30 dB in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:INTerval(?)

Sets or queries the analysis interval in chips in the TD-SCDMA analysis.

Syntax `[:SENSe]:TD_SCDMA:ANALysis:INTerval <numeric_value>`

`[:SENSe]:TD_SCDMA:ANALysis:INTerval?`

Arguments <numeric_value>::=<NR1> specifies the analysis interval in chips.
The range depends on the acquisition length setting.

Measurement Modes DEMTD_SCDMA

Example `:SENSe:TD_SCDMA:ANALysis:INTerval 3072`
sets the analysis interval in chips to 3072 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:OFFSet[:CHIPs](?)

Sets or queries the analysis offset (the start point of the analysis range) in chips
in the TD-SCDMA analysis.

Syntax `[:SENSe]:TD_SCDMA:ANALysis:OFFSet[:CHIPs] <numeric_value>`

`[:SENSe]:TD_SCDMA:ANALysis:OFFSet[:CHIPs]?`

Arguments <numeric_value>::=<NR1> specifies the analysis offset in chips.
Range: –65539999 to 65539999 chips.

Measurement Modes DEMTD_SCDMA

Example `:SENSe:TD_SCDMA:ANALysis:OFFSet[:CHIPs] 512`
sets the analysis offset in chips to 512 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:OFFSet:DFRequency(?)

Sets or queries the demod frequency offset in the TD-SCDMA analysis.

Syntax `[:SENSe]:TD_SCDMA:ANALysis:OFFSet:DFRequency <numeric_value>`

`[:SENSe]:TD_SCDMA:ANALysis:OFFSet:DFRequency?`

Arguments <numeric_value>::=<NR1> specifies the analysis offset in MHz.
Range: –6.5 MHz to +6.5 MHz (depends on Span setting)

Measurement Modes DEMTD_SCDMA

Example `:SENSe:TD_SCDMA:ANALysis:OFFSet:DFRequency 3.25`
sets the analysis demod frequency offset to 3.25 MHz in the TD-SCDMA
analysis.

[:SENSe]:TD_SCDMA:ANALysis:OFFSet:IQ(?)

Sets or queries the EVM measurement includes the I/Q offset in the TD-SCDMA analysis.

Syntax   `[:SENSe]:TD_SCDMA:ANALysis:OFFSet:IQ <boolean>`

`[:SENSe]:TD_SCDMA:ANALysis:OFFSet:IQ?`

Arguments   <boolean>::=
ON or 1   The EVM calculation includes I/Q offset
OFF or 0   The EVM calculation does not include I/Q offset

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:ANALysis:OFFSet:IQ 1`
sets the analysis EVM measurement to include the I/Q offset in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:REFerence:SFRame(?)

Sets or queries the subframe reference in the TD-SCDMA analysis.

Syntax   `[:SENSe]:TD_SCDMA:ANALysis:REFerence:SFRame {TRIGger|DWPTs}`

`[:SENSe]:TD_SCDMA:ANALysis:REFerence:SFRame?`

Arguments   The arguments and descriptions are listed below:

Argument	Description
TRIGger	The trigger point is used as the start of the subframe.
DWPTs	The downlink pilot is expected and is used to provide subframe timing.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:REFerence:SFRame TRIGger`
sets the trigger point as the start of the subframe in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:REFerence:TFPHase(?)

Sets or queries the timeslot frequency and phase reference in the TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:ANALysis:REFerence:TFPHase {MIDamble|DWPTs}

[:SENSe]:TD_SCDMA:ANALysis:REFerence:TFPHase?

Arguments
The arguments and descriptions are listed below:

Argument	Description
MIDamble	Frequency/Phase information is independently calculated for each timeslot.
DWPTs	The freq and phase frequency is determined based upon the frequency/phase and position in the multiframe of the downlink pilot.

Measurement Modes
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:ANALysis:REFerence:TFPHase DWPTs
sets the frequency and phase frequency to be determined by the downlink pilot in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME(?)

Sets or queries the time reference for the Channel Power, ACLR, Intermodulation, and Occupied Bandwidth measurements in the TD-SCDMA Analysis.

Syntax
[:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME {UTSPattern|DWPTs}

[:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME?

Arguments
The arguments and descriptions are listed below:

Argument	Description
UTSPattern	The subframe timing is determined by matching the detected timeslot pattern (specified by [:SENse]:TD_SCDMA:ANALysis:REFerence:TIME:USTPattern command)
DWPTs	The downlink pilot is expected and is used to determine subframe timing.

Measurement Modes
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:ANALysis:REFerence:TIME DWPTs
Sets the time reference to use the downlink pilot for subframe timing.

[:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME:UTSPattern(?)

Sets or queries the timeslot pattern to be expected in the signal when detecting the subframe timing for the ACLR, and the Intermodulation measurements for the TD-SCDMA Analysis.

NOTE. *This command is only available when [:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME is set to UTSPattern.*

Syntax   `[:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME:UTSPattern <numeric_value>`

`[:SENSe]:TD_SCDMA:ANALysis:REFerence:TIME:UTSPattern?`

Arguments   <numeric_value>
Range: 1 to 123456 (any combination of digits 1 through 6)

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:ANALysis:REFerence:TIME:UTSPattern 14`
sets timeslots 1 and 4 to uplink timeslots.

[:SENSe]:TD_SCDMA:ANALysis:TSLot(?)

Sets or queries the timeslot(s) to be analyzed in the TD-SCDMA analysis.

Syntax   `[:SENSe]:TD_SCDMA:ANALysis:TSLot {ALL|CURRent}`

`[:SENSe]:TD_SCDMA:ANALysis:TSLot?`

Arguments   ALL   Every timeslot that is active (has an active channel) is analyzed.
CURRent   Only the current timeslot shown in the Measurement Setup is analyzed.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:ANALysis:TSLot ALL`
analyzes all timeslots in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ANALysis:TSLot:THReshold(?)

Sets or queries the level relative to the pilot which must be exceeded to identify a timeslot as active.

Syntax

[:SENSe]:TD_SCDMA:ANALysis:TSLot:THReshold <numeric_value>

[:SENSe]:TD_SCDMA:ANALysis:TSLot:THReshold?

Arguments

<numeric_value>::=<NR1> specifies the analysis timeslot threshold in dB.
Range: −50 dB to +50 dB

Measurement Modes

DEMTD_SCDMA

Example

:SENSe:TD_SCDMA:ANALysis:TSLot:THReshold −30dB
sets the analysis timeslot threshold to −30 dB in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SPECtrum Subgroup

The [:SENSe]:TD_SCDMA commands set up the spectrum conditions related to the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :SPECtrum
            :OFFSet            <numeric_value>
            :TINTerval?
```

[:SENSe]:TD_SCDMA:SPECtrum:OFFSet(?)

Sets or queries the spectrum offset within the time window in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:SPECtrum:OFFSet <numeric_value>

[:SENSe]:TD_SCDMA:SPECtrum:OFFSet?

Arguments   <numeric_value>::=<NRf> specifies the spectrum offset within the time windows.
Range: 0 ms to 26.56 ms.

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:SPECtrum:OFFSet 10ms
sets the spectrum offset within the time window to 10 ms in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SPECtrum:TINTerval?

Queries the length of the time-domain information used to construct the spectrum trace in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:SPECtrum:TINTerval?

Arguments   None

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:SPECtrum:TINTerval?
returns the length of the time-domain information in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SELect Subgroup

The [:SENSe]:TD_SCDMA commands set up the select conditions related to the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :SELect
            :CODE              <numeric_value>
            :SFRame            <numeric_value>
            :TSLot             {TS0N|DWPTs|UPPTs|TS1N|TS2N|TS3N|
                               TS4N|TS5N|TS6N}
```

[:SENSe]:TD_SCDMA:SELect:CODE(?)

Sets or queries the selected code in the TD-SCDMA analysis.

NOTE. When the displayed results can be separated by code, this control selects the results to be displayed by code. At other times, this control is not available.

Syntax	[:SENSe]:TD_SCDMA:SELect:CODE <numeric_value>

[:SENSe]:TD_SCDMA:SELect:CODE?

Arguments <numeric_value>::=<NR1> specifies the code.
Range: 0 to 15

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:SELect:CODE 2
sets the analysis to code 2 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SELect:SFRame(?)

Sets or queries the selected subframe in the TD-SCDMA analysis.

NOTE. This command is only available when results are available for multiple subframes.

Syntax [:SENSe]:TD_SCDMA:SELect:SFRame <numeric_value>

[:SENSe]:TD_SCDMA:SELect:SFRame?

Arguments <numeric_value>::=<NR1> specifies the subframe.
Range: 0 to –2047. This is limited by the number of frames which have been analyzed.

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:SELect:SFRame -30
sets the selected subframe to –30, or the 30th subframe before the most recent one in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SELect:TSLot(?)

Sets or queries the selected timeslot in the TD-SCDMA analysis.

NOTE. This command is only available when results are available for multiple subframes.

Syntax [:SENSe]:TD_SCDMA:SELect:TSLot {TS0N|DWPTs|UPPTs|TS1N|TS2N|TS3N|
TS4N|TS5N|TS6N}

[:SENSe]:TD_SCDMA:SELect:TSLot?

Arguments The arguments and measurement items are listed below:

Argument	Description
TS0N	Timeslot 0
DWPTs	Downlink pilot
UPPTs	Uplink pilot
TS1N	Timeslot 1
TS2N	Timeslot 2
TS3N	Timeslot 3
TS4N	Timeslot 4
TS5N	Timeslot 5
TS6N	Timeslot 6

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:SELect:TSLot TS4N
sets the analysis to timeslot 4 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MODulation Subgroup

The [:SENSe]:TD_SCDMA commands set up the modulation conditions related to the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :MODulation
            :CONTrol          AUTO|MANual
            :K
                :NZERO         <numeric_value>
                :ZERo          <numeric_value>
            :SCODe             <numeric_value>
            :SPOint            <numeric_value>
            :SYNC
                :UPLink        <numeric_value>
                :DOWNlink      <numeric_value>
```

[:SENSe]:TD_SCDMA:MODulation:CONTrol(?)

Sets or queries the method used to set other modulation parameters in the TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:MODulation:CONTrol {AUTO|MANual}

[:SENSe]:TD_SCDMA:MODulation:CONTrol?

Arguments
The arguments and descriptions are listed below:

Argument	Description
AUTO	SyncDL, SyncUL, Scrambling Code, and K(TS0), K(TS1–TS6) are set by the analysis.
MANual	All settings can be individually set without regard to other settings

NOTE. When switching from MANual to COUPled, all settings retain their current values.

Measurement Modes
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:MODulation:CONTrol MANual
sets the modulation parameter controls to manual mode.

[:SENSe]:TD_SCDMA:MODulation:K:NZERo(?)

Sets or queries the the K value for all timeslots other than 0 in the TD-SCDMA analysis.

Syntax   `[:SENSe]:TD_SCDMA:MODulation:K:NZERo <numeric_value>`

`[:SENSe]:TD_SCDMA:MODulation:K:NZERo?`

Arguments   <numeric_value>::=<NR1> specifies the K value for timeslots other than 0. Range: 2 to 16.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:MODulation:K:NZERO 2`
sets the K value to 2 for all timeslots except timeslot 0 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MODulation:K:ZERO(?)

Sets or queries the the K value for timeslot 0 in the TD-SCDMA analysis.

Syntax   `[:SENSe]:TD_SCDMA:MODulation:K:ZERO <numeric_value>`

`[:SENSe]:TD_SCDMA:MODulation:K:ZERO?`

Arguments   <numeric_value>::=<NR1> specifies the K value for timeslot 0
Range: 2 to 16.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:MODulation:K:ZERO 2`
sets the K value to 2 for timeslot 0 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MODulation:SCODe(?)

Sets or queries the the scrambling code value in the TD-SCDMA analysis.

Syntax   `[:SENSe]:TD_SCDMA:MODulation:SCODe <numeric_value>`

`[:SENSe]:TD_SCDMA:MODulation:SCODe?`

Arguments   <numeric_value>::=<NR1> specifies the scrambling code
Range: 0 to 127.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:MODulation:SCODe 0`
sets the scrambling code to 0 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MODulation:SPOint(?)

Sets or queries the switching point between the Uplink and Downlink timeslots in the TD-SCDMA analysis.

NOTE. *This command also affects Channel Power, ACLR, Intermodulation, and Occupied Bandwidth measurements.*

Syntax   [:SENSe]:TD_SCDMA:MODulation:SPOint <numeric_value>

[:SENSe]:TD_SCDMA:MODulation:SPOint?

Arguments   <numeric_value>::=<NR1> specifies the switching point
Range: 0 to 6.

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:MODulation:SPOint 3
sets the timeslot switching point to timeslot 3 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MODulation:SYNC:DOWNlink(?)

Sets or queries the the sync uplink value in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:MODulation:SYNC:DOWNlink <numeric_value>

[:SENSe]:TD_SCDMA:MODulation:SYNC:DOWNlink?

Arguments   <numeric_value>::=<NR1> specifies the sync downlink.
Range: 0 to 31.

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:MODulation:SYNC:DOWNlink 0
sets the code number of the downlink pilot pattern to 0 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MODulation:SYNC:UPLink(?)

Sets or queries the the sync uplink value in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:MODulation:SYNC:UPLink <numeric_value>

[:SENSe]:TD_SCDMA:MODulation:SYNC:UPLink?

Arguments <numeric_value>::=<NR1> specifies the sync uplink.
Range: 0 to 255.

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:MODulation:SYNC:UPLink 0
sets the code number of the uplink pilot pattern to 0 in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:CHPower Subgroup

The [:SENSe]:TD_SCDMA:CHPower commands set up the conditions related to the channel power measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :CHPower
            :BANDwidth|BWIDth
                :INTegration      <numeric_value>
            :DIRection?
            :LIMit
                [:STATe]          <boolean>
```

[:SENSe]:TD_SCDMA:CHPower:BANDwidth|BWIDth:INTegration(?)

Sets or queries the channel bandwidth for the channel power measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:CHPower:BANDwidth|BWIDth:INTegration <numeric_value>

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

Arguments   <numeric_value>::=<NRf> specifies the channel bandwidth for the channel power measurement. Range: (Bin bandwidth) x 8 to full span [Hz].

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:CHPower:BANDwidth:INTegration 2.5MHz
sets the channel bandwidth to 2.5 MHz for the channel power measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:CHPower:DIRection?

Queries which limit table is used for the channel power measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:CHPower:DIRection?

Returns   UPLink   Uplink
DOWNlink   Downlink

Measurement Modes   DEMTD_SCDMA

[:SENSe]:TD_SCDMA:CHPower:LIMit[:STATe](?)

Sets or queries whether to enable or disable the limit testing for the channel power measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:CHPower:LIMit[:STATe] {ON|OFF|1|0}

[:SENSe]:TD_SCDMA:CHPower:LIMit[:STATe]?

Arguments   ON or 1 enables the limit testing.
OFF or 0 disables the limit testing.

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:CHPower:LIMit:STATe ON
enables the limit testing for the channel power measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:ACLR Subgroup

The [:SENSe]:TD_SCDMA:ACLR commands set up the conditions related to the ACLR (Adjacent Channel Leakage power Ratio) measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
   :TD_SCDMA
      :ACLR
         :DIRection?
         :LIMit
            :ADJacent[1]|2|3|4
               [:STATe]         <boolean>
```

[:SENSe]:TD_SCDMA:ACLR:DIRection?

Queries which limit table is used for the ACLR measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:ACLR:DIRection?

Returns   UPLink   Uplink
           DOWNlink   Downlink

Measurement Modes   DEMTD_SCDMA

[:SENSe]:TD_SCDMA:ACLR:LIMit:ADJacent[1]|2|3|4[:STATe](?)

Sets or queries whether to enable or disable the adjacent limit testing for the ACLR measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:ACLR:LIMit:ADJacent[1]|2|3|4[:STATe]
{ON|OFF|1|0}

[:SENSe]:TD_SCDMA:ACLR:LIMit:ADJacent[1]|2|3|4[:STATe]?

ADJacent [1]|2|3|4 is defined as follows:

ADJacent[1] is "1st Lower".
ADJacent2 is "1st Upper".
ADJacent3 is "2nd Lower".
ADJacent4 is "2nd Upper".

Arguments   ON or 1 enables the adjacent limit testing.
OFF or 0 disables the adjacent limit testing.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:ACLR:LIMit:ADJacent 1`
enables the first lower adjacent limit testing for the ACLR measurement in the
TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MACCuracy Subgroup

The [:SENSe]:TD_SCDMA:MACCuracy commands set up the conditions related to
the modulation accuracy measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
   :TD_SCDMA
      :MACCuracy
         :DIRection?
         :LIMit
            :EVM
               :PEAK
                  [:STATe]       <boolean>
               :RMS
                  [:STATe]       <boolean>
            :PCDerror
               [:STATe]          <boolean>
            :RHO
               [:STATe]          <boolean>
```

[:SENSe]:TD_SCDMA:MACCuracy:DIRection?

Queries which limit table is used for the modulation accuracy measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:MACCuracy:DIRection?

Returns   UPLink   Uplink
DOWNlink   Downlink

Measurement Modes   DEMTD_SCDMA

[:SENSe]:TD_SCDMA: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 TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:MACCuracy:LIMit:EVM:PEAK[:STATe] <boolean>

[:SENSe]:TD_SCDMA: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   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:MACCuracy:LIMit:EVM:PEAK:STATe ON
enables the PEAK EVM limit testing for the modulation accuracy measurement in TD-SCDMA analysis.

[:SENSe]:TD_SCDMA: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 TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:MACCuracy:LIMit:EVM:RMS[:STATe] <boolean>

[:SENSe]:TD_SCDMA: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   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:MACCuracy:LIMit:EVM:RMS:STATe ON
enables the RMS EVM limit testing for the modulation accuracy measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MACCuracy:LIMit:PCDerror[:STATe](?)

Sets or queries whether to enable or disable the peak code domain error limit testing for the code domain power measurement in the TD-SCDMA analysis.

NOTE. This command is for the peak code domain error limit testing and does not affect modulation accuracy (MACCuracy) measurements.

Syntax `[:SENSe]:TD_SCDMA:MACCuracy:LIMit:PCDerror[:STATe] <boolean>`

`[:SENSe]:TD_SCDMA: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 DEMTD_SCDMA

Example `:SENSe:TD_SCDMA:MACCuracy:LIMit:PCDerror:STATe ON`
enables the peak code domain error limit testing for the code domain power measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:MACCuracy:LIMit:RHO[:STATe](?)

Sets or queries whether to enable or disable the Rho limit testing for the modulation accuracy measurement in the TD-SCDMA analysis.

Syntax `[:SENSe]:TD_SCDMA:MACCuracy:LIMit:RHO[:STATe] <boolean>`

`[:SENSe]:TD_SCDMA: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 DEMTD_SCDMA

Example `:SENSe:TD_SCDMA:MACCuracy:LIMit:RHO:STATe ON`
enables the Rho limit testing for the modulation accuracy measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:STABle Subgroup

The [:SENSe]:TD_SCDMA:STABle commands set up the conditions related to the Symbol Table in the TD_SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
       :STABle
          :TPCSs
             :COUNt          ONE|D16Sfactor
             :SELect         <boolean>
```

[:SENSe]:TD_SCDMA:STABle:TPCSs:COUNt(?)

Sets or queries the TPC and SS symbol count in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:STABle:TPCSs:COUNt {ONE|D16Sfactor}

[:SENSe]:TD_SCDMA:STABle:TPCSs:COUNt?

Arguments The arguments and descriptions are listed below:

Argument	Description
ONE	The symbols in the Data2 burst will be decided as if only one TPC and SS symbol are present.
D16Sfactor	The number of symbols for each TPC and SS segment is assumed to be 16 divided by the spreading factor.

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:STABle:TPCSs:COUNt ONE
sets the symbol count in the data2 burst to one for both TPC and SS symbols in TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:STABle:TPCSs:SELect(?)

Sets or queries whether to enable or disable the TPC and SS in the Data2 burst in the TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:STABle:TPCSs:SELect <boolean>

[:SENSe]:TD_SCDMA:STABle:TPCSs:SELect?

Arguments
<boolean>::={ON|OFF|1|0}
ON or 1 enables that both TPC and SS symbols can be found in the Data2 burst.
OFF or 0 disables that all Data2 burst symbols are data only.

Measurement Modes
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:STABle:TPCSs:SELect ON
enables that both TPC and SS symbols can be found in the Data2 burst in TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:IM Subgroup

The [:SENSe]:TD_SCDMA:IM commands set up the conditions related to the intermodulation measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
  :TD_SCDMA
    :IM
      :BANDwidth|BWIDth
        :INTegration     <numeric_value>
      :DIRection?
      :LIMit
        :FORDer
          [:STATe]        <boolean>
        :TORDer
          [:STATe]        <boolean>
      :SCOFfset    <numeric_value>
```

[:SENSe]:TD_SCDMA:IM:BANDwidth|BWIDth:INTegration(?)

Sets or queries the channel bandwidth for the intermodulation measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:IM:BANDwidth|BWIDth:INTegration <numeric_value>

[:SENSe]:TD_SCDMA:IM:BANDwidth|BWIDth:INTegration?

Arguments   <numeric_value>::=<NRf> specifies the bandwidth of the main channel for the intermodulation measurement.
Range: (Bin bandwidth) x 8 to full span [Hz].

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:BANDwidth:INTegration 2.5MHz
sets the channel bandwidth to 2.5 MHz for the intermodulation measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:IM:DIRection?

Queries which limit table is used for the IM measurement in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:IM:DIRection?

Returns UPLink   Uplink
DOWNlink   Downlink

Measurement Modes DEMTD_SCDMA

[:SENSe]:TD_SCDMA:IM:LIMit:FORDer[:STATe](?)

Sets or queries whether to enable or disable the fifth order limit testing for the intermodulation measurement in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:IM:LIMit:FORDer[:STATe] <boolean>

[:SENSe]:TD_SCDMA:IM:LIMit:FORDer[: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 DEMTD_SCDMA

Example :SENSe:TD_SCDMA:IM:LIMit:FORDer:STATe ON
enables the fifth order limit testing for the intermodulation measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:IM:LIMit:TORDer[:STATe](?)

Sets or queries whether to enable or disable the third order limit testing for the intermodulation measurement in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:IM:LIMit:TORDer[:STATe] <boolean>

[:SENSe]:TD_SCDMA:IM:LIMit:TORDer[: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 DEMTD_SCDMA

Example :SENSe:TD_SCDMA:IM:LIMit:TORDer:STATe ON
enables the third order limit testing for the intermodulation measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:IM:SCOFfset(?)

Sets or queries the second channel frequency for the intermodulation measurement in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:IM:SCOFfset <numeric_value>

[:SENSe]:TD_SCDMA:IM:SCOFfset?

Arguments <numeric_value>::=<NRf> specifies the second channel frequency for the intermodulation.
Range: Span/20 to full span [Hz].

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:IM:SCOFfset 1.5MHz
sets the second channel frequency to 1.5 MHz for the intermodulation measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SEMask Subgroup

The [:SENSe]:TD_SCDMA:SEMask commands set up the conditions related to the spectrum emission mask measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :SEMask
            :BANDwidth|BWIDth
                :INTegration        <numeric_value>
            :DIRection?             UPLink|DOWNlink
            :LIMit
                :ISPurious
                    :ZONE[1]|2|3|4|5
                        [:STATe]    <boolean>
                :OFCHannel
                    :ZONE[1]|2|3|4|5
                        [:STATe]    <boolean>
            :MEASurement            OFCHannel|ISPurious
            :RCHannel
                :MODE               AUTO|MANual
                :LEVel              <numeric_value>
```

[:SENSe]:TD_SCDMA:SEMask:BANDwidth|BWIDth:INTegration(?)

Sets or queries the channel bandwidth for the spectrum emission mask measurement in the TD-SCDMA analysis.

NOTE. *This command is only available when [:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE command is selects MANual.*

Syntax   [:SENSe]:TD_SCDMA:SEMask:BANDwidth|BWIDth:INTegration <numeric_value>

[:SENSe]:TD_SCDMA:SEMask:BANDwidth|BWIDth:INTegration?

Arguments   <numeric_value>::=<NRf> specifies the channel bandwidth.
Range: (Bin bandwidth) x 8 to full span [Hz].

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:SEMask:BANDwidth:INTegration 2.5MHz
sets the channel bandwidth to 2.5 MHz for the spectrum emission mask
measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SEMask:DIRection(?)

Sets or queries which limit table is used for the spectrum emission mask
measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:SEMask:DIRection {UPLink|DOWNlink}

[:SENSe]:TD_SCDMA:SEMask:DIRection?

Returns   UPLink   Uplink
DOWNlink   Downlink

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:SEMask:DIRection UPLink
sets the spectrum emission mask measurement to use the uplink limits table in
the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5[:STATe](?)

Sets or queries whether to enable or disable the offset from the inband spurious
zone limit testing for the spectrum emission mask measurement in the
TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5[:STATe]
<boolean>

[:SENSe]:TD_SCDMA: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 offset from the inband spurious zone limit testing.
OFF or 0 disables the offset from the inband spurious zone limit testing.

Measurement Modes   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:SEMask:LIMit:ISPurious:ZONE1:STATe ON
enables the offset from the inband spurious limit testing of the zone 1 for the
spectrum emission mask measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA: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 TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:SEMask:LIMit:OFCHannel:ZONE[1]|2|3|4|5[:STATe]
<boolean>

[:SENSe]:TD_SCDMA: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
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:SEMask:LIMit:OFCHannel:ZONE 1:STATe ON
enables the offset from the channel limit testing of the zone 1 for the spectrum emission mask measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SEMask:MEASurement(?)

Sets or queries the limit table type used for limit testing for the spectrum emission mask measurement in the TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:SEMask:MEASurement {OFCHannel|ISPurious}

[:SENSe]:TD_SCDMA: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
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:SEMask:MEASurement ISPurious
selects the Inband Spurious limit table for the spectrum emission mask measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE(?)

Selects or queries the selecting mode of the reference channel level to measure the spurious emission level in dBc in the TD-SCDMA analysis.

Syntax [:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE {AUTO|MANual}

[:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE?

Arguments The arguments and descriptions are listed below:

Argument	Description
AUTO	The reference channel level is measured from the input signal for the specified channel bandwidth
MANual	The reference channel level has to be defined by the command [:SENSe]:TD_SCDMA:SEMask:RCHannel:LEVel.

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:SEMask:RCHannel:MODE AUTO
sets the reference channel level to be measured from the input signal for the spectrum emission mask measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:SEMask:RCHannel:LEVel(?)

Sets or queries the reference channel level to measure the spurious emission level in dBc.

NOTE. This command is only available when [:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE command selects MANual.

Syntax [:SENSe]:TD_SCDMA:SEMask:RCHannel:LEVel <numeric_value>

[:SENSe]:TD_SCDMA:SEMask:RCHannel:LEVel?

Arguments <numeric_value>::=<NRf> specifies the reference level.
Range: −100 to 30 dBm.

Measurement Modes DEMTD_SCDMA

Example :SENSe:TD_SCDMA:SEMask:RCHannel:LEVel −10dBm
sets the reference channel level to −10 dBm for the spectrum emission mask measurement in the TD-SCDMA analysis.

Related Commands [:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE

[:SENSe]:TD_SCDMA:TOOMask Subgroup

The [:SENSe]:TD_SCDMA:TOOMask commands set up the conditions related to the transmit on/off mask measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :TOOMask
            :DIRection
            :LIMit
                :LEVel
                    :ONOFf
                        [:STATe]        <boolean>
                    MRAMp
                        [:STATe]        <boolean>
```

[:SENSe]:TD_SCDMA:TOOMask:DIRection?

Queries which limit table is used for the transmit on/off mask measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:TOOMask:DIRection?

Returns   UPLink   Uplink
DOWNlink   Downlink

Measurement Modes   DEMTD_SCDMA

[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:ONOFf[:STATe](?)

Sets or queries the enable or disable transmit on/off limit checking for the transmit on/off mask measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:ONOFf[:STATe] <boolean>

[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:ONOFf[:STATe]?

Arguments   <boolean>::={ON|OFF|1|0}
ON or 1 enables the transmit on/off mask limit testing.
OFF or 0 disables the transmit on/off mask limit testing.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:TOOMask:LIMit:LEVel:ONOFf[:STATe] ON`
enables the limit testing of the transmit on/off mask measurement in the
TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:MRAMp[:STATe](?)

Sets or queries the enable or disable transmit on/off mid-ramp level limit
checking for the transmit on/off mask measurement in the TD-SCDMA analysis.

> *NOTE. When [:SENSe]:TD_SCDMA:TOOMask:DIRection? returns ULPlink, the
> limit is the transmit ON mid-ramp level. When the query returns DOWNlink, the
> limit is the transmit OFF mid-ramp level.*

Syntax   `[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:MRAMp[:STATe] <boolean>`

    `[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:MRAMp[:STATe]?`

Arguments   <boolean>::={ON|OFF|1|0}
ON or 1 enables the transmit on/off mid-ramp level mask limit testing.
OFF or 0 disables the transmit on/off mid-ramp level mask limit testing.

Measurement Modes   DEMTD_SCDMA

Example   `:SENSe:TD_SCDMA:TOOMask:LIMit:LEVel:MRAMp[:STATe] ON`
enables the mid-ramp level limit testing of the transmit on/off mask measure-
ment in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:OBWidth Subgroup

The [:SENSe]:TD_SCDMA:OBWidth commands set up the conditions related to the occupied bandwidth (OBW) measurement in the TD-SCDMA analysis.

Command Tree

```
[:SENSe]
    :TD_SCDMA
        :OBWidth
            :DIRection?
            :LIMit
                [:STATe]              <boolean>
                :PERCent              <numeric_value>
```

[:SENSe]:TD_SCDMA:OBWidth:DIRection?

Queries which limit table is used for the occupied bandwidth measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:OBWidth:DIRection?

Returns   UPLink   Uplink
DOWNlink   Downlink

Measurement Modes   DEMTD_SCDMA

[:SENSe]:TD_SCDMA:OBWidth:LIMit[:STATe](?)

Sets or queries whether to enable or disable the limit testing for the OBW measurement in the TD-SCDMA analysis.

Syntax   [:SENSe]:TD_SCDMA:OBWidth:LIMit[:STATe] <boolean>

[:SENSe]:TD_SCDMA: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   DEMTD_SCDMA

Example   :SENSe:TD_SCDMA:OBWidth:LIMit:STATe ON
sets the limit testing to ON for the OBW measurement in the TD-SCDMA analysis.

[:SENSe]:TD_SCDMA:OBWidth:PERCent(?)

Sets or queries the occupied bandwidth for the OBW measurement in the TD-SCDMA analysis.

Syntax
[:SENSe]:TD_SCDMA:OBWidth:PERCent <numeric_value>

[:SENSe]:TD_SCDMA:OBWidth:PERCent?

Arguments
<numeric_value>::=<NRf> specifies the occupied bandwidth.
Range: 80% to 99.99% (default: 99%).

Measurement Modes
DEMTD_SCDMA

Example
:SENSe:TD_SCDMA:OBWidth:PERCent 95PCT
sets the occupied bandwidth to 95% for the OBW measurement in the TD-SCDMA analysis.

: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 DEMTD_SCDMA

Example :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 DEMTD_SCDMA

Example :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.

NOTE. This command is valid only when the Symbol Table measurement is selected.

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:
  Date and Time
  Modulation
  Symbol Rate
  Measurement Filter
  Subframe Number
  Timeslot Number
  OVSF Code Number (max SF)
  Sync-DL
  Sync-UL
  Scrambling Code
  Switching Point
  Timeslot 0 K
  Other Timeslot K
  Time from the data end point of the first symbol

NOTE. The date and time saved to the .sym file is the date and time of the last analysis of the symbol table measurement. If the analysis was run on a loaded signal file (filename.iqt), then the date and time in the .sym file will match the loaded .iqt file.

Measurement Modes DEMTD_SCDMA

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

Appendices

Appendix A: Specifications

Tables A--1 and A--2 list the characteristics of the TD-SCDMA measurements.

All listed specifications are guaranteed unless labeled with typical. Typical specifications are provided for your convenience but are not guaranteed.

Table A-1: General specifications

Characteristics	Description
Modulation format	QPSK
Minimum carrier power at RF Input	-60 dBm
Frequency range	1850 MHz to 2200 MHz

Table A-2: Measurement specifications

Characteristics			Description
Channel power measurement			
	Absolute power measurement accuracy		$\pm$ 0.6 dB typical Conditions: 20 °C to 30 °C, excluding mismatch error. Signal power at +10 dBm to -30 dBm. After Auto Level is performed at 5 MHz span.
	Relative power measurement accuracy		$\pm$ 0.2 dB typical Conditions: 20 °C to 30 °C, excluding mismatch error Signal power: 0 dBm to -30 dBm After Auto Level is performed at 5 MHz span.
	Resolution		0.01 dBm
ACLR measurement			
	Dynamic range		Conditions: Input Power > -20 dBm. 3GPP test signal with 8 DPCH in timeslots 4, 5, and 6.
		1.6 MHz offset	60 dB
		3.2 MHz offset	61 dB

Table A‐2: Measurement specifications (cont.)

Characteristics			Description
Code Domain Power			
	Relative code domain power accuracy		Conditions: Input power > -40 dBm.
		At code power > -10 dBc	± 0.15 dB ± 0.075 dB typical
		At code power > -25 dBc	± 0.30 dB ± 0.15 dB typical
	Code domain error		Residual error < -40 dB
			Conditions: Input power > -40 dBm.
Modulation accuracy			
	Residual EVM		≤ 1.5%
			Conditions: Input level > -40 dBm. 3GPP test signal with 1 DPCH in timeslots 4, 5, and 6.
	Frequency error accuracy		± 10 Hz + center frequency accuracy
	Frequency lock range		± 4 kHz
			Conditions: Input level > -40 dBm.
	Residual I/Q Offset		< - 40 dB
			Conditions: Input level > -40 dBm. 3GPP test signal with 1 DPCH in timeslots 4, 5, and 6.
CCDF			
	Histogram resolution		0.01 dB

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.

Table B‑1: Factory default settings‑ :DISPlay commands

Header	Default settings
:DISPlay:TD_SCDMA:DDEMod:MView subgroup	
:DISPlay:TD_SCDMA:DDEMod:MVIew:FORMat(?)	Waveform
:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:OFFSet(?)	10
:DISPlay:TD_SCDMA:DDEMod:MVIew:X[:SCALe]:PDIVision(?)	100 ms
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:OFFSet(?)	0
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PDIVision(?)	100 dB
:DISPlay:TD_SCDMA:DDEMod:MVIew:Y[:SCALe]:PUNit(?)	dBm
:DISPlay:TD_SCDMA:DDEMod:SView subgroup	
:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:OFFSet(?)	0
:DISPlay:TD_SCDMA:DDEMod:SVIew:X[:SCALe]:PDIVision(?)	5 MHz
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:OFFSet(?)	-20
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PDIVision(?)	100 dB
:DISPlay:TD_SCDMA:DDEMod:SVIew:Y[:SCALe]:PUNit(?)	dBm
:DISPlay:TD_SCDMA:SPECtrum subgroup	
:DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:OFFSet(?)	1.4975 GHz
:DISPlay:TD_SCDMA:SPECtrum:X[:SCALe]:PDIVision(?)	1.5 MHz
:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:OFFSet(?)	0
:DISPlay:TD_SCDMA:SPECtrum:Y[:SCALe]:PDIVision(?)	10 dB/div

Table B‑2: Factory default settings‑ :SENSe commands

Header	Default settings
[:SENSe]:TD_SCDMA subgroup	
[:SENSe]:TD_SCDMA:BLOCk(?)	0
[:SENSe]:TD_SCDMA:MEASurement(?)	0
[:SENSe]:TD_SCDMA:ACQuisition: subgroup	
[:SENSe]:TD_SCDMA:ACQuisition:SFRames(?)	3
[:SENSe]:TD_SCDMA:ACQuisition:SEConds(?)	15 ms
[:SENSe]:TD_SCDMA:ACQuisition:HISTory(?)	0
[:SENSe]:TD_SCDMA:ANALysis: subgroup	
[:SENSe]:TD_SCDMA:ANALysis:INTerval(?)	19200
[:SENSe]:TD_SCDMA:ANALysis:OFFSet[:CHIPs](?)	0
[:SENSe]:TD_SCDMA:ANALysis:OFFSet:DFRequency(?)	0 Hz
[:SENSe]:TD_SCDMA:ANALysis:OFFSet:IQ(?)	Yes
[:SENSe]:TD_SCDMA:ANALysis:CHANnel:THReshold(?)	–27 dB
[:SENSe]:TD_SCDMA:ANALysis:TSLot:(?)	All Active TS
[:SENSe]:TD_SCDMA:ANALysis:TSLot:THReshold(?)	–30 dB
[:SENSe]:TD_SCDMA:ANALysis:REFerence:SUBFrame(?)	0
[:SENSe]:TD_SCDMA:ANALysis:Reference:TFPHase(?)	MIDamble
[:SENSe]:TD_SCDMA:SPECtrum: subgroup	
[:SENSe]:TD_SCDMA:SPECtrum:OFFSet(?)	0
[:SENSe]:TD_SCDMA:SELect subgroup	
[:SENSe]:TD_SCDMA:SELect:SFRame(?)	0
[:SENSe]:TD_SCDMA:SELect:TSLot(?)	0
[:SENSe]:TD_SCDMA:SELect:CODE(?)	0
[:SENSe]:TD_SCDMA:MODulation subgroup	
[:SENSe]:TD_SCDMA:MODulation:CONTrol(?)	AUTO
[:SENSe]:TD_SCDMA:MODulation:SYNC:UPLink(?)	0
[:SENSe]:TD_SCDMA:MODulation:SYNC:DOWNlink(?)	0
[:SENSe]:TD_SCDMA:MODulation:SCODe(?)	0
[:SENSe]:TD_SCDMA:MODulation:SPOint(?)	3
[:SENSe]:TD_SCDMA:MODulation:K:ZERO(?)	16
[:SENSe]:TD_SCDMA:MODulation:K:NZERo(?)	16
[:SENSe]:TD_SCDMA:FILTer subgroup	
[:SENSe]:TD_SCDMA:FILTer:MEASurement(?)	RootRaisedCosine
[:SENSe]:TD_SCDMA:CHPower subgroup	
[:SENSe]:TD_SCDMA:CHPower:BANDwidth|BWIDth:INTegration(?)	1.6 MHz

Table B- 2: Factory default settings- :SENSe commands (cont.)

Header	Default settings
[:SENSe]:TD_SCDMA:CHPower:FILTer:TYPE(?)	None
[:SENSe]:TD_SCDMA:CHPower:LIMit[:STATe](?)	No
[:SENSe]:TD_SCDMA:ACLR subgroup	
[:SENSe]:TD_SCDMA:ACLR:FILTer:TYPE(?)	RootRaiseCosine
[:SENSe]:TD_SCDMA:ACLR:LIMit:ADJacent[1]|2|3|4[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:MACCuracy subgroup	
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:EVM:RMS[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:EVM:PEAK[:STATe](?)	No
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:PCDerror[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:MACCuracy:LIMit:RHO[:STATe](?)	No
[:SENSe]:TD_SCDMA:STABle subgroup	
[:SENSe]:TD_SCDMA:STABle:TPCSs:SELect(?)	No
[:SENSe]:TD_SCDMA:STABle:TPCSs:COUNt(?)	One
[:SENSe]:TD_SCDMA:IM subgroup	
[:SENSe]:TD_SCDMA:IM:BANDwidth|BWIDth:INTegration(?)	1.28 MHz
[:SENSe]:TD_SCDMA:IM:FILTer:TYPE(?)	None
[:SENSe]:TD_SCDMA:IM:SCOFfset(?)	1.6 MHz
[:SENSe]:TD_SCDMA:IM:LIMit:TORDer[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:IM:LIMit:FORDer[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:SEMask subgroup	
[:SENSe]:TD_SCDMA:SEMask:BANDwidth|BWIDth:INTegration(?)	1.28 MHz
[:SENSe]:TD_SCDMA:SEMask:FILTer:TYPE(?)	None
[:SENSe]:TD_SCDMA:SEMask:MEASurement(?)	OffsetFromChannel
[:SENSe]:TD_SCDMA:SEMask:RCHannel:MODE(?)	Auto
[:SENSe]:TD_SCDMA:SEMask:DIRection(?)	Downlink
[:SENSe]:TD_SCDMA:SEMask:LIMit:OFCHannel:ZONE[1]|2|3|4|5[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:SEMask:LIMit:ISPurious:ZONE[1]|2|3|4|5[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:TOOMask subgroup	
[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:ONOFf[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:TOOMask:LIMit:LEVel:MRAMp[:STATe](?)	Yes
[:SENSe]:TD_SCDMA:OBWidth Subgroup	
[:SENSe]:TD_SCDMA:OBWidth:PERcent(?)	99%
[:SENSe]:TD_SCDMA:OBWidth:LIMit[:STATe](?)	Yes

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 dBm 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	16 codes	Relative: -200 dB to 100 dB Absolute: 140 dBm to -160 dBm
CDP versus subframe	Variable Maximum: 4000 subframes (Standard), 1000 subframes (Opt 02)	Relative: -200 dB to 100 dB Absolute: 140 dBm to -160 dBm
CDP versus symbol	Data: Variable, based on spreading factor. Maximum: 704	Relative: -200 dB to 100 dB Absolute: 140 dBm to -160 dBm
CDP codogram	16 codes	-1000 to 0 subframes (Standard) -2047 to 0 subframes (Option 02)
Composite constellation	Fixed	Fixed
Symbol constellation	Fixed	Fixed
EVM	704 symbols maximum	-100% to 200%
Magnitude error	704 symbols maximum	-300% to 300%
Phase error	704 symbols maximum	-675 deg to 675 deg
Symbol table	Data: 704 maximum	-
Power versus time	Timeslot Summary (full burst): 0 to +675 µsec and 6.25 µsec additional pre/post timeslot data (and chip position within subframe) Subframe Summary: -5.0 msec to 0 msec (6400 chip) Transmit On/Off Mask: same as subframe summary	-200 dBm to 100 dBm

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