

# User Manual



## WCAUL1 3GPP Up-Link Analysis Software 070-A817-50

This document applies to firmware version 3.2  
and above.

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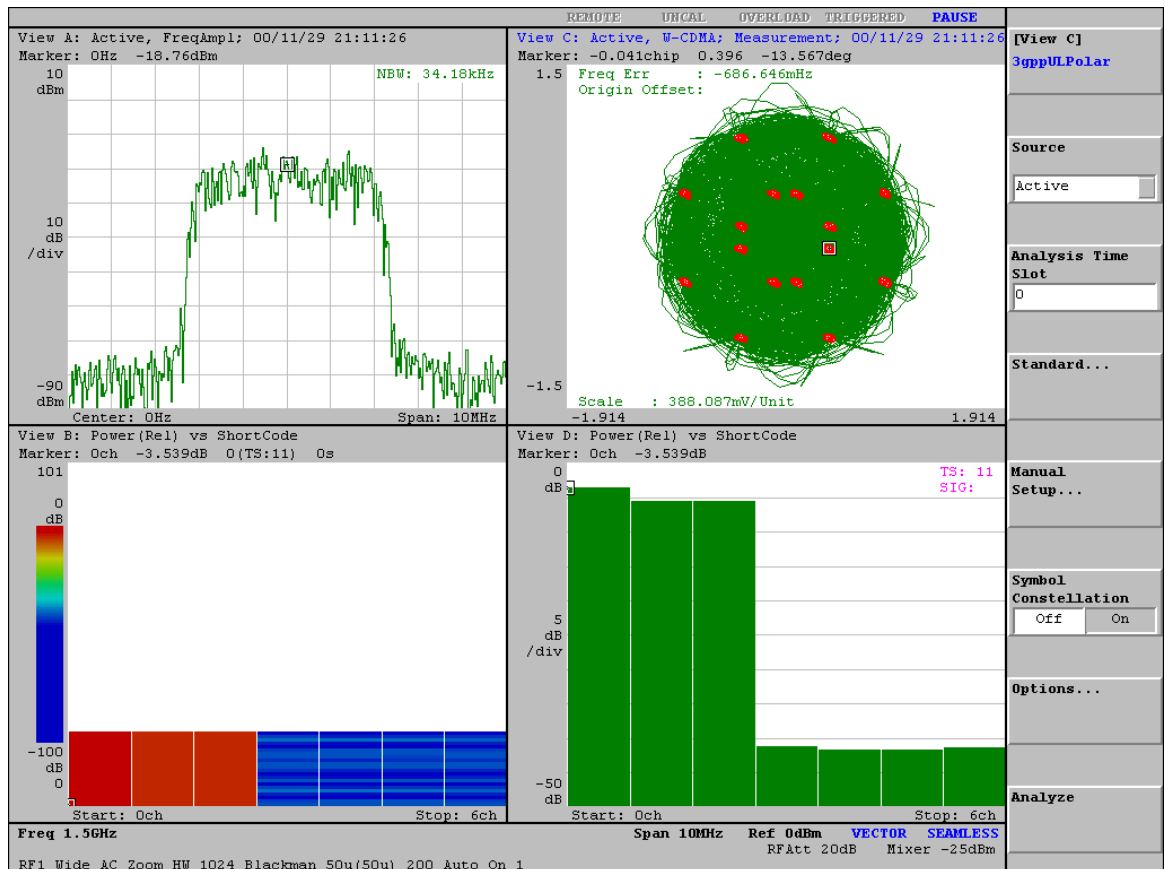
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# Product Overview

WCAUL1 is the 3GPP (3<sup>rd</sup> Generation Partnership Project) up-link signal analysis software working on the WCA330 and WCA380 Wireless Communication Analyzers. A measurement display example is shown in Figure 1–1.



**Figure 1–1: 3GPP up-link analysis display example**

This manual describes the software installation procedure, basic operations, and GPIB commands for WCAUL1. For details on the WCA330 and WCA380 operations and GPIB commands, refer to the following manuals:

- *WCA330 and WCA380 User Manual* (Tektronix part number 070-A792-XX)
- *WCA330 and WCA380 Programmer Manual* (Tektronix part number 070-A794-XX)

## 3GPP Up-Link Analysis

With the WCAUL1 application software, the analyzer processes up-link signals specified in the 3GPP standard as described below.

**Signal Type** The analyzer supports three types of 3GPP up-link signals.

- DPDCH (Dedicated Physical Data Channel) / DPCCH (Dedicated Physical Control Channel)
- PRACH (Physical Random Access Data Channel)
- PCPCH (Physical Common Packet Channel)

**Up-Link Parameters** The analyzer covers the 3GPP up-link parameters listed in Table 1–1.

**Table 1–1: Up-link parameters**

Item	DPDCH/DPCCH		PRACH		PCPCH	
	DPDCH	DPCCH	Data part	Control part	Data part	Control part
Chip rate	3.84 Mcps					
Symbol rate	15, 30, 60, 120, 240, 480, 960 kbps	15 kbps	15, 30, 60, 120 kbps	15 kbps	15, 30, 60, 120, 240, 480, 960 kbps	15 kbps
Max. number of channels	6	1	1	1	1	1
Frame structure	15 time-slots, 10 ms					
Time slot	2560 chips, 667 $\mu$ s					
Scrambling code	Long or short Number: 0 to 16,777,215		Long Number: 0 to 8,191		Long Number: 8,192 to 40,959	
Preamble	–		4096 chips, 1.067 ms		4096 chips, 1.067 ms	
Modulation method	BPSK for each channel					
Baseband filter	Root-cosine with $\alpha=0.22$ (default); $0.0001 \leq \alpha \leq 1$ settable					

**NOTE.** The analyzer de-spreads the DPCCH or control part to establish synchronization and correct frequency and phase for the up-link signal analysis. If the DPCCH or control part levels are too low to be detected, the analyzer cannot make measurement correctly. This error occurs when the DPCCH or control part level is less than about 1/10<sup>th</sup> the sum of other channel (DPDCH or data part) levels.



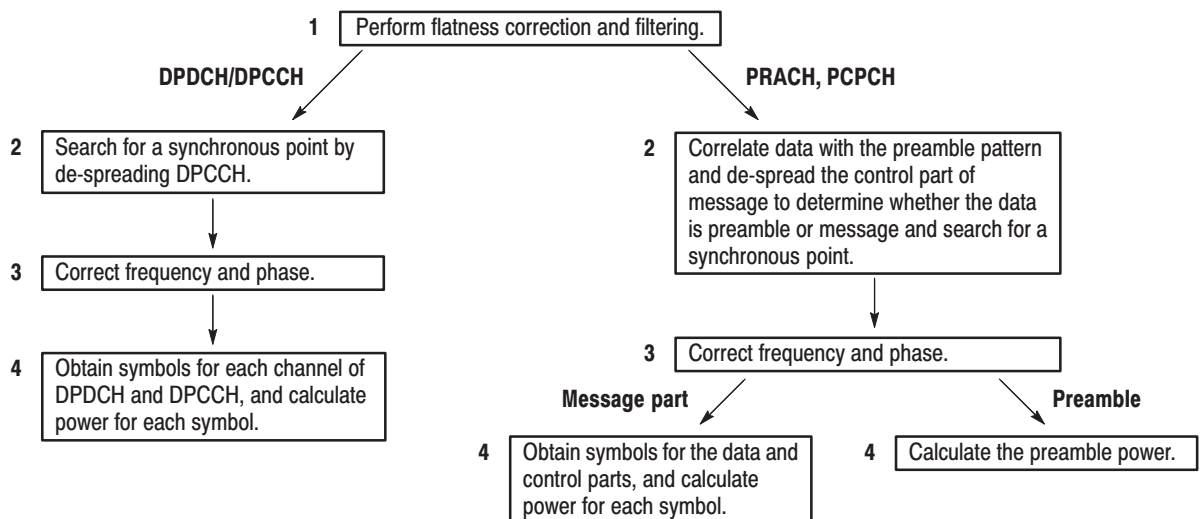
**Measurement Functions**

The analyzer has the following measurement functions.

- *Code-domain power*  
The analyzer measures relative power to the total power for each channel.
- *Time vs. code-domain power*  
The analyzer measures the relative power at symbol points for each channel as time series.
- *Code-domain power spectrogram*  
The analyzer measures the code-domain power continuously for maximum 150 slots (0.1 s) and displays spectrogram for each slot.
- *Vector/constellation*  
The analyzer measures the vector loci and chip points for entire signals, as well as constellation at symbol points for each channel.
- *Modulation accuracy*  
The analyzer measures EVM (error vector magnitude), amplitude error, phase error, waveform quality, and origin offset for each channel.

**Measurement Process**

The analyzer processes the input signals internally as shown in Figure 1–2.



**Figure 1–2: Internal process for 3GPP up-link analysis**



# Software Installation

This section shows the procedure to install the 3GPP up-link analysis software onto your WCA330 or WCA380 analyzer using the WCAUL1 diskettes.

## Preparation

Attach a mouse to the analyzer and access Windows 98 before installing the software.

### Connecting a Mouse

1. Turn off the analyzer.

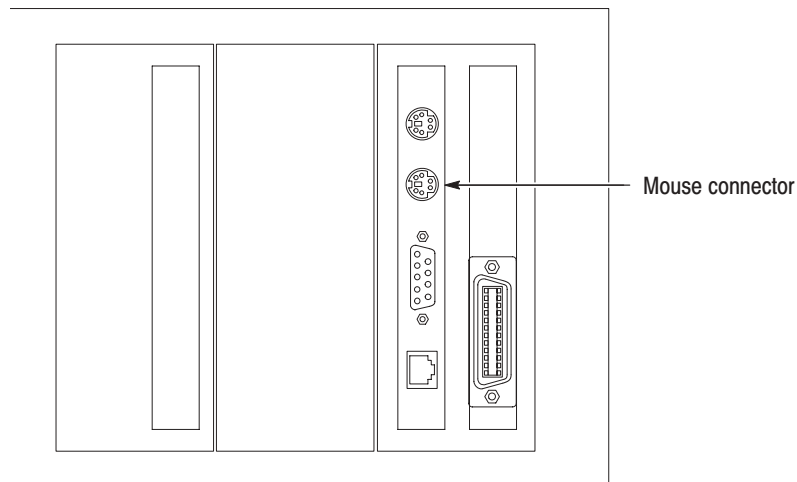


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**CAUTION.** Be sure that the power is off before you attach a mouse or a keyboard. When power is on, you must place the power switch on the front panel in the off position and wait for power-down.

---

2. Connect a PS/2 mouse to the rear panel connector. See Figure 1-3.



**Figure 1-3: Mouse connector location (rear panel)**

3. Turn on the analyzer.

### Accessing Windows 98

1. Use the mouse to move the pointer to the bottom of the display (see Figure 1–4). The task bar appears.
2. Locate the pointer on the **WCA330** or **WCA380** icon in the task bar and right-click. A menu appears.
3. Select **Close** in the menu. The system program of the analyzer terminates and a Windows 98 desktop screen appears.

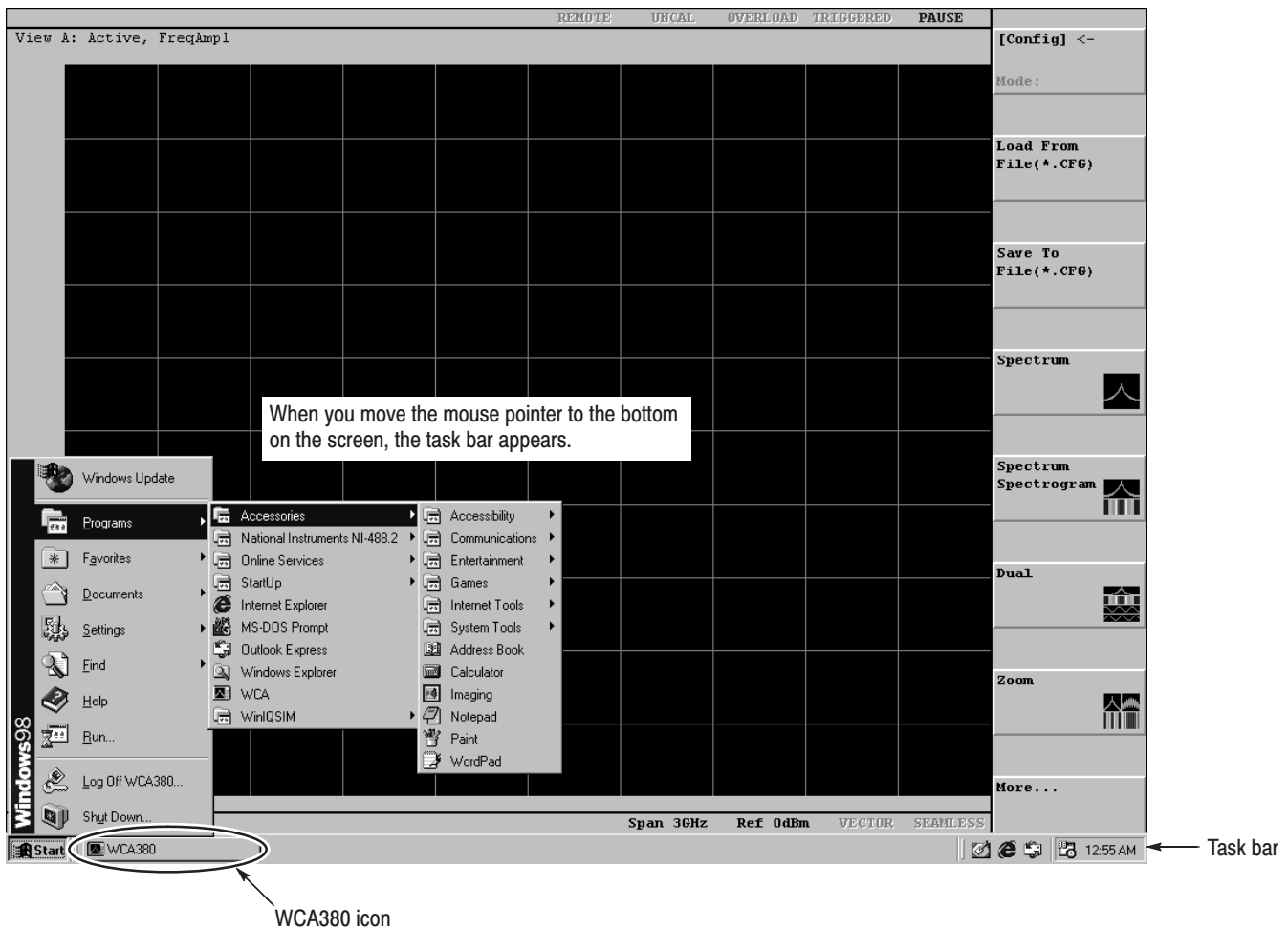


Figure 1–4: Displaying the Windows 98 task bar

## Installation

### Uninstalling the Old Software

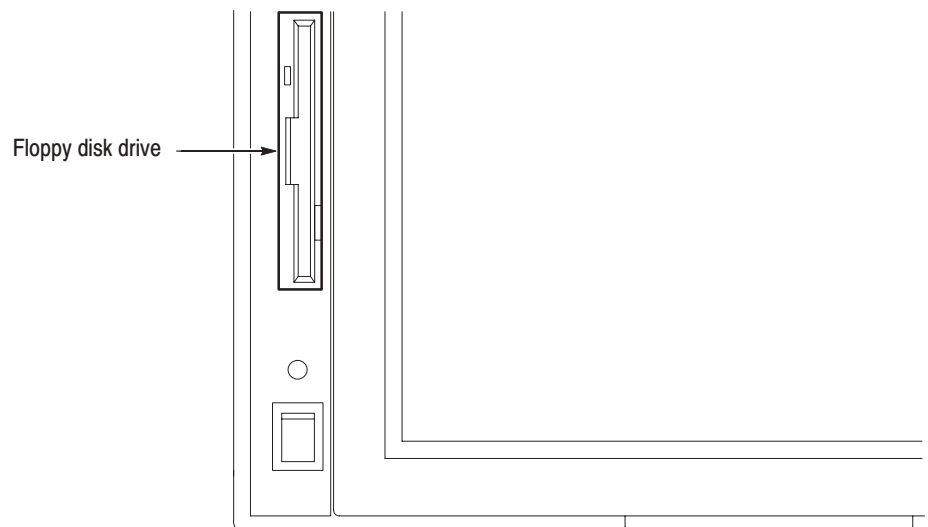
If you have installed an earlier version of the 3GPP up-link analysis software, remove the old files.

1. On the desktop, double-click **My Computer** → **Control Panel** → **Add/Remove Programs** in this order.
2. In the Add/Remove Programs Properties dialog box, select the **WCA 3GPP Up Link**, then click **Add/Remove...**
3. The Confirm File Deletion dialog box opens. Click **Yes** to confirm the deletion.
4. The Remove Programs From Your Computer dialog box appears. Click **OK**.
5. In the Add/Remove Programs Properties dialog box, click **OK**.
6. Close all windows.

### Installing the New Software

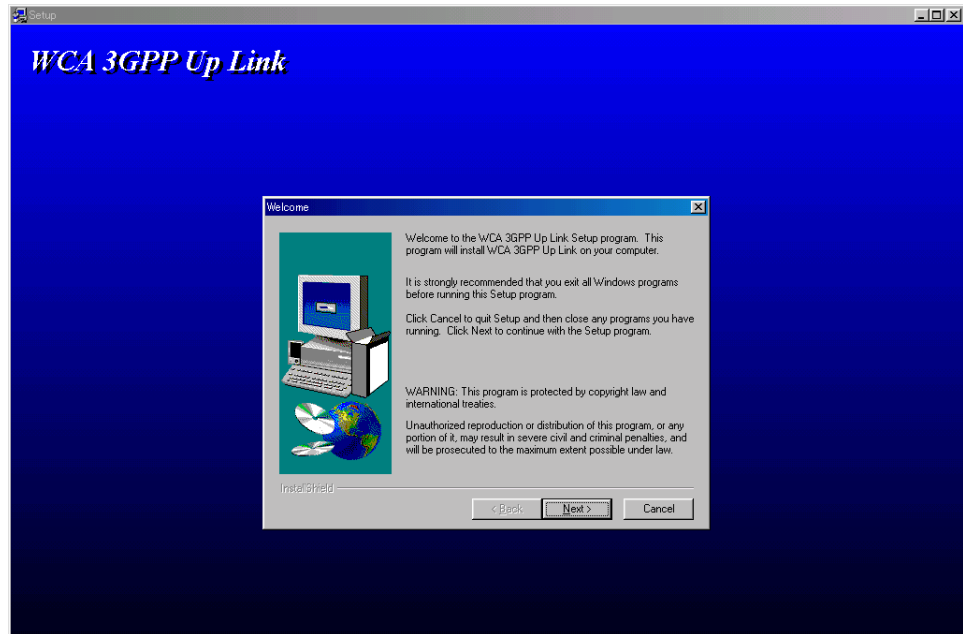
Install the new software using the WCAUL1 diskettes.

1. Insert the *WCAUL1 3GPP Up-Link Analysis Software* Disk 1 into the floppy disk drive of the analyzer.
2. Double-click **My Computer** and then **3.5 inch FD**.



**Figure 1-5: Floppy disk drive location (front panel)**

3. In the floppy disk window, double-click the **Setup.exe** icon to start the Setup Wizard.



**Figure 1-6: Setup Wizard initial screen**

4. In the Setup Wizard, do the following steps:
  - a. In the Welcome dialog box, click **Next**.
  - b. In the Choose Destination Location dialog box, click **Next**.
  - c. In the Start Copying Files dialog box, click **Next**.
  - d. When the Setup Needs The Next Disk message box appears, change the floppy disk as prompted.
  - e. When the Setup Complete dialog box appears, eject the floppy disk and then click **Finish**.
5. Close all windows.

### **Return to the View Display**

When you have finished the software installation, switch the display from the Windows 98 desktop to the analyzer view display.

- From the task bar, select **Start** → **Program** → **WCA** in this order to start the application.

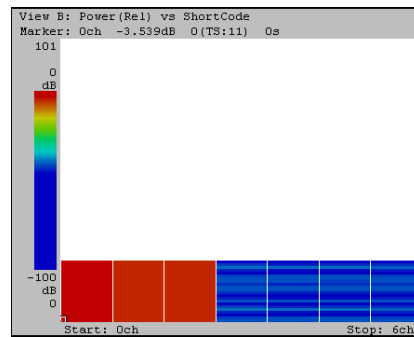
# Measurement Procedure

This chapter describes basic operations for 3GPP up-link signal analysis. For operation details, refer to the *WCA330 and WCA380 User Manual*.

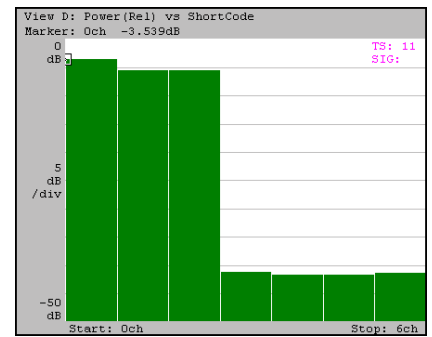
## Displaying Up-Link Analysis Views

There are four views dedicated to 3GPP up-link analysis as shown in Figure 2–1.

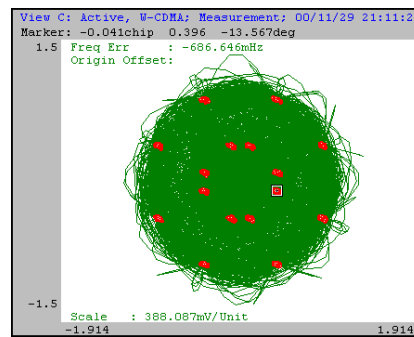
- *3gppULSpectrogram* view displays code-domain power spectrogram.
- *3gppULPolar* view displays a vector diagram.
- *3gppULPower* view displays code-domain power.
- *3gppULSymbolTable* view displays a symbol table.



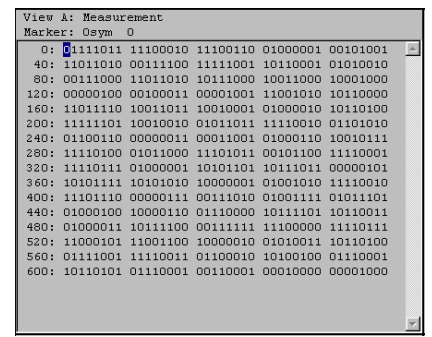
3gppULSpectrogram view



3gppULPower view



3gppULPolar view



3gppULSymbolTable view

Figure 2–1: The views dedicated to 3GPP up-link analysis

The view menus are detailed in the section *View Menus* on page 2–9.

There are two ways to display the 3GPP up-link analysis views: selecting the up-link analysis mode and defining views individually, as follows.

### Selecting the Up-Link Analysis Mode

Usually, use the CONFIG:MODE key to configure the analyzer with the internal basic settings for up-link analysis.

1. Press the CONFIG:MODE key on the front panel (see Figure 2–2).
2. Press the side key **More...→ 3GPP...→ Up Link** to configure the analyzer for the 3GPP up-link signal analysis.

Default views are as follows:

- View A: Spectrum (Waveform view)
- View B: Code-domain power spectrogram (3gppULSpectrogram view)
- View C: Vector diagram (3gppULPolar view)
- View D: Code-domain power (3gppULPower view)

### Defining Views Individually

When you want to define views individually, use the CONFIG:VIEW key.

1. Press the CONFIG:VIEW key on the front panel (see Figure 2–2).
2. Press one of the **View A to H** side keys and define the view. For example, when you define the View A as 3gppULSymbolTable view, press the **View A** side key and select 3gppULSymbolTable.

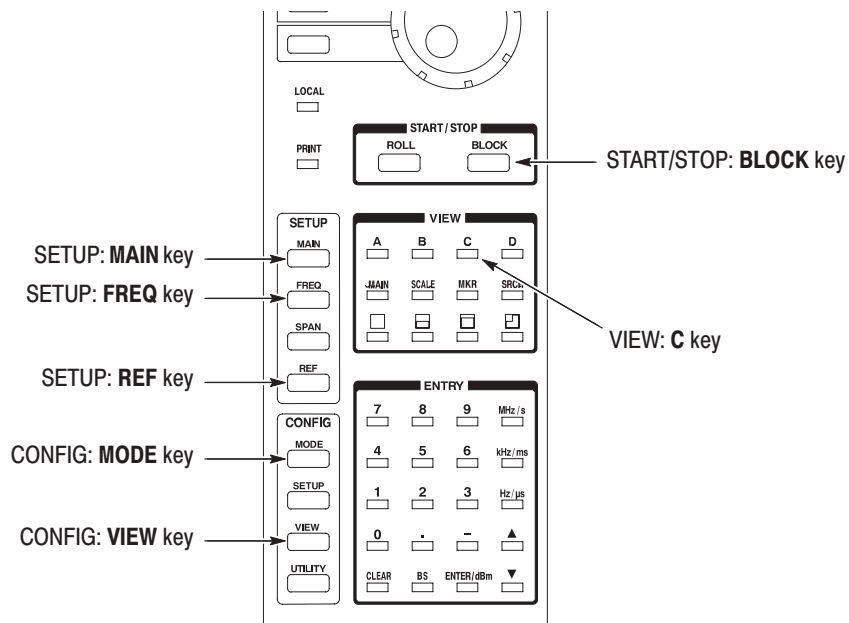


Figure 2–2: Front panel keys



## Basic Procedure

The following is a basic procedure to analyze 3GPP up-link signals. See Figure 2–2 for the front panel keys.

1. Press the CONFIG:MODE key on the front panel.
2. Press the side key **More...**→ **3GPP...**→ **Up Link** to configure the analyzer for the 3GPP up-link signal analysis.

These are the default views:

View A: Spectrum (Waveform view)

View B: Code-domain power spectrogram (3gppULSpectrogram view)

View C: Vector diagram (3gppULPolar view)

View D: Code-domain power (3gppULPower view)

For details on the 3GPP up-link analysis view menus, refer to *View Menus* on page 2–9. For information on the other menus, refer to the *WCA330 and WCA380 User Manual*.

3. Press the VIEW:C key to select the 3gppULPolar view.
4. Press the side key **Options...**→ **Mode** and select the signal type: DPDCH/DPCCH, PRACH, or PCPCH (see Figure 2–3).

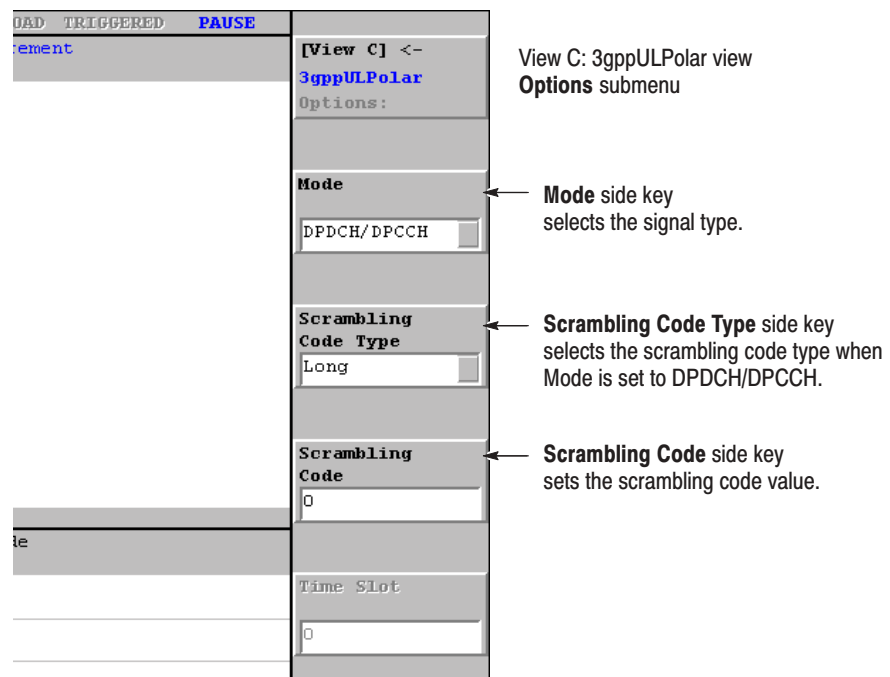


Figure 2–3: Options menu in the 3gppULPolar view

5. For *DPDCH/DPCCH*: Press the **Scrambling Code Type** side key and select the type: Long or Short.

For *PRACH* or *PCPCH*: Press the **Threshold** side key and input the threshold value for determining whether the input signal is a burst. The range is –100 to 10 dB relative to the reference level.

6. Press the **Scrambling Code** side key and input the value.
7. Press the SETUP:**FREQ** key and set the center frequency.
8. Press the SETUP:**REF** key and set the reference level.
9. Press the SETUP:**MAIN** key to access the setup menu.
10. Press the **Block Size** side key and set the number of frames. The number of frames *M* must satisfy the following condition to analyze *N* slots:

$$M > K (N + 1.5)$$

where *K*=13.4; Exclude the preamble for *PRACH* and *PCPCH*.

11. Press the START/STOP:**BLOCK** key to start data acquisition.

After the data acquisition is completed, the first slot is analyzed.

When the input level is too high, the OVERLOAD indicator displays in red. Then, increase the reference level.

12. Press the VIEW:**C** key to select the 3gppULPolar view.
13. Press the **Analyze** side key to measure for all frames.

If the **Analyze** side key does not appear in the menu, press the [View C]<– side key (top side key) to go to the top level of the menu.

Figures 2–4 to 2–9 show measurement display examples.

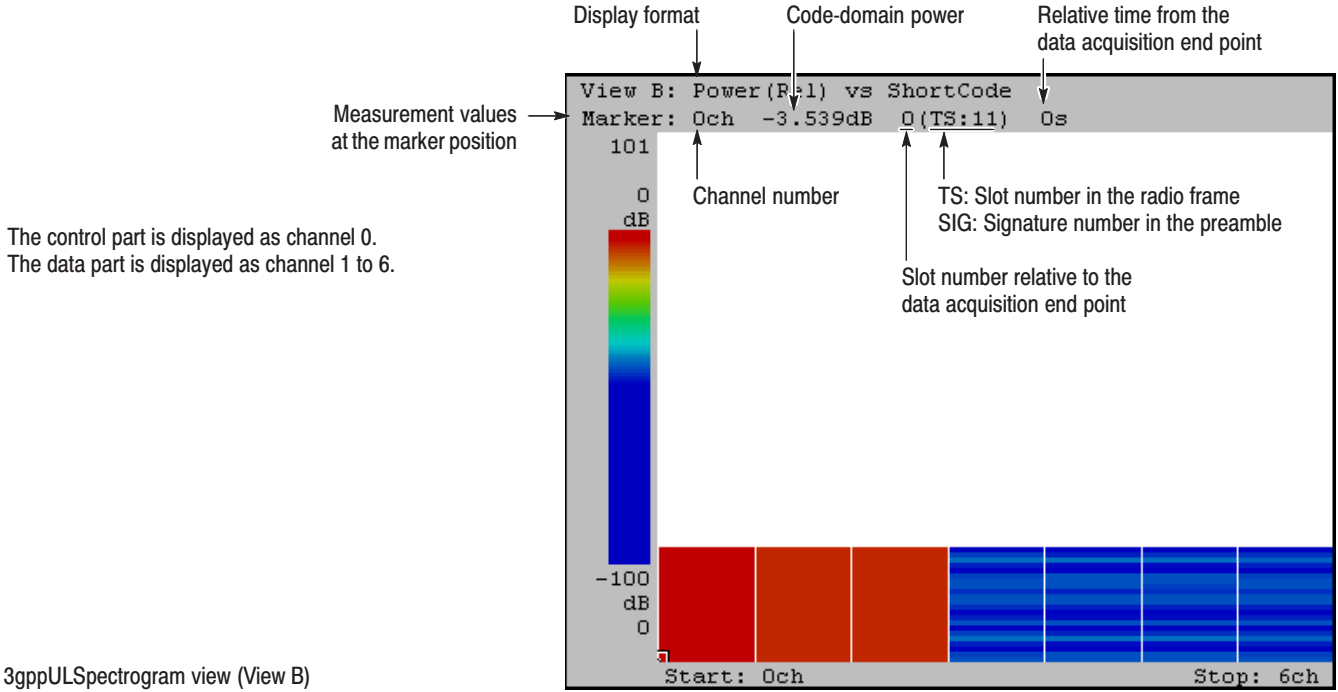


Figure 2-4: Code-domain power spectrogram

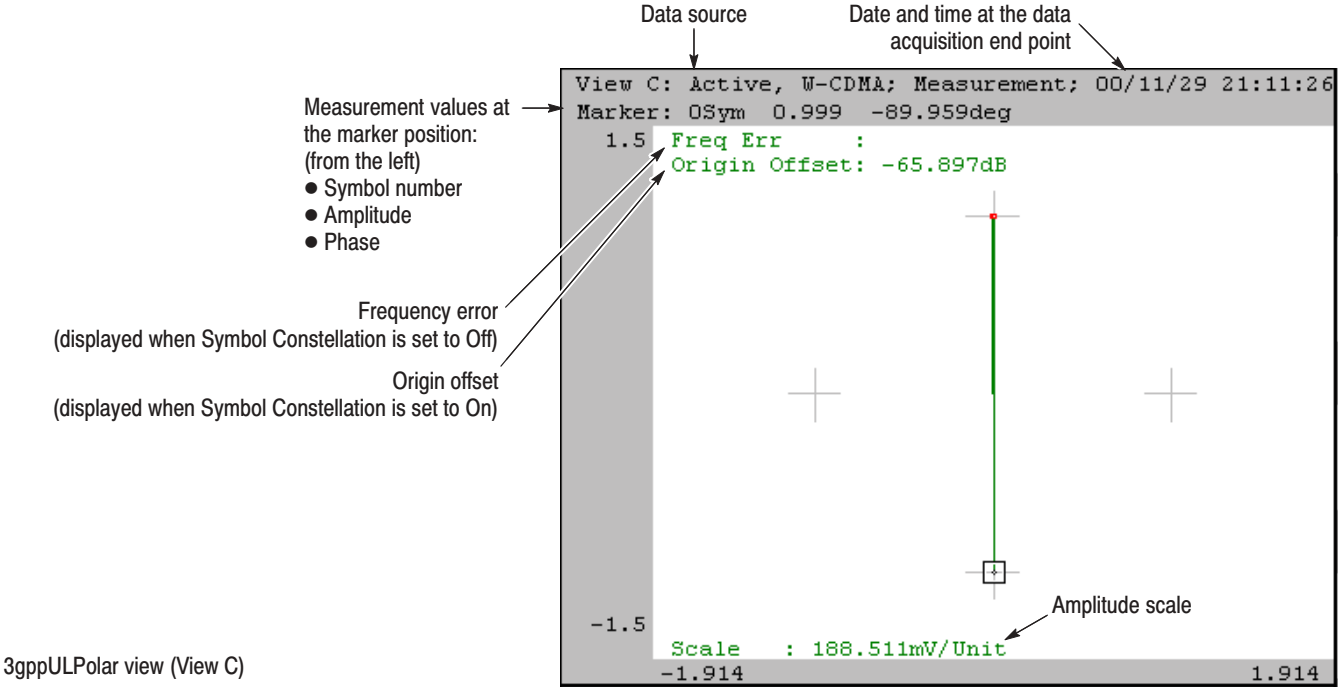
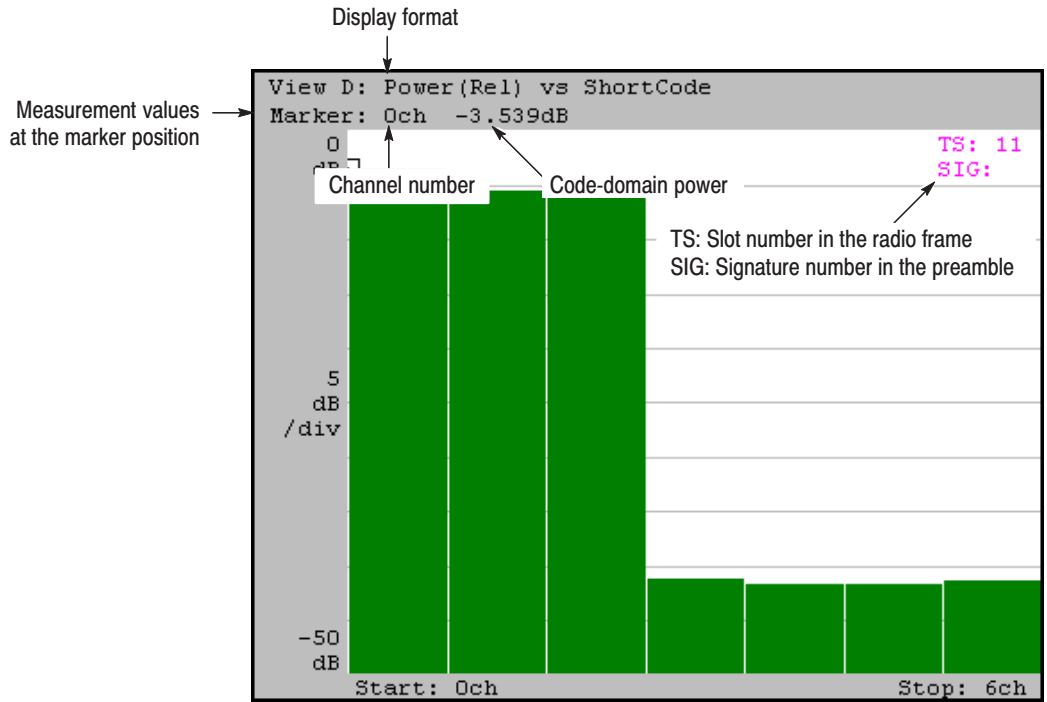
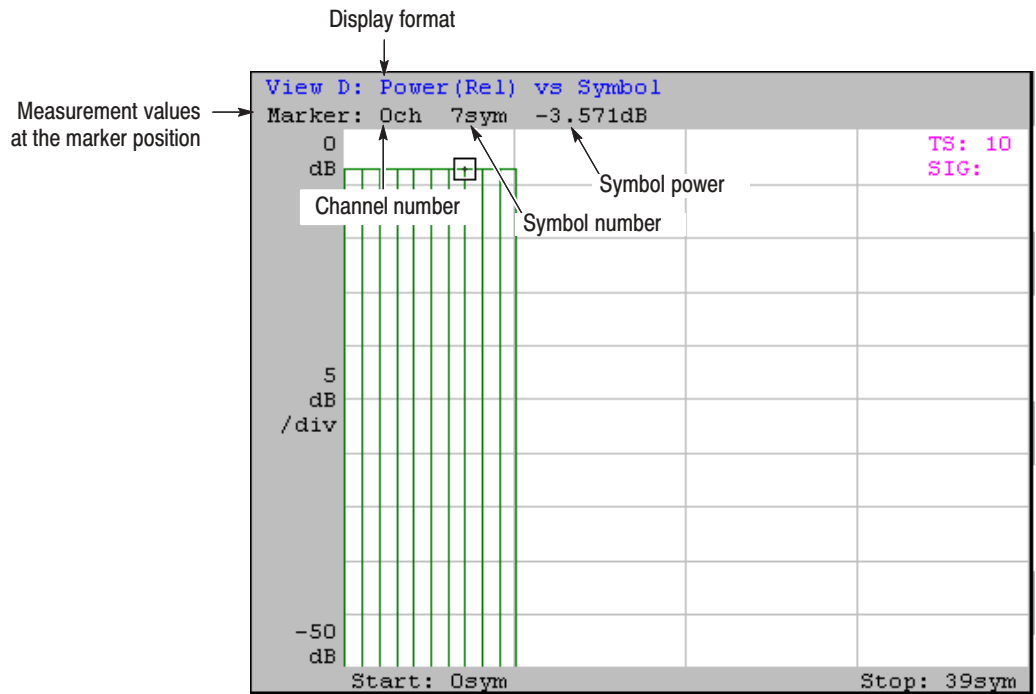


Figure 2-5: Symbol constellation



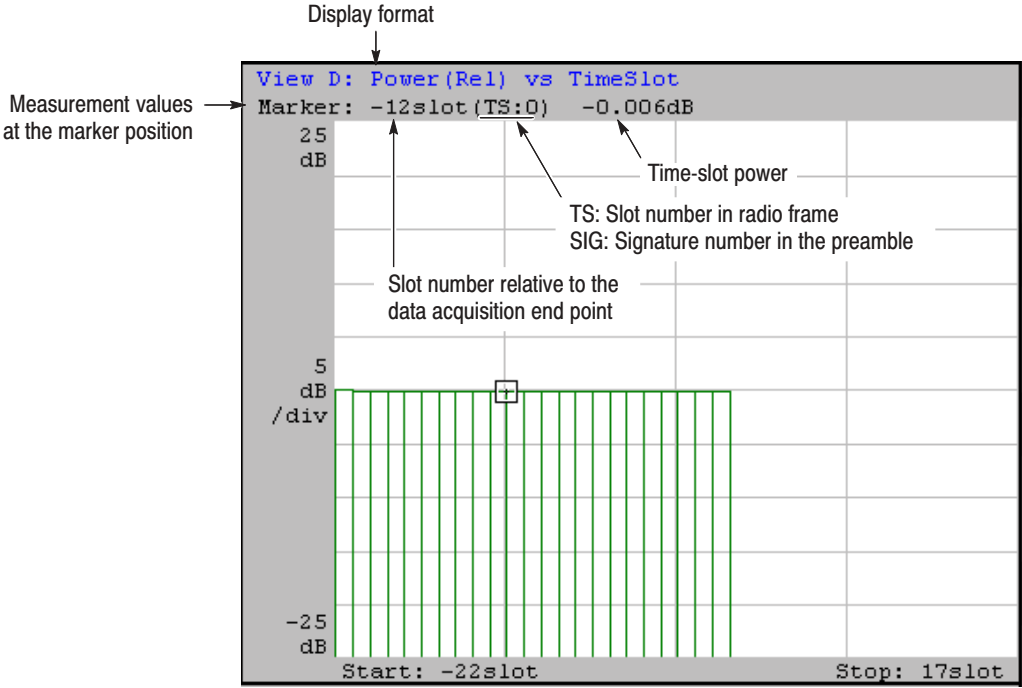
3gppULPower view (View D)  
 X Axis is set to Short Code.

Figure 2-6: Code-domain power



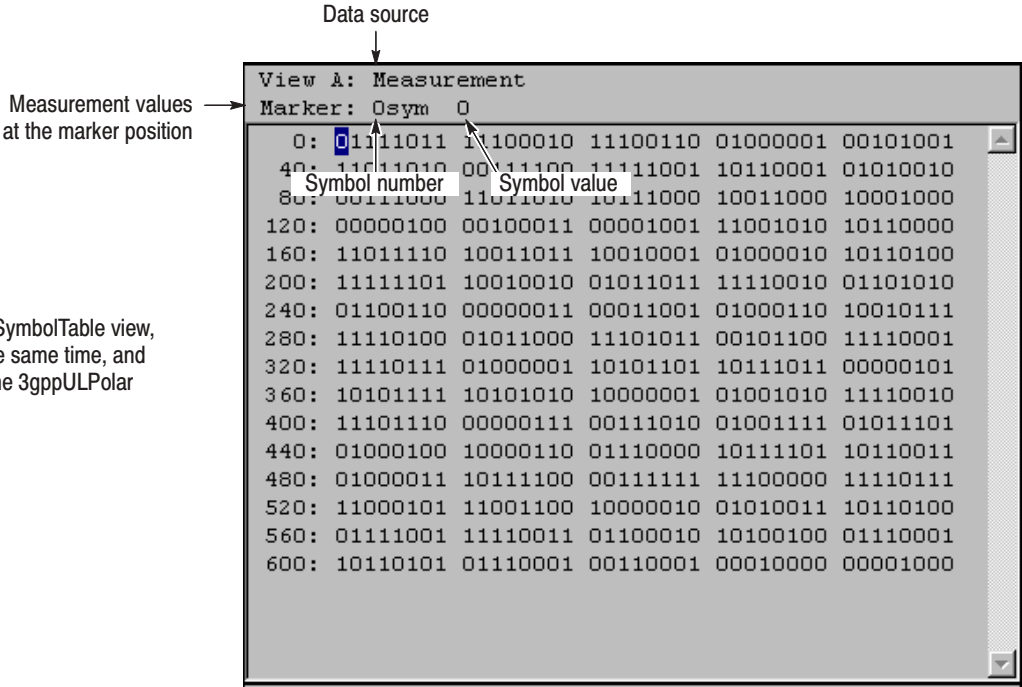
3gppULPower view (View D)  
 X Axis is set to Symbol.

Figure 2-7: Symbol power



3gppULPower view (View D)  
X Axis is set to Time Slot.

Figure 2-8: Time-slot power



Whenever you display the 3gppULSymbolTable view, display the 3gppULPolar view at the same time, and turn **Symbol Constellation** on in the 3gppULPolar view menu.

3gppULSymbolTable view defined as View A in this example.

Figure 2-9: Symbol table



# View Menus

This section explains the view menus for the 3GPP up-link analysis.

- 3gppULSpectrogram view menu                      page 2–10
- 3gppULPolar view menu                              page 2–13
- 3gppULPower view menu                            page 2–15
- 3gppULSymbolTable view menu                    page 2–18

For the standard menus other than above, refer to the *WCA330 and WCA380 User Manual*.

## 3gppULSpectrogram View Menu

Table 2–1 summarizes the view menu when the view is defined as 3gppULSpectrogram. According to the 3GPP standard, this view displays each channel power measured for each slot in color with channel along the horizontal axis and slot (time) along the vertical axis.

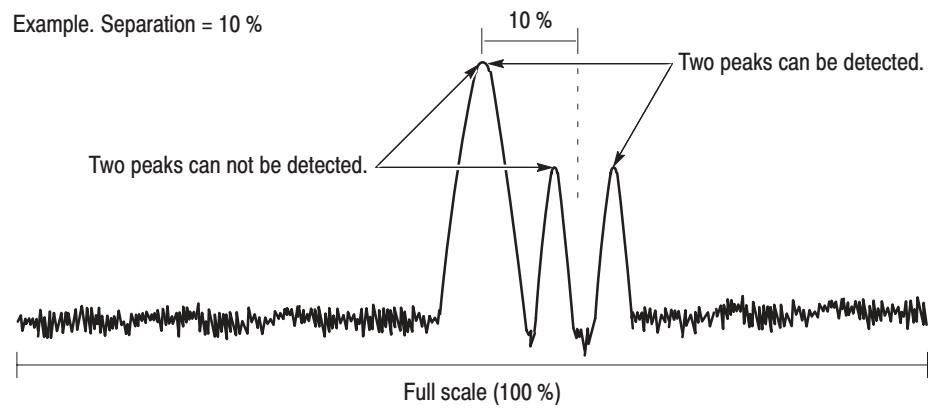
**Table 2–1: 3gppULSpectrogram view menu table**

Top level	Subordinate level, options and descriptions			
<b>Time Slot</b>	Specifies the time slot number on which the marker is positioned.			
<b>Ver. Start</b>	Specifies the starting time-slot number on the vertical axis. The default is slot 0 which contains the latest data.			
<b>Symbol Rate</b>	15k/30k/60k/ 120k/240k/480k/ 960k	Selects the symbol rate to display the code domain power.		
<b>Options...</b>	<b>Y Axis</b>	Selects relative or absolute representation for the Y (color) axis.		
		Relative	Represents relative channel power to the total power along the Y axis.	
		Absolute	Represents absolute channel power along the Y axis.	
	<b>Monochrome</b>	Selects the monochrome (On) or color (Off) display. The default is the color display.		
	<b>Number Colors</b>	Selects the number of display colors, 100 (default) or 10.		
	<b>Scale, Marker, Search...</b>	<b>Scale...</b>	Sets up the horizontal and vertical axes.	
			<b>Hor. Scale</b>	Sets the horizontal axis scale.
			<b>Hor. Start</b>	Sets the horizontal axis start value.
			<b>Ver. Scale</b>	Sets the vertical axis scale. The range is 1 to 32. The frames are thinned out by this number. For example, if you set Ver. Scale to 10, the spectrogram is displayed every ten frames.
			<b>Ver. Start</b>	Same as Ver. Start on the top level.
<b>Color Scale</b>			Inputs the height of the level represented in colors.  The level is represented in 100 or 10 colors from the minimum (blue) to the maximum (red). The level under the minimum is represented in black.	
<b>Color Start</b>			Inputs the start value of the level represented in colors.	
<b>Auto Scale</b>	Automatically sets the start value and scale of the vertical axis so that the entire waveform can be displayed.			



Table 2-1: 3gppULSpectrogram view menu table (cont.)

Top level	Subordinate level, options and descriptions																																
		<table border="1"> <tr> <td data-bbox="547 394 732 495"><b>Marker...</b></td> <td data-bbox="737 394 1498 495">Operates the marker and the delta marker. The marker is represented as □. The delta marker is represented as □ and ◇. For how to use the markers, refer to the <i>WCA330 and WCA380 User Manual</i>.</td> </tr> <tr> <td data-bbox="547 495 732 596"><b>Hor.</b></td> <td data-bbox="737 495 1498 596">Specifies the horizontal position to which you move □. By default, □ is positioned at the start point of the horizontal axis.</td> </tr> <tr> <td data-bbox="547 596 732 697"><b>Ver.</b></td> <td data-bbox="737 596 1498 697">Specifies the vertical position, i.e. the frame number, to which you move □. By default, the marker is positioned in frame 0.</td> </tr> <tr> <td data-bbox="547 697 732 743"><b>Delta Marker</b></td> <td data-bbox="737 697 1498 743">Turns the delta marker on or off.</td> </tr> <tr> <td data-bbox="547 743 732 789"><b>Toggle Delta</b></td> <td data-bbox="737 743 1498 789">Changes the □ and ◇ marker positions each other.</td> </tr> <tr> <td data-bbox="547 789 732 1486"><b>Search...</b></td> <td data-bbox="737 789 1498 1486"> <table border="1"> <tr> <td colspan="2" data-bbox="737 789 1498 856">Searches for the peak spectrum and places the □ marker there. You can specify the frame by moving the marker vertically.</td> </tr> <tr> <td data-bbox="737 856 922 957"><b>Peak</b></td> <td data-bbox="927 856 1498 957">Searches the peak spectrum and moves the □ marker there. Rotate the general purpose knob clockwise to search the peak rightward, and vice versa.</td> </tr> <tr> <td data-bbox="737 957 922 1033"><b>Max</b></td> <td data-bbox="927 957 1498 1033">Searches for the maximum peak spectrum and moves the □ marker there.</td> </tr> <tr> <td data-bbox="737 1033 922 1108"><b>Min</b></td> <td data-bbox="927 1033 1498 1108">Searches for the minimum peak spectrum and moves the □ marker there.</td> </tr> <tr> <td data-bbox="737 1108 922 1297"><b>Separation</b></td> <td data-bbox="927 1108 1498 1297">Sets the minimum horizontal distance to separate two peaks. The range is 0 to 10 % (full scale = 100 %). When you set Separation to, say, 10, if the distance between the two peaks accounts for 10 % or more of the full scale, these peaks are recognized as separate. 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For how to use the markers, refer to the <i>WCA330 and WCA380 User Manual</i> .	<b>Hor.</b>	Specifies the horizontal position to which you move □. By default, □ is positioned at the start point of the horizontal axis.	<b>Ver.</b>	Specifies the vertical position, i.e. the frame number, to which you move □. By default, the marker is positioned in frame 0.	<b>Delta Marker</b>	Turns the delta marker on or off.	<b>Toggle Delta</b>	Changes the □ and ◇ marker positions each other.	<b>Search...</b>	<table border="1"> <tr> <td colspan="2" data-bbox="737 789 1498 856">Searches for the peak spectrum and places the □ marker there. You can specify the frame by moving the marker vertically.</td> </tr> <tr> <td data-bbox="737 856 922 957"><b>Peak</b></td> <td data-bbox="927 856 1498 957">Searches the peak spectrum and moves the □ marker there. 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<b>Marker...</b>	Operates the marker and the delta marker. The marker is represented as □. The delta marker is represented as □ and ◇. For how to use the markers, refer to the <i>WCA330 and WCA380 User Manual</i> .																																
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**Figure 2-10: Separation setting**

## 3gppULPolar View Menu

Table 2–2 summarizes the view menu when the view is defined as 3gppULPolar. This view displays IQ loci and chip positions according to the 3GPP standard.

**Table 2–2: 3gppULPolar view menu table**

Top level	Subordinate level, options and descriptions		
<b>Source</b>	Specifies the source data for the view.		
	None	Specifies no input source. The display area in the view is empty.	
	Active	Specifies the data memory storing acquired data for the input source.	
	Zoom	Specifies the zoomed data for the input source. When you use the Zoom mode, select this. For zooming, refer to the <i>WCA330 and WCA380 User Manual</i> .	
	File(*.IQ)	Specifies the IQ-formatted data file for the input source. On accessing files, refer to the <i>WCA330 and WCA380 User Manual</i> .	
<b>Analysis Time Slot</b>	Specifies the number of the time slot to display the IQ locus. The default is slot 0 which contains the latest data.		
<b>Standard...</b>	Configures the analyzer according to the standard digital modulating system settings.		
	W-CDMA	Selects the W-CDMA standard with the chip rate of 3.84 Mcpc.	
<b>Manual Setup...</b>	Sets the modulating system, chip rate, filter, and $\alpha$ /BT manually.		
	<b>Modulation</b>	Selects the modulating system required to demodulate the digitally-modulated signal.	
		W-CDMA	Selects the W-CDMA system.
	<b>Chip Rate</b>	Inputs the chip rate required to demodulate the digitally-modulated signals.	
	<b>Measurement Filter</b>	Selects the filter required to demodulate the digitally-modulated signal. You can select either None (no filter) or RootRaisedCosine. Refer to <i>Display and Analysis of a Digitally-Modulated Signal</i> in the <i>WCA330 and WCA380 User Manual</i> for detail.	
	<b>Reference Filter</b>	Selects None (no filter), RaisedCosine, or Gaussian for the filter required to create reference data. Refer to <i>Display and Analysis of a Digitally-Modulated Signal</i> in the <i>WCA330 and WCA380 User Manual</i> for detail.	
	<b>Alpha/BT</b>	Inputs the $\alpha$ /BT value. The range is 0.0001 to 1.	
	<b>Auto Carrier</b>	Determines whether to search the carrier automatically.	
		On	Searches for the carrier automatically, and displays the frequency error relative to the center frequency on screen at Freq Err.
Off		Sets the carrier frequency with the Carrier (Hz) side key which appears by pressing the Off button.	
<b>Carrier</b>	Sets the carrier frequency when you select Off in Auto Carrier above.		
<b>Symbol Constellation</b>	Specifies how to display the constellation.		
	On	Displays the constellation for one short code.	
	Off	Displays the constellation for all signals.	

Table 2-2: 3gppULPolar view menu table (cont.)

Top level	Subordinate level, options and descriptions		
Options...	<b>Mode</b>	Selects the up-link signal type from DPDCH/DPCCH, PRACH, and PCPCH.	
	<b>Scrambling Code Type</b>	Selects Long or Short for the scrambling code type when <b>Mode</b> is set to DPDCH/DPCCH.	
	<b>Threshold</b>	Sets the threshold to determine a burst when <b>Mode</b> is set to PRACH or PCPCH. If the peak level of an input signal exceeds the threshold, it is recognized as a burst. If not, it is discarded as noise. The range is -100 dB to 10 dB relative to the reference level.	
	<b>Scrambling Code</b>	Sets the scrambling code. The range is 0 to 16,777,215.	
	<b>Time Slot</b>	Sets the number of the time slot to be displayed when Symbol Constellation is On. The range is 0 to the number of time slots - 1.	
	<b>Short Code</b>	Sets the number of the short code to be displayed when Symbol Constellation is On. The range is 0 to 6.	
	<b>Symbol Rate</b>	Sets the symbol rate to display symbol constellation: 15 k, 30 k, 60 k, 120 k, 240 k, 480 k, or 960 ksps.	
	<b>Display</b>	The polar view can display either measurement data or a reference signal, which has been demodulated and modulated in this view. Refer to <i>Display and Analysis of a Digitally-Modulated Signal</i> in the <i>WCA330 and WCA380 User Manual</i> for detail.	
		Measurement	Selects the measurement data for display.
	<b>Format</b>	Selects the display format.	
		Vector	Displays data in vector format that represents symbol-to-symbol movements using vector.
Constellation		Displays data in constellation format that represents only symbols.	
<b>Marker</b>	Inputs the time to move the <input type="checkbox"/> marker.		
<b>Analyze</b>	Performs measurement for all time slots on the data memory.		

## 3gppULPower View Menu

Table 2–2 summarizes the view menu when the view is defined as 3gppULPower. According to the 3GPP standard, this view displays each channel power measured for the symbol specified with Time Slot in the 3gppULSpectrogram view menu.

**Table 2–3: 3gppULPower view menu table**

Top level	Subordinate level, options and descriptions	
<b>X Axis</b>	Defines the horizontal axis.	
	Code	Specifies that the horizontal axis represents code numbers.
	Symbol	Specifies that the horizontal axis represents symbol numbers. The display is for the channel on which the marker is positioned when the horizontal axis represents code numbers.
	Time Slot	Specifies that the horizontal axis represents time-slot numbers.
<b>Average</b>	Determines whether to perform averaging or not.	
	Off	Specifies no averaging.
	On	Displays the measurement results averaged for the number of symbols specified with Num Averages below.
<b>Average Type</b>	Selects the averaging mode.	
	RMSExpo	Performs averaging with the exponential RMS (root-mean-square). This mode decreases the influence of the older data exponentially.
	RMS	Performs averaging with RMS (root-mean-square).
	MaxHold	Holds the maximum value.
	MinHold	Holds the minimum value.
<b>Num Averages</b>	Specifies the number of symbols to be averaged. The range is 1 to 10 <sup>6</sup> . If Average Type is set to RMS, frames specified with Num Averages are averaged before switching to a fixed display. If Average Type is set to RMSExpo, Num Averages is used for weighing old data. Refer to the <i>WCA330 and WCA380 User Manual</i> for details on averaging.	
<b>Time Slot</b>	Specifies the number of the time slot to be displayed. The default is slot 0 which contains the latest data. This menu item is displayed only when Average is Off.	
<b>Symbol Rate</b>	Selects the symbol rate to display code-domain power when <b>X Axis</b> is set to Short Code: 15 k, 30 k, 60 k, 120 k, 240 k, 480 k, or 960 ksps.	
<b>Short Code</b>	Specifies the short code to display code-domain power when <b>X Axis</b> is set to Symbol.	

Table 2-3: 3gppULPower view menu table (cont.)

Top level	Subordinate level, options and descriptions			
Options...	Y Axis	Selects relative or absolute representation for the vertical axis.		
		Relative	Represents relative channel power to the total power along the vertical axis.	
		Absolute	Represents absolute channel power along the vertical axis.	
	Display Lines...	Controls the horizontal and vertical line markers.		
		Hor. 1 Visible	Turns on or off the horizontal line marker 1.	
		Hor. 1	Sets the position of the horizontal line marker 1.	
		Hor. 2 Visible	Turns on or off the horizontal line marker 2.	
		Hor. 2	Sets the position of the horizontal line marker 2.	
		Hor. 2 – Hor. 1	Shows the difference between the horizontal line marker 1 and 2.	
		Ver. 1 Visible	Turns on or off the vertical line marker 1.	
		Ver. 1	Sets the position of the vertical line marker 1.	
		Ver. 2 Visible	Turns on or off the vertical line marker 2.	
		Ver. 2	Sets the position of the vertical line marker 2.	
		Ver. 2 – Ver. 1	Shows the difference between the vertical line marker 1 and 2.	
	Scale, Marker, Search...	Scale...	Sets up the horizontal and vertical axes.	
			Hor. Scale	Sets the horizontal axis scale.
			Hor. Start	Sets the horizontal axis start value.
			Ver. Scale	Sets the vertical axis scale.
			Ver. Start	Sets the vertical axis start value.
		Marker...	Operates the markers. Refer to the <i>WCA330 and WCA380 User Manual</i> for how to operate the markers.	
Hor.			Inputs the horizontal position to move the □ marker. By default, the marker is positioned at the origin on the horizontal axis.	
Delta Marker			Turns the delta marker on or off.	
Toggle Delta			Changes the □ and ◇ marker positions each other.	

Table 2-3: 3gppULPower view menu table (cont.)

Top level	Subordinate level, options and descriptions	
	<b>Search...</b>	Searches for the peak spectrum and places the <input type="checkbox"/> marker there.
		<b>Peak</b> Searches for the peak spectrum and moves the marker there. Rotate the general purpose knob clockwise to search the peak rightward, and vice versa.
		<b>Max</b> Searches for the maximum peak spectrum and moves the marker there.
		<b>Min</b> Searches for the minimum peak spectrum and moves the marker there.
		<b>Separation</b> Sets the minimum horizontal distance to separate two peaks. Same as Separation in the 3gppULSpectrogram view menu on page 2-11.
		<b>Delta Marker</b> Turns the delta marker on or off.
		<b>Toggle Delta</b> Changes the <input type="checkbox"/> and <input type="checkbox"/> marker positions each other.
<b>Average Options...</b>	Sets the averaging parameters and starts the process.	
	<b>Begin Symbol</b>	Specifies the first symbol to be averaged. The range is 0 to the number of symbols -1.
	<b>End Symbol</b>	Specifies the last symbol to be averaged. The range is 0 to the number of symbols -1.
	<b>All Symbols</b>	Specifies that the data is averaged for all the symbols.
	<b>Mkr -&gt; Symbol</b>	Sets Begin Symbol and End Symbol with the marker and delta marker.
	<b>Average Type</b>	Same as Average Type above on the top level of the menu.
	<b>Execute</b>	Executes averaging.

## 3gppULSymbolTable View Menu

Table 2–4 summarizes the view menu when the view is defined as 3gppULSymbolTable.

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**NOTE.** Whenever you display the 3gppULSymbolTable view, display the 3gppULPolar view at the same time, and turn Symbol Constellation on in the 3gppULPolar view menu.

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**Table 2–4: 3gppULSymbolTable view menu table**

Top level	Subordinate level, options and descriptions	
<b>Source</b>	Specifies the source data for the view. Refer to <i>Display and Analysis of a Digitally-Modulated Signal</i> in the <i>WCA330 and WCA380 User Manual</i> for detail.	
	Measurement	Specifies the Measurement data output from the 3gppULPolar view as the input source.
	Reference	Specifies the Reference data output from the 3gppULPolar view as the input source.
<b>Radix</b>	Selects Hex (hexadecimal), Oct (octal), or Bin (binary) for the notation of numeric values displayed.	
<b>Rotate</b>	Selects the numeric value start position from 0 to 3. This setting is unavailable for the $1/4 \pi$ QPSK and GMSK modulating systems.	
<b>Symbol</b>	Inputs the symbol position to place the □ marker. The range is 0 to the number of symbols –1.	
<b>Copy To...</b>	Copies the symbol data currently being displayed to one of the following destinations. On handling files, refer to the <i>WCA330 and WCA380 User Manual</i> .	
	<b>Clipboard</b>	Converts the symbol data currently being displayed into the text form to copy it to the Windows clipboard. The text data on the clipboard can be passed to PC applications.
	<b>Text File</b>	Converts the symbol data currently being displayed into the text form to copy it to a text file.
	<b>D1 to D8</b>	Selects a data register in which the symbol data currently being displayed is saved temporarily.



# Using Command

You can write computer programs that remotely change the analyzer front panel controls, take and store measurements for further analysis, or read those measurements, using the GPIB or TCP/IP Ethernet interface. This section describes GPIB commands for the four views dedicated to 3GPP up-link analysis:

- 3gppULSpectrogram view commands
- 3gppULPolar view commands
- 3gppULPower view commands
- 3gppULSymbolTable view commands

## Displaying Up-Link Analysis Views

There are two ways to display the 3GPP up-link analysis views: using the `:Config:Mode` command or the `:Config:View<x>` command as follows.

### Using the `:Config:Mode` Command

Usually, use the `:Config:Mode` command to configure the analyzer with the internal basic settings for up-link analysis.

- Specify the 3GPP up-link analysis with the `Config:Mode` command.

```
:Config:Mode op3gppUL1
```

Default views are as follows:

View A: Spectrum (Waveform view)

View B: Code-domain power spectrogram (3gppULSpectrogram view)

View C: Vector diagram (3gppULPolar view)

View D: Code-domain power (3gppULPower view)

### Defining Views Individually

When you want to define views individually, use the `:Config:View<x>` command.

- Define View A to H individually with the `:Config:View<x>` command. For example, when you define View A as the 3gppULSymbolTable view, execute this command:

```
:Config:View1 3gppULSymbolTable
```

For the `:Config:Mode`, `:Config:View<x>`, and other standard commands, refer to the *WCA330 and WCA380 Programmer Manual*.

## Command Groups

The following tables list the up-link analysis commands by functional groups.

### 3gppULSpectrogram View Commands

These commands control the code-domain spectrogram view according to the 3GPP standard.

**Table 3-1: 3gppULSpectrogram view commands**

Header	Description
:View<x>:Marker:DeltaMarker (?)	Turn the delta marker on or off
:View<x>:Marker:PreambleLength?	Query the number of chips in the preamble at the marker position
:View<x>:Marker:ResetDelta	Move the delta marker to the main marker position
:View<x>:Marker:SearchMax	Search the maximum peak and place the marker on it
:View<x>:Marker:SearchMin	Search the minimum peak and place the marker on it
:View<x>:Marker:SearchSeparation (?)	Set the resolution to separate two peaks
:View<x>:Marker:Signature?	Query the signature value at the marker position
:View<x>:Marker:SymbolRate?	Query the symbol rate at the marker position
:View<x>:Marker:TimeSlot?	Query the time slot number at the marker
:View<x>:Marker:ToggleDelta	Change the main marker and delta marker positions each other
:View<x>:Marker:TotalPower?	Query the total power of the time slot at the marker
:View<x>:Marker:X (?)	Set the horizontal position of the marker
:View<x>:Marker:Z (?)	Set the marker position on the Z axis
:View<x>:Monochrome (?)	Set the display to monochrome
:View<x>:NumberColors (?)	Select the number of display colors
:View<x>:Scale:AutoYScale	Scale the vertical axis automatically
:View<x>:Scale:FullYScale	Set the vertical scale to the default full-scale
:View<x>:Scale:XScale (?)	Scale the horizontal axis
:View<x>:Scale:XStart (?)	Set the start point of the horizontal axis on the screen
:View<x>:Scale:YScale (?)	Scale the vertical axis
:View<x>:Scale:YStart (?)	Set the start point of the vertical axis on the screen
:View<x>:Scale:ZScale (?)	Scale the Z axis
:View<x>:Scale:ZStart (?)	Set the start point of the Z axis on the screen
:View<x>:SymbolRate (?)	Set the symbol rate
:View<x>:Version?	Query the version of this view program

**Table 3-1: 3gppULSpectrogram view commands (Cont.)**

Header	Description
:View<x>:YAxis (?)	Determine whether to represent relative or absolute power along the Y (color) axis
:View<x>:ZGap (?)	Set the slot display interval on the Z axis

### 3gppULPolar View Commands

These commands control the vector diagram view according to the 3GPP standard.

**Table 3-2: 3gppULPolar view commands**

Header	Description
:View<x>:AlphaBT (?)	Set $\alpha$ /BT
:View<x>:Analysis:TimeSlot (?)	Specify the time slot to display the constellation
:View<x>:Analyze	Perform analysis on the background for all symbols
:View<x>:AutoCarrier (?)	Turn on or off the carrier search function
:View<x>:BreakAnalyze	Stop measurement
:View<x>:Carrier (?)	Set the carrier frequency
:View<x>:ChipRate (?)	Set the chip rate
:View<x>:Constellation:SymbolRate (?)	Set the symbol rate to display symbol constellation
:View<x>:Display (?)	Select the display data source
:View<x>:Format (?)	Select the waveform display format
:View<x>:Marker:T (?)	Set the marker position on the time axis
:View<x>:MeasFilter (?)	Select the filter to create measurement data
:View<x>:Modulation (?)	Select the modulation type
:View<x>:RefFilter (?)	Select the filter to create reference data
:View<x>:ShortCode (?)	Specify the short code
:View<x>:Source (?)	Select the input data source
:View<x>:Standard:WCDMA	Configure the modulating system according to the W-CDMA standard
:View<x>:SymbolConstellation (?)	Determine whether to display symbol constellation
:View<x>:TimeSlot (?)	Specify the time slot
:View<x>:Uplink:Mode (?)	Select the up-link signal type
:View<x>:Uplink:ScramblingCode (?)	Set the scrambling code
:View<x>:Uplink:ScramblingCodeType (?)	Select the scrambling code type

**Table 3–2: 3gppULPolar view commands (Cont.)**

Header	Description
:View<x>:Uplink:Threshold (?)	Set the threshold to determine a burst
:View<x>:Version?	Query the version of this view program

**3gppULPower View Commands**

These commands control the code-domain power view according to the 3GPP standard.

**Table 3–3: 3gppULPower view commands**

Header	Description
:View<x>:Average (?)	Determine whether to display average results
:View<x>:Average:AllFrames	Specify the average range to all frames
:View<x>:Average:BeginZ (?)	Set the uppermost frame in the average range
:View<x>:Average:EndZ (?)	Set the lowermost frame in the average range
:View<x>:Average:Execute	Execute averaging
:View<x>:Average:MarkerToFrame	Specify the averaging range with the delta marker
:View<x>:Average:Times (?)	Set the number of data acquisitions for averaging
:View<x>:Average:Type (?)	Select the average type
:View<x>:Line:DeltaX<n>?	Query the difference between two vertical line markers
:View<x>:Line:DeltaY<n>?	Query the difference between two horizontal line markers
:View<x>:Line:X<n> (?)	Set the vertical line marker position
:View<x>:Line:X<n>:Visible (?)	Specify whether to display the vertical line marker
:View<x>:Line:Y<n> (?)	Set the horizontal line marker position
:View<x>:Line:Y<n>:Visible (?)	Specify whether to display the horizontal line marker
:View<x>:Marker:DeltaMarker (?)	Turn on or off the delta marker
:View<x>:Marker:ResetDelta	Move the delta marker to the main marker position
:View<x>:Marker:SearchMax	Search the maximum peak and place the marker on it
:View<x>:Marker:SearchMin	Search the minimum peak and place the marker on it
:View<x>:Marker:SearchSeparation (?)	Set the resolution to separate two peaks
:View<x>:Marker:SymbolRate?	Query the symbol rate at the marker position
:View<x>:Marker:ToggleDelta	Change the main marker and delta marker positions each other
:View<x>:Marker:X (?)	Set the horizontal position of the marker

**Table 3-3: 3gppULPower view commands (Cont.)**

Header	Description
:View<x>:PreambleLength?	Query the number of chips in the preamble
:View<x>:Scale:AutoYScale	Scale the vertical axis automatically
:View<x>:Scale:FullYScale	Set the vertical scale to the default full-scale
:View<x>:Scale:XScale (?)	Scale the horizontal axis
:View<x>:Scale:XStart (?)	Set the start point of the horizontal axis on the screen
:View<x>:Scale:YScale (?)	Scale the vertical axis
:View<x>:Scale:YStart (?)	Set the start point of the vertical axis on the screen
:View<x>:ShortCode (?)	Specify the short code
:View<x>:Signature?	Query the signature value
:View<x>:SymbolRate (?)	Set the symbol rate
:View<x>:TimeSlot?	Query the time slot number
:View<x>:TotalPower?	Query the total power of the time slot
:View<x>:Version?	Query the version of this view program
:View<x>:XAxis (?)	Define the horizontal axis
:View<x>:YAxis (?)	Determine whether to represent relative or absolute power along the vertical axis
:View<x>:Z (?)	Set the time slot number

### 3gppULSymbolTable View Commands

These commands control the symbol table view for the 3GPP up-link analysis.

**Table 3-4: 3gppULSymbolTable view commands**

Header	Description
:View<x>:CopyTo	Store display data to a file or data register
:View<x>:Marker:Data?	Query the value at the marker position
:View<x>:Marker:Symbol?	Query the symbol location where the marker is placed
:View<x>:Marker:T (?)	Set the marker position on the time axis
:View<x>:Radix (?)	Select the radix to display the symbol table
:View<x>:Rotate (?)	Set the reference phase
:View<x>:Source (?)	Select the input data source for the view
:View<x>:Symbol (?)	Set the symbol location where the marker is placed
:View<x>:Version?	Query the version of this view program



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## 3gppULSpectrogram View Commands

When the view is defined as 3gppULSpectrogram, use the commands in this section to control the code-domain power spectrogram view. This view incorporates analysis functions for the 3GPP standard.

## **:View<x>:Marker:DeltaMarker (?)**

Turns the delta marker on or off.

**Syntax**     :View<x>:Marker:DeltaMarker { On | Off }

:View<x>:Marker:DeltaMarker?

**Arguments**   On turns the delta marker on.

Off turns the delta marker off.

**Examples**     :View1:Marker:DeltaMarker On  
turns the delta marker on.

**Related Commands**   :View<x>:Marker:ResetDelta

## **:View<x>:Marker:PreambleLength? (Query Only)**

Queries the number of chips in the preamble at the marker position.

**Syntax**     :View<x>:Marker:PreambleLength?

**Returns**    <NR1>

**Examples**     :View1:Marker:PreambleLength?  
might return 4096, indicating the number of chips in the preamble at the marker position.



**:View<x>:Marker:ResetDelta (No Query Form)**

Moves the delta marker to the main marker position.

**Syntax** :View<x>:Marker:ResetDelta

**Arguments** None

**Examples** :View1:Marker:ResetDelta  
moves the delta marker to the main marker position.

**Related Commands** :View<x>:Marker:DeltaMarker

**:View<x>:Marker:SearchMax (No Query Form)**

Positions the marker on the highest signal on screen.

**Syntax** :View<x>:Marker:SearchMax

**Arguments** None

**Examples** :View1:Marker:SearchMax  
positions the marker on the highest signal on screen.

**Related Commands** :View<x>:Marker:SearchMin

**:View<x>:Marker:SearchMin (No Query Form)**

Positions the marker on the lowest signal on screen.

**Syntax**     :View<x>:Marker:SearchMin

**Arguments**   None

**Examples**     :View1:Marker:SearchMin  
positions the marker on the lowest signal on screen.

**Related Commands**   :View<x>:Marker:SearchMax

**:View<x>:Marker:SearchSeparation (?)**

Sets or queries the minimum horizontal distance to separate two peaks.

**Syntax**     :View<x>:Marker:SearchSeparation <value>

**Arguments**   <value>::=<NR2> specifies the minimum horizontal distance to separate two peaks. The range is 1 to 10 % relative to full-scale.

**Examples**     :View1:Marker:SearchSeparation 10  
sets the minimum horizontal distance for peak separation to 10 % relative to full-scale.

**Related Commands**   :View<x>:Scale:XScale

**:View<x>:Marker:Signature? (Query Only)**

Queries the value of the signature at the marker position.

**Syntax**     :View<x>:Marker:Signature?

**Returns**    <NR1>

**Examples**   :View1:Marker:Signature?  
might return 10, indicating the value of the signature at the marker position.

**:View<x>:Marker:TimeSlot? (Query Only)**

Queries the time slot number at the marker position.

**Syntax**     :View<x>:Marker:TimeSlot?

**Returns**    <NR1>

**Examples**   :View1:Marker:TimeSlot?  
might return 12, indicating the time slot number.

### **:View<x>:Marker:ToggleDelta (No Query Form)**

Changes the primary marker and delta marker positions each other.

**Syntax**     :View<x>:Marker:ToggleDelta

**Arguments**   None

**Examples**     :View1:Marker:ToggleDelta  
changes the primary marker and delta marker positions each other.

### **:View<x>:Marker:TotalPower? (Query Only)**

Queries the total power of the time slot at the marker position.

**Syntax**     :View<x>:Marker:TotalPower?

**Returns**     <NR3>

**Examples**     :View1:Marker:TotalPower?  
might return -7.212, indicating that the total power is -7.212 dBm.

**:View<x>:Marker:X (?)**

Sets or queries the horizontal position of the marker.

**Syntax** :View<x>:Marker:X <value>

:View<x>:Marker:X?

**Arguments** <value>::=<NR1> ranges from the minimum (left) edge to the maximum (right) edge of the the horizontal axis (channel).

**Examples** :View1:Marker:X 32  
positions the marker at channel 32.

**Related Commands** :View<x>:Marker:Z, :View<x>:Scale:XScale, :View<x>:Scale:XStart

**:View<x>:Marker:Z (?)**

Sets or queries the marker position on the vertical axis (time slot number).

**Syntax** :View<x>:Marker:Z <value>

:View<x>:Marker:Z?

**Arguments** <value>::=<NR1> ranges 0 to the number of slots – 1.

**Examples** :View1:Marker:Z 199  
positions the marker at slot 199.

**Related Commands** :View<x>:Marker:X

## **:View<x>:Monochrome (?)**

Determines whether to display a spectrogram in monochrome.

**Syntax**    :View<x>:Monochrome { On | Off }  
              :View<x>:Monochrome?

**Arguments**    On displays a spectrogram in monochrome.  
                  Off displays a spectrogram in color.

**Examples**     :View1:Monochrome On  
                  displays a spectrogram in monochrome.

## **:View<x>:NumberColors (?)**

Selects or queries the number of display colors.

**Syntax**        :View<x>:NumberColors { 10 | 100 }  
                  :View<x>:NumberColors?

**Arguments**    10 selects the 10-color display.  
                  100 selects the 100-color display (default).

**Examples**     :View1:NumberColors 100  
                  selects the 100-color display.

**Related Commands**    :View<x>:Scale:YScale, :View<x>:Scale:YStart

**:View<x>:Scale:AutoYScale (No Query Form)**

Adjusts the scaling of the Y (color) axis automatically to best display the data.

**Syntax** :View<x>:Scale:AutoYScale

**Arguments** None

**Examples** :View1:Scale:AutoYScale  
adjusts the scaling of the Y axis automatically.

**Related Commands** :View<x>:Scale:YScale

**:View<x>:Scale:FullYScale (No Query Form)**

Sets the Y (color) axis scale to the default full-scale.

**Syntax** :View<x>:Scale:FullYScale

**Arguments** None

**Examples** :View1:Scale:FullYScale  
sets the Y axis scale to the default full-scale.

**Related Commands** :View<x>:Scale:YScale

**:View<x>:Scale:XScale (?)**

Sets or queries the horizontal axis (channel) full-scale.

**Syntax**     :View<x>:Scale:XScale <value>  
              :View<x>:Scale:XScale?

**Arguments**   <value>::=<NR3> is fixed to 7 channels.

**Examples**     :View1:Scale:XScale 7  
              sets the horizontal axis full-scale to 7 channels.

**Related Commands**   :View<x>:Scale:XStart, :View<x>:Scale:YScale, :View<x>:Scale:ZScale

**:View<x>:Scale:XStart (?)**

Sets or queries the value represented by the minimum (left) edge of the horizontal axis (channel).

**Syntax**     :View<x>:Scale:XStart <value>  
              :View<x>:Scale:XStart?

**Arguments**   <value>::=<NR3> is fixed to 0.

**Examples**     :View1:Scale:XStart 0  
              sets the value represented by the left edge of the horizontal axis to channel 0.

**Related Commands**   :View<x>:Scale:XScale



**:View<x>:Scale:YScale (?)**

Sets or queries the Y (color) axis full-scale to display a portion of the data.

**Syntax** :View<x>:Scale:YScale <value>

:View<x>:Scale:YScale?

**Arguments** <value>::=<NR3> is 10, 20, 50, or 100 dB.

**Examples** :View1:Scale:YScale 50  
sets the Y axis full-scale to 50 dB.

**Related Commands** :View<x>:Scale:XScale, :View<x>:Scale:YStart, :View<x>:Scale:ZScale

**:View<x>:Scale:YStart (?)**

Sets or queries the value represented by the minimum (bottom) edge of the Y (color) axis.

**Syntax** :View<x>:Scale:YStart <value>

:View<x>:Scale:YStart?

**Arguments** <value>::=<NR3> depends on the setting of :View<x>:YAxis.

:View<x>:YAxis	Setting range
Relative	-200 dB to +100 dB – Horizontal axis full-scale
Absolute	Ref. level – 200 dB to Ref. level + 100 dB – Horizontal axis full-scale

**Examples** :View1:Scale:YStart -50  
sets the value represented by the bottom edge of the Y axis to -50 dB.

**Related Commands** :View<x>:Scale:YScale, :View<x>:YAxis

**:View<x>:Scale:ZScale (?)**

Sets or queries the time slot display interval. The spectrogram is displayed every specified number of slots.

**Syntax**     :View<x>:Scale:ZScale <value>

              :View<x>:Scale:ZScale?

**Arguments**   <value>::=<NR1> ranges 1 to 32.  
                  1 means every slot is displayed. 32 means every 32<sup>th</sup> slot is displayed.

**Examples**     :View1:Scale:ZScale 8  
                  displays the spectrogram every 8<sup>th</sup> slot.

**Related Commands**   :View<x>:Scale:ZStart

**:View<x>:Scale:ZStart (?)**

Sets or queries the value represented by the minimum (bottom) edge of the Z (slot number) axis, i.e. the first slot to be displayed.

**Syntax**     :View<x>:Scale:ZStart <value>

              :View<x>:Scale:ZStart?

**Arguments**   <value>::=<NR1> ranges from 0 to the number of slots – 1.

**Examples**     :View1:Scale:ZStart 20  
                  sets the value represented by the bottom edge of the Z axis to 20.

**Related Commands**   :View<x>:Scale:ZScale

**:View<x>:SymbolRate (?)**

Sets or queries the symbol rate to display the code-domain power.

**Syntax**    :View<x>:SymbolRate <value>  
               :View<x>:SymbolRate?

**Arguments**    <value>::={ 960k | 480k | 240k | 120k | 60k | 30k | 15k } selects the symbol rate.

**Examples**     :View1:SymbolRate 960k  
                   sets the symbol rate to 960K.

**:View<x>:Version? (Query Only)**

Queries the version of the 3gppULSpectrogram View program.

**Syntax**        :View<x>:Version?

**Returns**       <NR2>

**Examples**     :View1:Version?  
                   might return 1.1.

**:View<x>:YAxis (?)**

Determines whether to represent relative or absolute channel power along the Y (color) axis.

**Syntax**        :View<x>:YAxis { Relative | Absolute }  
                   :View<x>:YAxis?

**Arguments**    Relative represents relative channel power to the total power along the Y axis.  
                   Absolute represents absolute channel power along the Y axis.

**Examples**     :View1:YAxis Relative  
                   represents relative channel power to the total power along the Y axis.

## **:View<x>:ZGap (?)**

Sets or queries the display interval between two adjacent time slots on the Z axis (slot number) on screen in pixel.

**Syntax**     :View<x>:ZGap <value>

              :View<x>:ZGap?

**Arguments**   <value>::=<NR1> ranges 1 to 10 pixels.

**Examples**     :View1:ZGap 10  
                  sets the display interval between two adjacent slots on the Z axis to 10 pixels.

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## 3gppULPolar View Commands

When the view is defined as 3gppULPolar, use the commands in this section to control the polar view. This view incorporates analysis functions for the 3GPP standard.

**:View<x>:AlphaBT (?)**

Sets or queries the  $\alpha$ /BT value.

**Syntax**    :View<x>:AlphaBT <value>  
              :View<x>:AlphaBT?

**Arguments**   <value>::=<NR2> ranges 0.0001 to 1.

**Examples**    :View1:AlphaBT 1  
              sets the  $\alpha$ /BT value to 1.

**:View<x>:Analysis:TimeSlot (?)**

Specifies or queries the time slot number to display the constellation.

**Syntax**    :View<x>:Analysis:TimeSlot <value>  
              :View<x>:Analysis:TimeSlot?

**Arguments**   <value>::=<NR1> ranges 0 to the number of time slots -1.

**Examples**    :View1:Analysis:TimeSlot 1  
              sets the time slot number to 1.

**:View<x>:Analyze (No Query Form)**

Performs analysis in another thread for all time slots acquired. For synchronizing command execution, refer to the *WCA330 and WCA380 Programmer Manual*.

**Syntax**    :View<x>:Analyze

**Arguments**   None

**Examples**    :View1:Analyze  
              performs analysis for all slots.

**Related Commands**   :View<x>:BreakAnalyze

## **:View<x>:AutoCarrier (?)**

Determines whether to search for the carrier automatically for each time slot.

**Syntax**    :View<x>:AutoCarrier { On | Off }  
              :View<x>:AutoCarrier?

**Arguments**    On searches for the carrier automatically for each time slot, and displays the frequency error in reference to the center frequency on screen at `Freq Error`.  
                  Off sets the carrier frequency to the value specified with the `:View<x>:Carrier` command.

**Examples**     :View1:AutoCarrier On  
                  searches for the carrier automatically and displays the frequency error.

**Related Commands**    :View<x>:Carrier

## **:View<x>:BreakAnalyze (No Query Form)**

Breaks the analysis executed by the `:View<x>:Analyze` command.

**Syntax**        :View<x>:BreakAnalyze

**Arguments**    None

**Examples**     :View1:BreakAnalyze  
                  breaks the analysis.

**Related Commands**    :View<x>:Analyze

## **:View<x>:Carrier (?)**

Sets or queries the carrier frequency.

**Syntax**    :View<x>:Carrier <value>  
              :View<x>:Carrier?

**Arguments**   <value>::=<NR3> ranges 0 Hz to 3 GHz.

**Examples**    :View1:Carrier 1.2G  
              sets the carrier frequency to 1.2 GHz.

**Related Commands**   :View<x>:AutoCarrier

## **:View<x>:ChipRate (?)**

Sets or queries the chip rate.

**Syntax**    :View<x>:ChipRate <value>  
              :View<x>:ChipRate?

**Arguments**   <value>::=<NR3> ranges 1/s to 30 M/s.

**Examples**    :View1:ChipRate 30M  
              sets the chip rate to 30 M/s.



**:View<x>:Constellation:SymbolRate (?)**

Sets or queries the symbol rate to display symbol constellation.

**Syntax** :View<x>:Constellation:SymbolRate <value>  
:View<x>:Constellation:SymbolRate?

**Arguments** <value>::={ 960k | 480k | 240k | 120k | 60k | 30k | 15k } selects the symbol rate.

**Examples** :View1:Constellation:SymbolRate 960k  
sets the symbol rate to 960 K/s.

**:View<x>:Display (?)**

Selects or queries the display data source.

**Syntax** :View<x>:Display { Measurement | Reference }  
:View<x>:Display?

**Arguments** Measurement displays the measurement data.  
Reference displays the reference data. Only the symbol constellation can be displayed.  
Refer to the *WCA330 and WCA380 User Manual* for the measurement and reference data.

**Examples** :View1:Display Measurement  
displays the measurement data.

**Related Commands** :View<x>:MeasFilter, :View<x>:RefFilter

**:View<x>:Format (?)**

Selects or queries the waveform display format.

**Syntax**    :View<x>:Format { Vector | Constellation }  
              :View<x>:Format?

**Arguments**    Vector selects the Vector format. It displays symbol-to-symbol movements using vector.  
                  Constellation selects the Constellation format. It displays only symbols.

**Examples**     :View1:Format Vector  
                  selects the vector display format.

**:View<x>:Marker:T (?)**

Sets or queries the marker position on the time axis.

**Syntax**     :View<x>:Marker:T <value>  
              :View<x>:Marker:T?

**Arguments**    <value>::=<NR3> ranges from 0 to the time length of the acquisition data.

**Examples**     :View1:Marker:T 5.4u  
                  positions the marker at 5.4  $\mu$ s.

**:View<x>:MeasFilter (?)**

Selects or queries the filter to create the measurement data.

**Syntax**    :View<x>:MeasFilter { None | RootRaisedCosine }  
              :View<x>:MeasFilter?

**Arguments**   None selects no filter.  
              RootRaisedCosine selects the root raised-cosine filter.

**Examples**    :View1:MeasFilter RootRaisedCosine  
              selects the root raised-cosine filter to create the measurement data.

**Related Commands**   :View<x>:RefFilter

**:View<x>:Modulation (?)**

Selects or queries the modulation type.

**Syntax**    :View<x>:Modulation W-CDMA  
              :View<x>:Modulation?

**Arguments**   W-CDMA selects the W-CDMA modulation (this argument only).

**Examples**    :View1:Modulation W-CDMA  
              selects the W-CDMA modulation.

**:View<x>:RefFilter (?)**

Selects or queries the filter to create the reference data.

**Syntax**    :View<x>:RefFilter { None | RaisedCosine | Gaussian }  
:View<x>:RefFilter?

**Arguments**    None selects no filter.  
RaisedCosine selects the raised cosine filter.  
Gaussian selects the Gaussian filter.

**Examples**    :View1:RefFilter RaisedCosine  
selects the raised cosine filter to create the reference data.

**Related Commands**    :View<x>:MeasFilter

**:View<x>:ShortCode (?)**

Sets or queries the short code number to display the symbol constellation.

**Syntax**    :View<x>:ShortCode <value>  
:View<x>:ShortCode?

**Arguments**    <value>::=<NR1> ranges 0 to 6 of the channel number.

**Examples**    :View1:ShortCode 6  
sets the short code to channel 6.

**Related Commands**    :View<x>:SymbolConstellation

**:View<x>:Source (?)**

Selects or queries the display data source.

**Syntax**    :View<x>:Source { None | Active | Zoom | <file\_name> }  
              :View<x>:Source?

**Arguments**    None specifies no source. The display area in the view will be emptied.  
                  Active specifies the currently acquired data as the source.  
                  Zoom specifies the zoomed data as the source.  
                  <file\_name>::=<string> specifies the data file as the source. The file name must be “\*.IQ” (the IQ format).

**Examples**     :View1:Source Active  
                  specifies the currently acquired data as the source.

**:View<x>:Standard:WCDMA (No Query Form)**

Configures the modulating system according to the W-CDMA standard with the chip rate of 3.84 M/s.

**Syntax**        :View<x>:Standard:WCDMA

**Arguments**    None

**Examples**     :View1:Standard:WCDMA  
                  configures the modulating system according to the W-CDMA standard with the chip rate of 3.84 M/s.

## **:View<x>:SymbolConstellation (?)**

Determines whether or not to display the symbol constellation.

**Syntax**     :View<x>:SymbolConstellation { On | Off }  
              :View<x>:SymbolConstellation?

**Arguments**   On displays the symbol constellation.  
              Off does not display the symbol constellation.

**Examples**     :View1:SymbolConstellation On  
                  displays the symbol constellation.

**Related Commands**   :View<x>:ShortCode, :View<x>:TimeSlot

## **:View<x>:TimeSlot (?)**

Specifies or queries the time slot number to display the symbol constellation.

**Syntax**     :View<x>:TimeSlot <value>  
              :View<x>:TimeSlot?

**Arguments**   <value>::=<NR1> ranges from 0 to the number of time slots -1.

**Examples**     :View1:TimeSlot 1  
                  sets the slot number to 1.

**Related Commands**   :View<x>:SymbolConstellation

**:View<x>:Uplink:Mode (?)**

Selects or queries the 3GPP up-link signal type.

**Syntax** :View<x>:Uplink:Mode { DPDCH/DPCCH | PRACH | PCPCH }  
:View<x>:Uplink:Mode?

**Arguments** DPDCH/DPCCH selects DPDCH/DPCCH.  
PRACH selects PRACH.  
PCPCH selects PCPCH.

**Examples** :View1:Uplink:Mode DPDCH/DPCCH  
selects DPDCH/DPCCH.

**Related Commands** :View<x>:Uplink:ScramblingCodeType, :View<x>:Uplink:Threshold,

**:View<x>:Uplink:ScramblingCode (?)**

Sets or queries the scrambling code.

**Syntax** :View<x>:Downlink:ScramblingCode <value>  
:View<x>:Downlink:ScramblingCode?

**Arguments** <value>::=<NR1> sets the scrambling code. The range is 0 to 16,777,215.

**Examples** :View1:Uplink:ScramblingCode 16777215  
sets the scrambling code to 16,777,215.

## **:View<x>:Uplink:ScramblingCodeType (?)**

Selects or queries the type of scrambling code when you select DPDCH/DPCCH with the `:View<x>:Uplink:Mode` command.

**Syntax** `:View<x>:Uplink:ScramblingCodeType { Long | Short }`  
`:View<x>:Uplink:ScramblingCodeType?`

**Arguments** Long selects the long code.  
Short selects the short code.

**Examples** `:View1:Uplink:ScramblingCodeType Long`  
selects the long code.

**Related Commands** `:View<x>:Uplink:Mode`

## **:View<x>:Uplink:Threshold (?)**

Sets or queries the threshold level to determine if the input signal is a burst when you select PRACH or PCPCH with the `:View<x>:Uplink:Mode` command.

**Syntax** `:View<x>:Uplink:Threshold <value>`  
`:View<x>:Uplink:Threshold?`

**Arguments** `<value>::=<NR1>` ranges -100 to +10 dB relative to the reference level.

**Examples** `:View1:Uplink:Threshold -40`  
sets the threshold level to -40 dB for determining if the input signal is a burst.

**Related Commands** `:View<x>:Uplink:Mode`



**:View<x>:Version? (Query Only)**

Queries the version of the 3gppULPolar View program.

**Syntax**    :View<x>:Version?

**Returns**    <NR2>

**Examples**    :View1:Version?  
                  might return 1.1.





## 3gppULPower View Commands

When the view is defined as 3gppULPower, use the commands in this section to control the code-domain power view. This view incorporates analysis functions for the 3GPP standard.

**:View<x>:Average (?)**

Determines whether or not to display the results of averaging on the analyzer screen.

**Syntax** :View<x>:Average { On | Off }

:View<x>:Average?

**Arguments** On displays the results of averaging. The averaged power is displayed for each channel or symbol with a bar graph.

Off hides the results of averaging.

**Examples** :View1:Average On  
displays the results of averaging.

**Related Commands** :View<x>:Average:Execute

**:View<x>:Average:AllFrames (No Query Form)**

Specifies that all of the acquired time slots are averaged.

**Syntax** :View<x>:Average:AllFrames

**Arguments** None

**Examples** :View1:Average:AllFrames  
specifies that all of the acquired time slots are averaged.

**Related Commands** :View<x>:Average:BeginZ, :View<x>:Average:EndZ

**:View<x>:Average:BeginZ (?)**

Specifies or queries the uppermost time slot in the average range.

**Syntax**     :View<x>:Average:BeginZ <value>  
              :View<x>:Average:BeginZ?

**Arguments**   <value>::=<NR1> ranges from 0 to the number of slots – 1.

**Examples**     :View1:Average:BeginZ 199  
                  sets the uppermost slot number to 199 for averaging.

**Related Commands**   :View<x>:Average:EndZ

**:View<x>:Average:EndZ (?)**

Specifies or queries the lowermost time slot in the average range.

**Syntax**     :View<x>:Average:EndZ <value>  
              :View<x>:Average:EndZ?

**Arguments**   <value>::=<NR1> ranges from 0 to the number of slots – 1.

**Examples**     :View1:Average:EndZ 100  
                  sets the lowermost slot number to 100 for averaging.

**Related Commands**   :View<x>:Average:BeginZ

## **:View<x>:Average:Execute (No Query Form)**

Performs averaging in each bin for the time slots in the specified range.

**Syntax** :View<x>:Average:Execute

**Arguments** None

**Examples** :View1:Average:Execute  
performs averaging in each bin for the time slots in the specified range.

**Related Commands** :View<x>:Average:AllFrames, :View<x>:Average:BeginZ,  
:View<x>:Average:EndZ

## **:View<x>:Average:MarkerToFrame (No Query Form)**

Specifies that the time slots between the main marker and the delta marker are averaged.

**Syntax** :View<x>:Average:MarkerToFrame

**Arguments** None

**Examples** :View<x>:Average:MarkerToFrame  
specifies that the time slots between the main marker and the delta marker are averaged.

**Related Commands** :View<x>:Average:BeginZ, :View<x>:Average:EndZ

**:View<x>:Average:Times (?)**

Sets or queries the number of waveform acquisitions that make up an averaged waveform.

**Syntax** :View<x>:Average:Times <value>

:View<x>:Average:Times?

**Arguments** <value>::=<NR1> ranges 1 to 1,000,000.

**Examples** :View1:Average:Times 1000  
specifies that an averaged waveform will show the result of combining 1000 waveforms.

**Related Commands** :View<x>:Average:Type

**:View<x>:Average:Type (?)**

Selects or queries the average type. You can also select the peak hold mode. For details about averaging, refer to the *WCA330 and WCA380 User Manual*.

**Syntax** :View<x>:Average:Type { RMSExpo | RMS | MaxHold | MinHold }

:View<x>:Average:Type?

**Arguments** RMSExpo averages with the exponential RMS (root mean square). This mode weights older acquisition data so that they have a progressively smaller effect on the average.

RMS averages with the RMS (root mean squared).

MaxHold holds the maximum value for each data point.

MinHold holds the minimum value for each data point.

**Examples** :View1:Average:Type RMSExpo  
averages waveform with the exponential RMS.

**Related Commands** :View<x>:Average:Time

**:View<x>:Line:DeltaX<n>? (Query Only)**

Queries the difference between the vertical line marker n (= 1 to 8) and the vertical line marker 1.

**Syntax** :View<x>:Line:DeltaX<n> where n = 1 to 8

**Returns** <NR3>

**Examples** :View1:Line:DeltaX2?  
might return 10M, indicating that the difference between the vertical line marker 2 and the vertical line marker 1 is 10 MHz when the horizontal axis represents frequency.

**Related Commands** :View<x>:Line:DeltaY?, :View<x>:Line:X<n>

**:View<x>:Line:DeltaY<n>? (Query Only)**

Queries the difference between the horizontal line marker n (= 1 to 8) and the horizontal line marker 1.

**Syntax** :View<x>:Line:DeltaY<n> where n = 1 to 8

**Returns** <NR3>

**Examples** :View1:Line:DeltaY2?  
might return 10, indicating that the difference between the horizontal line marker 2 and the horizontal line marker 1 is 10 dB when the vertical axis represents amplitude.

**Related Commands** :View<x>:Line:DeltaX?, :View<x>:Line:Y<n>



**:View<x>:Line:X<n> (?)**

Sets or queries the position of the vertical line marker n (= 1 to 8).

**Syntax**    :View<x>:Line:X<n> <value>                    where n = 1 to 8  
               :View<x>:Line:X<n>?

**Arguments**    <value>::=<NR3> ranges from the minimum (left) edge to the maximum (right) edge of the horizontal axis.

**Examples**      :View1:Line:X1 1G  
                   positions the vertical line marker 1 at 1 GHz.

**Related Commands**    :View<x>:Line:DeltaX?, :View<x>:Line:X<n>:Visible

**:View<x>:Line:X<n>:Visible (?)**

Determines whether or not to display the vertical line marker n (= 1 to 8).

**Syntax**        :View<x>:Line:X<n>:Visible { Off | On }            where n = 1 to 8  
                   :View<x>:Line:X<n>:Visible?

**Arguments**    Off does not display the vertical line marker n.  
                   On displays the vertical line marker n.

**Examples**      :View1:Line:X1:Visible On  
                   displays the vertical line marker 1.

**Related Commands**    :View<x>:Line:X<n>

**:View<x>:Line:Y<n> (?)**

Sets or queries the position of the horizontal line marker n (= 1 to 8).

**Syntax**     :View<x>:Line:Y<n> <value>                     where n = 1 to 8  
              :View<x>:Line:Y<n>?

**Arguments**   <value>::=<NR3> ranges from the minimum (bottom) edge to the maximum (top) edge of the vertical axis.

**Examples**     :View1:Line:Y1 -10  
                  positions the horizontal line marker 1 at -10 dBm.

**Related Commands**   :View<x>:Line:DeltaY?, :View<x>:Line:Y<n>:Visible

**:View<x>:Line:Y<n>:Visible (?)**

Determines whether or not to display the horizontal line marker n (= 1 to 8).

**Syntax**     :View<x>:Line:Y<n>:Visible { Off | On }             where n = 1 to 8  
              :View<x>:Line:Y<n>:Visible?

**Arguments**   Off does not display the horizontal line marker n.  
              On displays the horizontal line marker n.

**Examples**     :View1:Line:X1:Visible On  
                  displays the horizontal line marker 1.

**Related Commands**   :View<x>:Line:Y<n>

**:View<x>:Marker:DeltaMarker (?)**

Turns the delta marker on or off.

The command usage is the same as that of the `:View<x>:Marker:DeltaMarker` command in the 3gppULSpectrogram view. Refer to page 3–8.

**:View<x>:Marker:ResetDelta (No Query Form)**

Moves the delta marker to the main marker position.

The command usage is the same as that of the `:View<x>:Marker:ResetDelta` command in the 3gppULSpectrogram view. Refer to page 3–9.

**:View<x>:Marker:SearchMax (No Query Form)**

Positions the marker on the highest signal on screen.

The command usage is the same as that of the `:View<x>:Marker:SearchMax` command in the 3gppULSpectrogram view. Refer to page 3–9.

**:View<x>:Marker:SearchMin (No Query Form)**

Positions the marker on the lowest signal on screen.

The command usage is the same as that of the `:View<x>:Marker:SearchMin` command in the 3gppULSpectrogram view. Refer to page 3–10.

**:View<x>:Marker:SearchSeparation (?)**

Sets or queries the minimum horizontal distance to separate two peaks.

The command usage is the same as that of the `:View<x>:Marker:SearchSeparation` command in the 3gppULSpectrogram view. Refer to page 3–10.

**:View<x>:Marker:ToggleDelta (No Query Form)**

Changes the primary marker and delta marker positions each other.

The command usage is the same as that of the `:View<x>:Marker:ToggleDelta` command in the 3gppULSpectrogram view. Refer to page 3–12.

**:View<x>:Marker:X (?)**

Sets or queries the horizontal position of the marker.

**Syntax** :View<x>:Marker:X <value>

:View<x>:Marker:X?

**Arguments** <value>::=<NR1> ranges from the minimum (left) edge to the maximum (right) edge of the the horizontal axis (channel or symbol).

**Examples** :View1:Marker:X 1.5G  
positions the marker at 1.5 GHz.

**Related Commands** :View<x>:Scale:XScale, :View<x>:Scale:XStart

**:View<x>:PreambleLength? (Query Only)**

Queries the number of chips in the preamble.

**Syntax** :View<x>:PreambleLength?

**Returns** <NR1>

**Examples** :View1:PreambleLength?  
might return 4096, indicating the number of chips in the preamble.

**:View<x>:Scale:AutoYScale (No Query Form)**

Adjusts the scaling of the vertical axis automatically to best display the data.

**Syntax** :View<x>:Scale:AutoYScale

**Arguments** None

**Examples** :View1:Scale:AutoYScale  
adjusts the scaling of the vertical axis automatically.

**Related Commands** :View<x>:Format, :View<x>:Scale:YScale, :View<x>:Scale:FullYScale

**:View<x>:Scale:FullYScale (No Query Form)**

Sets the vertical scale to the default full-scale.

**Syntax** :View<x>:Scale:FullYScale

**Arguments** None

**Examples** :View1:Scale:FullYScale  
sets the vertical scale to the default full-scale.

**Related Commands** :View<x>:Scale:YScale, :View<x>:Scale:AutoYScale

**:View<x>:Scale:XScale (?)**

Sets or queries the horizontal axis full-scale to display a portion of data.

**Syntax**    :View<x>:Scale:XScale <value>  
              :View<x>:Scale:XScale?

**Arguments**    <value>::=<NR1> depends on the :View<x>:XAxis setting:

<b>:View&lt;x&gt;:XAxis</b>	<b>Setting range</b>
Short code	7 fixed
Symbol	20 to 640
Time slot	20 to 160

**Examples**    :View1:Scale:XScale 20  
              sets the horizontal axis full-scale to 20.

**Related Commands**    :View<x>:Scale:XStart, :View<x>:Scale:YScale, :View<x>:XAxis

**:View<x>:Scale:XStart (?)**

Sets or queries the value represented by the minimum (left) edge of the horizontal axis.

**Syntax** :View<x>:Scale:XStart <value>

:View<x>:Scale:XStart?

**Arguments** <value>::=<NR1> depends on the :View<x>:XAxis setting:

:View<x>:XAxis	Setting range
Short code	0 fixed
Symbol	0 - The number of time slots to 160 - The number of time slots - Horizontal full-scale
Time slot	0 to 640 - Horizontal full-scale

**Examples** :View1:Scale:XStart 0  
sets the value represented by the left edge of the horizontal axis to 0.

**Related Commands** :View<x>:Scale:XScale, :View<x>:XAxis

**:View<x>:Scale:YScale (?)**

Sets or queries the vertical axis full-scale to display a portion of the data.

**Syntax**     :View<x>:Scale:YScale <value>  
              :View<x>:Scale:YScale?

**Arguments**   <value>::=<NR3> ranges full-scale/100 to full-scale of acquired data.

**Examples**     :View1:Scale:YScale 50  
                  sets the vertical full-scale to 50 dB.

**Related Commands**   :View<x>:Scale:XScale, :View<x>:Scale:YStart

**:View<x>:Scale:YStart (?)**

Sets or queries the value represented by the minimum (bottom) edge of the vertical axis.

**Syntax**     :View<x>:Scale:YStart <value>  
              :View<x>:Scale:YStart?

**Arguments**   <value>::=<NR3> depends on the setting of :View<x>:YAxis.

<b>:View&lt;x&gt;:YAxis</b>	<b>Setting range</b>
Relative	-200 dB to +100 dB – Horizontal full-scale
Absolute	Ref. level – 200 dB to Ref. level + 100 dB – Horizontal full-scale

**Examples**     :View1:Scale:YStart -120  
                  sets the value represented by the bottom edge of the vertical axis to -120 dB.

**Related Commands**   :View<x>:Scale:YScale, :View<x>:YAxis



**:View<x>:ShortCode (?)**

Specifies or queries the short code to display the code-domain power when the horizontal axis represents symbol.

**Syntax**     :View<x>:ShortCode <value>

              :View<x>:ShortCode?

**Arguments**   <value>::=<NR1> ranges 0 to 6 of the channel number.

**Examples**     :View1:ShortCode 6  
                  sets the short code to channel 6.

**Related Commands**   :View<x>:XAxis

**:View<x>:Signature? (Query Only)**

Queries the value of the signature.

**Syntax**     :View<x>:Signature?

**Returns**    <NR1>

**Examples**     :View1:Signature?  
                  might return 10, indicating the value of the signature.

**:View<x>:SymbolRate (?)**

Sets or queries the symbol rate to display the code-domain power.

**Syntax**     :View<x>:SymbolRate <value>

              :View<x>:SymbolRate?

**Arguments**   <value>::={ 960k | 480k | 240k | 120k | 60k | 30k | 15k } selects the symbol rate.

**Examples**     :View1:SymbolRate 960k  
                  sets the symbol rate to 960 K/s.

**:View<x>:TimeSlot? (Query Only)**

Queries the time slot number.

**Syntax**     :View<x>:TimeSlot?

**Returns**    <NR1>

**Examples**     :View1:TimeSlot?  
                  might return 12, indicating the time slot number.

**:View<x>:TotalPower? (Query Only)**

Queries the total power of the time slot.

**Syntax**     :View<x>:TotalPower?

**Returns**    <NR3>

**Examples**     :View1:TotalPower?  
                  might return -7.212, indicating that the total power is -7.212 dBm.

**:View<x>:Version? (Query Only)**

Queries the version of the 3gppULPower View program.

**Syntax**     :View<x>:Version?

**Returns**     <NR2>

**Examples**    :View1:Version?  
                might return 1.1.

**:View<x>:XAxis (?)**

Specifies or queries the horizontal axis.

**Syntax**     :View<x>:XAxis { ShortCode | Symbol | TimeSlot }  
                :View<x>:XAxis?

**Arguments**   ShortCode defines the horizontal axis as short code.  
                Symbol defines the horizontal axis as symbol.  
                TimeSlot defines the horizontal axis as time slot.

**Examples**    :View1:XAxis ShortCode  
                defines the horizontal axis as short code.

**Related Commands**   :View<x>:ShortCode, :View<x>:YAxis

**:View<x>:YAxis (?)**

Determines whether to represent relative or absolute channel power along the vertical axis.

**Syntax**    :View<x>:YAxis { Relative | Absolute }

              :View<x>:YAxis?

**Arguments**    Relative represents relative channel power to the total power along the vertical axis.

                  Absolute represents absolute channel power along the vertical axis.

**Examples**     :View1:YAxis Relative  
                  represents relative channel power to the total power along the vertical axis.

**Related Commands**    :View<x>:XAxis

**:View<x>:Z (?)**

Specifies or queries the number of the time slot to be displayed.

**Syntax**        :View<x>:Z <value>

                  :View<x>:Z?

**Arguments**    <value>::=<NR1> ranges from 0 to the number of slots – 1.

**Examples**     :View1:Z 199  
                  specifies that slot 199 displays.



## 3gppULSymbolTable View Commands

The 3gppULSymbolTable view commands are the same as the standard SymbolTable view commands. For the SymbolTable view commands, refer to the *WCA330 and WCA380 Programmer Manual*.



# Appendix A: Default Settings

The default settings of the basic configuration set by the CONFIG:MODE menu are shown in Table A-1 the 3GPP configuration. Restoring the default settings is described at the end of this section.

## Default Settings for the Basic Configuration

**Table A-1: Default settings for the 3GPP up-link analysis**

Menu	Item	Up Link	RST <sup>1</sup>
CONFIG	Setup	Standard	
	View1	Waveform	
	View2	3gppUL-Spectrogram	
	View3	3gppULPolar	
	View4	3gppPower	
SETUP	Band	RF/RF1	✓
	IF Mode	Wide	✓
	Memory Mode, Input, FFT...→ Input Coupling	AC	
	Memory Mode, Input, FFT...→ Memory Mode	Zoom	
	Memory Mode, Input, FFT...→ FFT Type	HW	
	Memory Mode, Input, FFT...→ FFT Points	1024	
	Memory Mode, Input, FFT...→ FFT Window	Blackman	
	Freq, Span, Ref...→ Freq	1.5 GHz	✓
	Freq, Span, Ref...→ Span	10 MHz	✓
	Freq, Span, Ref...→ Ref	0 dBm	✓
	Freq, Span, Ref...→ Manual	Mixer	
	Freq, Span, Ref...→ Mixer Level	-25 dBm	
	Freq, Span, Ref...→ RF Att	20 dB	
	Freq, Span, Ref...→ Frequency Offset	0	
	Freq, Span, Ref...→ Ref Offset	0	
Freq, Span, Ref...→ Reference Osc	Internal		

**Table A-1: Default settings for the 3GPP up-link analysis (Cont.)**

Menu	Item	Up Link	RST <sup>1</sup>
View A	Source	Active	
	Format	FreqAmpl	
	Frame	0	
	Average...→ Average	Off	
	Average...→ Average Type	RMS Expo	
	Average...→ Num Averages	10	
	Average...→ Begin Frame	0	
	Average...→ End Frame	0	
	RBW...→ RBW Calculation	Off	
	RBW...→ Alpha	0.5	
	RBW...→ RBW	0	
	Edit...→ Hor.	0	
	Edit...→ Ver.	0	
	Options...→ Display Lines...→ Hor. 1 Visible	Off	
	Options...→ Display Lines...→ Hor. 1	0	
	Options...→ Display Lines...→ Hor. 2 Visible	Off	
	Options...→ Display Lines...→ Hor. 2	0	
	Options...→ Display Lines...→ Ver. 1 Visible	Off	
	Options...→ Display Lines...→ Ver. 1	0	
	Options...→ Display Lines...→ Ver. 2 Visible	Off	
	Options...→ Display Lines...→ Ver. 2	0	
	Options...→ Trace2...→ Source	None	
	Options...→ Trace2...→ Format	FreqAmpl	
	Options...→ Trace2...→ Frame	0	
	Options...→ Position	100 %	
	Options...→ Hold Ver. Scale	Off	
	Scale, Marker, Search...→ Scale...→ Hor. Scale	1	
	Scale, Marker, Search...→ Scale...→ Hor. Start	0	
	Scale, Marker, Search...→ Scale...→ Ver. Scale	0	
	Scale, Marker, Search...→ Scale...→ Ver. Start	0	
	Scale, Marker, Search...→ Scale...→ Frame Relative	Off	



**Table A-1: Default settings for the 3GPP up-link analysis (Cont.)**

Menu	Item	Up Link	RST <sup>1</sup>
	Scale, Marker, Search... → Marker... → Hor.	0	
	Scale, Marker, Search... → Marker... → Trace	Trace1	
	Scale, Marker, Search... → Marker... → Delta Marker	Off	
	Scale, Marker, Search... → Marker... → Measurement	Off	
	Scale, Marker, Search... → Search... → Separation	2 %	
	Scale, Marker, Search... → Search... → Trace	Trace1	
	Scale, Marker, Search... → Search... → Delta Marker	Off	
View B	Time Slot	0	
	Ver. Start	0	
	Symbol Rate	960k	
	Options... → XAxis	Relative	
	Options... → Monochrome	Off	
	Options... → Number Colors	100	
	Scale, Marker, Search... → Scale... → Hor. Scale	7 ch	
	Scale, Marker, Search... → Scale... → Hor. Start	0	
	Scale, Marker, Search... → Scale... → Ver. Scale	1	
	Scale, Marker, Search... → Scale... → Ver. Start	0	
	Scale, Marker, Search... → Scale... → Color Scale	50 dB	
	Scale, Marker, Search... → Scale... → Color Start	-50 dB	
	Scale, Marker, Search... → Marker... → Hor.	2 ch	
	Scale, Marker, Search... → Marker... → Ver.	0	
	Scale, Marker, Search... → Marker... → Delta Marker	Off	
	Scale, Marker, Search... → Search... → Separation	2 %	
	Scale, Marker, Search... → Search... → Ver.	0	
	Scale, Marker, Search... → Search... → Delta Marker	Off	
	Ver. Mag	3 pixels	
View C	Source	Active	
	Analysis Time Slot	0	
	Standard...	W-CDMA	
	Manual Setup... → Modulation	W-CDMA	
	Manual Setup... → Chip Rate	3.84 M	

**Table A-1: Default settings for the 3GPP up-link analysis (Cont.)**

Menu	Item	Up Link	RST <sup>1</sup>
	Manual Setup...→ Measurement Filter	RootRaised-Cosine	
	Manual Setup...→ Reference Filter	RaisedCosine	
	Manual Setup...→ Alpha/BT	0.22	
	Manual Setup...→ Auto Carrier	On	
	Symbol Constellation	Off	
	Options...→ Mode	DPDCH/DPCCH	
	Options...→ Scrambling Code Type	Long	
	Options...→ Scrambling Code	0	
	Options...→ Time Slot	0	
	Options...→ Short Code	2 ch	
	Options...→ Symbol Rate	960 k	
	Options...→ Display	Measurement	
	Options...→ Format	Vector	
	Options...→ Marker	0	
View D	X Axis	Short Code	
	Average	Off	
	TimeSlot	0	
	Symbol Rate	960 k	
	Options...→ Y Axis	Relative	
	Options...→ Display Lines...→ Hor. 1 Visible	Off	
	Options...→ Display Lines...→ Hor. 1	-100	
	Options...→ Display Lines...→ Hor. 2 Visible	Off	
	Options...→ Display Lines...→ Hor. 2	-100	
	Options...→ Display Lines...→ Ver. 1 Visible	Off	
	Options...→ Display Lines...→ Ver. 1	0	
	Options...→ Display Lines...→ Ver. 2 Visible	Off	
	Options...→ Display Lines...→ Ver. 2	0	
	Scale, Marker, Search...→ Scale...→ Hor. Scale	7 ch	
	Scale, Marker, Search...→ Scale...→ Hor. Start	0	
	Scale, Marker, Search...→ Scale...→ Ver. Scale	50 dB	

**Table A-1: Default settings for the 3GPP up-link analysis (Cont.)**

Menu	Item	Up Link	RST <sup>1</sup>
	Scale, Marker, Search...→ Scale...→ Ver. Start	-50 dB	
	Scale, Marker, Search...→ Marker...→ Hor.	4 ch	
	Scale, Marker, Search...→ Marker...→ Delta Marker	Off	
	Scale, Marker, Search...→ Search...→ Separation	2 %	
	Scale, Marker, Search...→ Search...→ Delta Marker	Off	

<sup>1</sup> These items are not reset when you set the basic configuration.

## Restoring Default Settings

When you select a basic configuration from the CONFIG:MODE menu after you have changed some settings, the parameters indicated with the check mark (✓) in the **RST** column of Table A-1 remain unchanged. Do the following steps to reset the analyzer to the default basic configuration.

1. Press the CONFIG:MODE key on the front panel.
2. Press the side key targeting the basic configuration.

Set the parameters that are not reset.

3. Change the input mode:
  - a. Press the SETUP:MAIN key.
  - b. Press the **Band** side key to select **RF** (for WCA330) or **RF1** (for WCA380) with the general purpose knob.
  - c. Press the **IF Mode** side key to select **Wide** with the general purpose knob:
4. Set the frequency, span, and reference level:
  - a. Press the SETUP:FREQ key.
  - b. Press the **Freq** side key to enter 1.5 GHz using the keypad.
  - c. Press the **Span** side key to enter 10 MHz using the keypad:
  - d. Press the **Ref** side key to enter 0 dBm using the keypad.

## Default Settings for the GPIB Commands

The factory initialization settings provide you a known state for the analyzer. Factory initialization sets the values as shown in Table A–2 to A–5 for each command group.

**Table A-2: Factory initialization settings — 3gppULSpectrogram view commands**

Header	Default settings
:View<x>:Marker:DeltaMarker	Off
:View<x>:Marker:SearchSeparation	2 %
:View<x>:Marker:X	0
:View<x>:Marker:Z	0
:View<x>:Monochrome	Off
:View<x>:NumberColors	100
:View<x>:Scale:XScale	7 ch
:View<x>:Scale:XStart	0 ch
:View<x>:Scale:YScale	50 dB
:View<x>:Scale:YStart	-50 dB
:View<x>:Scale:ZScale	1
:View<x>:Scale:ZStart	0
:View<x>:SymbolRate	960 k
:View<x>:YAxis	Relative
:View<x>:ZGap	3 pixels

**Table A-3: Factory initialization settings — 3gppULPolar view commands**

Header	Default settings
:View<x>:AlphaBT	0.22
:View<x>:Analysis:TimeSlot	0
:View<x>:AutoCarrier	On
:View<x>:Carrier	0
:View<x>:ChipRate	3.84 MHz
:View<x>:Constellation:SymbolRate	960 k
:View<x>:Display	Measurement
:View<x>:Format	Vector

**Table A-3: Factory initialization settings — 3gppULPolar view commands (Cont.)**

Header	Default settings
:View<x>:Marker:T	0
:View<x>:MeasFilter	RootRaisedCosine
:View<x>:Modulation	W-CDMA
:View<x>:RefFilter	RaisedCosine
:View<x>:ShortCode	4 ch
:View<x>:Source	Active
:View<x>:SymbolConstellation	Off
:View<x>:TimeSlot	0
:View<x>:Uplink:Mode	DPDCH/DPCCH
:View<x>:Uplink:ScramblingCode	0
:View<x>:Uplink:ScramblingCodeType	Long
:View<x>:Uplink:Threshold	-30 dB

**Table A-4: Factory initialization settings — 3gppULPower view commands**

Header	Default settings
:View<x>:Average	Off
:View<x>:Average:BeginZ	0
:View<x>:Average:EndZ	0
:View<x>:Average:Times	10
:View<x>:Average:Type	RMSExpo
:View<x>:Line:X<n>	-100 dB
:View<x>:Line:X<n>:Visible	Off
:View<x>:Line:Y<n>	0 ch
:View<x>:Line:Y<n>:Visible	Off
:View<x>:Marker:DeltaMarker	Off
:View<x>:Marker:SearchSeparation	2 %
:View<x>:Marker:X	3 ch
:View<x>:Scale:XScale	7 ch
:View<x>:Scale:XStart	0 ch
:View<x>:Scale:YScale	50 dB
:View<x>:Scale:YStart	-50 dB

**Table A-4: Factory initialization settings — 3gppULPower view commands (Cont.)**

<b>Header</b>	<b>Default settings</b>
:View<x>:ShortCode	3 ch
:View<x>:SymbolRate	120 k
:View<x>:XAxis	ShortCode
:View<x>:YAxis	Relative
:View<x>:Z	0

**Table A-5: Factory initialization settings — 3gppULSymbolTable view commands**

<b>Header</b>	<b>Default settings</b>
:View<x>:Marker:T	0
:View<x>:Radix	Bin
:View<x>:Rotate	0
:View<x>:Source	Measurement

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