

Key Reference

Agilent Technologies PSG Signal Generators

This guide applies to the following signal generator models:

E8267C PSG Vector Signal Generator

E8257C PSG Analog Signal Generator

E8247C PSG CW Signal Generator

Due to our continuing efforts to improve our products through firmware and hardware revisions, signal generator design and operation may vary from descriptions in this guide. We recommend that you use the latest revision of this guide to ensure you have up-to-date product information. Compare the print date of this guide (see bottom of page) with the latest revision, which can be downloaded from the following website:

www.agilent.com/find/psg



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Key Reference

Symbols

of Carriers

Supported E8267C with Option 002/602

This softkey accesses a menu from which you can set the number of carriers for initialization of the multicarrier table.

Points

Supported All

This softkey enables you to define the number of points in a step sweep. When you press this key, the current value is shown in the active entry area.

A step sweep must have a minimum of 2 points.

Preset 2

Range 2–1601

Skipped Points

Supported E8267C with Option 002/602

This softkey enables you to set the number of points to skip in the range that you are defining. The first point in a range always has a marker set; the skipped points are after that marker. This enables you to set repetitively spaced markers. For example, a skip of 2 produces two points between each marker across the defined range. You can use either the knob or the numeric keys to set the value. The maximum number of skipped points for a selected file is 1 less than the number of points set in the file.

Preset 0

Range 0 to (last marker point minus first marker point)

ΦM Dev

Supported E8257C and E8267C

This softkey enables you to set the deviation of the phase modulation for the currently selected modulation path.

The deviation limits are dependent upon the carrier frequency. This limiting occurs only when the modulation is turned on.

Preset	0.000 rad		
Ranges	<i>Frequency</i>	<i>Normal Bandwidth</i>	<i>High Bandwidth</i>
	100 kHz–250 MHz	0–10 rad	0–1 rad
	> 250–500 MHz	0–5 rad	0–0.5 rad
	> 500 MHz–1 GHz	0–10 rad	0–1 rad
	> 1–2 GHz	0–20 rad	0–2 rad
	> 2–3.2 GHz	0–40 rad	0–4 rad
	> 3.2–10.0 GHz	0–80 rad	0–8 rad
	> 10.0–20.0 GHz	0–160 rad	0–16 rad
	> 20.0–28.1 GHz	0–242.4 rad	0–24.2 rad
	> 28.1–40.0 GHz	0–400 rad	0–40 rad

Φ M Dev Couple Off On

Supported E8257C and E8267C

This softkey toggles the operating state of the coupled deviation for phase modulation.

Off The Φ M Path 1 and Φ M Path deviation values are independent of each other.

On The Φ M Path 1 and Φ M Path deviation values are linked. Any change you make to one Φ M deviation value is applied to both.

Preset Off

Φ M Off On

Supported E8257C and E8267C

This softkey toggles the operating state of the currently selected phase modulation.

Off Use this setting to turn off the currently selected phase modulation.

On Use this setting to turn on the currently selected phase modulation.

When phase modulation is on, the Φ M annunciator is displayed.

Preset Off

Φ M Path 1 2

Supported E8257C and E8267C

This softkey toggles the selection between Φ M Path 1 and Φ M Path 2.

Key Reference

Symbols

ΦM Path 1 This selection enables you to configure the modulation characteristics for ΦM Path 1, using the remaining softkeys in the ΦM menu.

ΦM Path 2 This selection enables you to configure the modulation characteristics for ΦM Path 2, using the remaining softkeys in the ΦM menu.

ΦM Path 1 and ΦM Path 2 define two standard phase modulation configurations which can be used together.

ΦM Path 1 and ΦM Path 2 are summed internally for composite modulation. Either path can be switched to any one of the modulation sources: Internal, Ext1, or Ext2.

ΦM Path 2 must be set to a deviation less than ΦM Path 1.

Preset ΦM Path 1

ΦM Rate

Supported E8257C and E8267C

This softkey enables you to change the frequency of the currently selected phase modulation.

Preset 400.0 Hz

Range 500.0 mHz–1.0 MHz

ΦM Source

Supported E8257C and E8267C

Use this softkey to access a menu of choices that enables you to select either an internally generated or an externally applied modulation input for the phase modulation source. The internal modulation is always ac-coupled. For externally applied signals, you can choose between ac- and dc-coupled modulation.

A 1.0 volt peak voltage input is required for calibrated ΦM deviation settings. The EXT 1 LO/HI and EXT 2 LO/HI display annunciators will turn on if the peak input voltage differs from 1.0 by more than 3%. (The LO/HI annunciators function only for ac-coupled external inputs.)

ΦM Start Rate

Supported E8257C and E8267C

This softkey enables you to change the starting frequency of the internally generated modulation source for swept-sine phase modulation.

This softkey is coupled to the **FM Rate** softkey in the initial FM menu and the **FM Tone 1 Rate** softkey in the FM Dual-Sine menu. Any value set for FM Start Rate is reflected in the **FM Rate** and **FM Tone 1 Rate** softkeys.

Preset	400.0 Hz
Range	1.0 Hz–1.0 MHz (minimum increment allowed is 1.0 Hz)

Φ M Stop Rate

Supported E8257C and E8267C

This softkey enables you to change the ending frequency of the internally generated modulation source for swept-sine phase modulation.

This softkey is coupled to the **FM Tone 2 Rate** softkey in the FM Dual-Sine menu. Any value set for FM Stop Rate is reflected in the **FM Tone 2 Rate** softkey.

Preset	400.0 Hz
Range	1.0 Hz–1.0 MHz (minimum increment allowed is 1.0 Hz)

Φ M Sweep Rate

Supported E8257C and E8267C

This softkey enables you to set the sweep rate for swept-sine phase modulation.

Preset	400.0 Hz
Range	0.5 Hz–100.0 kHz

Φ M Sweep Trigger

Supported E8257C and E8267C

Use this softkey to access a menu of choices that enables you to select the triggering mode for the swept-sine phase modulation.

You can also configure the polarity of the TTL signal output at the TRIGGER IN connector using the **Trigger In Polarity Neg Pos** softkey on this menu.

Preset	Free Run
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Φ M Tone 1 Rate

Supported E8257C and E8267C

This softkey enables you to set the internal modulation frequency for the phase modulation tone 1 rate of the dual-sine waveform.

This key is coupled to the **Φ M Rate** softkey in the initial **Φ M** menu and the **Φ M Start Rate** softkey in the **Φ M swept-sine** menu. Any value set for **Φ M Tone 1 Rate** is reflected in the **Φ M Rate** and **Φ M Start Rate**

Key Reference

Symbols

softkeys.

Preset 400.0 Hz

Range 0.5 Hz–1.0 MHz (minimum increment is 0.5 Hz)

Φ M Tone 2 Ampl Percent Of Peak

Supported E8257C and E8267C

This softkey enables you to adjust the amplitude of the alternate frequency as a percentage of the peak LF analog modulation amplitude. For example, if the tone 2 amplitude is set to 30.0% of the total amplitude, then the primary frequency is 70.0% of the total amplitude.

This is applicable for the dual-sine function only.

Preset 50.0%

Range 0.0%–100.0%

Φ M Tone 2 Rate

Supported E8257C and E8267C

This softkey enables you to set the internal modulation frequency for the phase modulation tone 2 rate of the dual-sine waveform.

This key is coupled to the **Φ M Stop Rate** softkey in the **Φ M swept-sine** menu. Any value set for **Φ M Tone 2 Rate** is reflected in the **Φ M Stop Rate** softkey.

Preset 400.0 Hz

Range 0.5 Hz–1.0 MHz (minimum increment is 0.5 Hz)

Φ M Waveform

Supported E8257C and E8267C

Use this softkey to access a menu of choices that enables you to select the phase modulation waveform that can be produced by the internal modulation source.

This softkey is only enabled when Internal is selected in the **Φ M Source** menu.

p/4 DQPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load an I/Q map into the I/Q table editor.

Selecting a $\pi/4$ DQPSK Modulation

Use this softkey to select $\pi/4$ differential quadrature phase shift keying ($\pi/4$ DQPSK) to modulate a continuous stream of the selected data pattern. $\pi/4$ DQPSK modulation transmits data at the rate of 2 bits per symbol.

Loading a $\pi/4$ DQPSK I/Q Map into the Table Editor

Use this softkey to load a $\pi/4$ differential quadrature phase shift keying ($\pi/4$ DQPSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Numerics

1 kHz

Supported All

Use this softkey to select an automatic leveling control bandwidth of 1.0 kHz.

2–Lvl FSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default pattern into the FSK table editor.

Selecting a 2–Level FSK Modulation

Use this softkey to select 2–level frequency shift keying (FSK) for modulating a continuous stream of the selected data pattern. Two–level FSK modulation transmits data at the rate of 1 bit per symbol.

The selected modulation is displayed under the **Modulation Type** softkey in the Modulation Type menu.

Loading a 2–Level FSK Pattern into the FSK Table Editor

Use this softkey to load a 2–level frequency shift keying (FSK) modulation pattern into the FSK table editor. Two–level FSK modulation transmits data at the rate of 1 bit per symbol. For more information on using the FSK table editor, see the *User’s Guide*.

2.100 MHz

Supported E8267C with Option 002/602

Use this softkey to apply a 2.100 MHz filter to signals that are routed to the I/Q modulator. This filter eliminates spurs above 2.100 MHz.

4 1’s & 4 0’s

Supported E8267C with Option 002/602

Use this softkey to select a binary data pattern that consists of four ones followed by four zeroes. Use this selection to generate unframed data patterns or for use with framed data transmissions.

When you select **4 1’s & 4 0’s**, both the **Data** and the **Other Patterns** softkeys show this selection. In addition, P4 (where “P” refers to Pattern and “4” refers to four ones and four zeroes) appears in the Data field of the table. A single output of a framed P4 data pattern consists of enough repetitions of

four ones followed by four zeroes to fill the data fields in TDMA timeslots.

4-Lvl FSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default pattern into the FSK table editor.

Selecting a 4-Level FSK Modulation

Press this softkey to select 4-level frequency shift keying (FSK) for modulating a continuous stream of the selected data pattern. Four-level FSK modulation transmits data at the rate of 2 bits per symbol, and conforms with FLEX variants of paging standards.

The selected modulation is displayed under the **Modulation Type** softkey in the Modulation Type menu.

Loading a 4-Level FSK Pattern into the FSK Table Editor

Press this softkey to load a 4-level frequency shift keying (FSK) modulation pattern into the FSK table editor. Four-level FSK modulation transmits data at the rate of 2 bits per symbol. For more information on using the FSK table editor, see the *User's Guide*.

4QAM

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default I/Q map into the I/Q table editor.

Selecting a 4QAM Modulation

Press this softkey to select 4-state quadrature amplitude modulation (4QAM) to modulate a continuous stream of the selected data pattern. 4QAM transmits data at the rate of 2 bits per symbol.

The selected modulation is displayed under the **Select** and **QAM** softkeys in the Modulation Type menu.

Loading a 4QAM I/Q Map into the I/Q Table Editor

Press this softkey to load a 4-state quadrature amplitude modulation (4QAM) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

8 1's & 8 0's

Supported E8267C with Option 002/602

Use this softkey to select a binary data pattern that consists of eight ones followed by eight zeroes. Use

Key Reference

Numerics

this selection to generate unframed data patterns or for use with framed data transmissions.

When you select **8 1's & 8 0's**, both the **Data** and the **Other Patterns** softkeys show this selection. In addition, P8 (where "P" refers to Pattern and "8" refers to eight ones and eight zeroes) appears in the Data field of the table.

A single output of a framed P8 data pattern consists of enough repetitions of eight ones followed by eight zeroes to fill the data fields in TDMA timeslots.

8-Lvl FSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default pattern into the FSK table editor.

Selecting a 8-Level FSK Modulation

Press this softkey to select 8-level frequency shift keying (FSK) for modulating a continuous stream of the selected data pattern. Eight-level FSK modulation transmits data at the rate of 3 bits per symbol.

The selected modulation is displayed under the **Modulation Type** softkey in the Modulation Type menu.

Loading a 8-Level FSK Pattern into the FSK Table Editor

Press this softkey to load an 8-level frequency shift keying (FSK) modulation pattern into the FSK table editor. Eight-level FSK modulation transmits data at the rate of 3 bits per symbol. For more information on using the FSK table editor, see the *User's Guide*.

8PSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load an I/Q map into the I/Q table editor.

Selecting an 8PSK Modulation

Use this softkey to select 8-state phase shift keying (8PSK) to modulate a continuous stream of the selected data pattern. 8PSK modulation transmits data at the rate of 3 bits per symbol.

The modulation selection appears under the **Select** and **PSK** softkeys in the Modulation Type menus.

Loading an 8PSK I/Q Map into the Table Editor

Use this softkey to load an 8-state phase shift keying (8PSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

10 kHz

Supported All

Use this softkey to select an automatic leveling control bandwidth of 10.0 kHz.

16 1's & 16 0's

Supported E8267C with Option 002/602

Use this softkey to select a binary data pattern that consists of 16 ones followed by 16 zeroes. Use this selection to generate unframed data patterns or for use with framed data transmissions.

When you select **16 1's & 16 0's**, both the **Data** and the **Other Patterns** softkeys show this selection. In addition, P16 (where "P" refers to Pattern and "16" refers to 16 ones and 16 zeroes) appears in the Data field of the table.

A single output of a framed P16 data pattern consists of enough repetitions of 16 ones followed by 16 zeroes to fill the data fields in TDMA timeslots.

16-Lvl FSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default pattern into the FSK table editor.

Selecting a 16-Level FSK Modulation

Press this softkey to select 16-level frequency shift keying (FSK) for modulating a continuous stream of the selected data pattern. 16-level FSK modulation transmits data at the rate of 4 bits per symbol.

The selected modulation is displayed under the **Modulation Type** softkey in the Modulation Type menu.

Loading a 16-Level FSK Pattern into the FSK Table Editor

Press this softkey to load a 16-level frequency shift keying (FSK) modulation pattern into the FSK table editor. 16-level FSK modulation transmits data at the rate of 4 bits per symbol. For more information on using the FSK table editor, see the *User's Guide*.

16PSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load an I/Q map into the I/Q table editor.

Selecting a 16PSK Modulation

Use this softkey to select 16-state phase shift keying (16PSK) to modulate a continuous stream of the selected data pattern. 16PSK modulation transmits data at the rate of 4 bits per symbol.

The modulation selection appears under the **Select** and **PSK** softkeys in the Modulation Type menus.

Loading a 16PSK I/Q Map into the Table Editor

Use this softkey to load a 16-state phase shift keying (16PSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

16QAM

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default I/Q map into the I/Q table editor.

Selecting a 16QAM Modulation

Press this softkey to select 16-state quadrature amplitude modulation (16QAM) to modulate a continuous stream of the selected data pattern. 16QAM transmits data at the rate of 4 bits per symbol.

The selected modulation is displayed under the **Select** and **QAM** softkeys in the Modulation Type menu.

Loading a 16QAM I/Q Map into the I/Q Table Editor

Press this softkey to load a 16-state quadrature amplitude modulation (16QAM) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

25 Hz

Supported All with Option UNR

This softkey enables you to select an internal or external reference oscillator bandwidth of 25 Hz.

32 1's & 32 0's

Supported E8267C with Option 002/602

Use this softkey to select a binary data pattern that consists of 32 ones followed by 32 zeroes. Use this selection to generate unframed data patterns or for use with framed data transmissions.

When you select **32 1's & 32 0's**, both the **Data** and the **Other Patterns** softkeys show this selection. In addition, P32 (where "P" refers to Pattern and "32" refers to 32 ones and 32 zeroes) appears in the Data field of the table.

A single output of a framed P32 data pattern consists of enough repetitions of 32 ones followed by 32 zeroes to fill the data fields in TDMA timeslots.

32QAM

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default I/Q map into the I/Q table editor.

Selecting a 32QAM Modulation

Press this softkey to select 32-state quadrature amplitude modulation (32QAM) to modulate a continuous stream of the selected data pattern. 32QAM transmits data at the rate of 5 bits per symbol.

The selected modulation is displayed under the **Select** and **QAM** softkeys in the Modulation Type menu.

Loading a 32QAM I/Q Map into the I/Q Table Editor

Press this softkey to load a 32-state quadrature amplitude modulation (32QAM) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

40.000 MHz

Supported E8267C

Use this softkey to apply a 40.000 MHz filter to signals that are routed to the I/Q modulator or to the external outputs. This filter eliminates spurs above 40.000 MHz.

53 Hz

Supported All with Option UNR

This softkey enables you to select an internal or external reference oscillator bandwidth of 53 Hz.

64 1's & 64 0's

Supported E8267C with Option 002/602

Use this softkey to select a binary data pattern that consists of 64 ones followed by 64 zeroes. Use this selection to generate unframed data patterns or for use with framed data transmissions.

When you select **64 1's & 64 0's**, both the **Data** and the **Other Patterns** softkeys show this selection. In addition, P64 (where "P" refers to Pattern and "64" refers to 64 ones and 64 zeroes) appears in the Data field of the table.

A single output of a framed P64 data pattern consists of enough repetitions of 64 ones followed by 64

zeros to fill the data fields in TDMA timeslots.

64QAM

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default I/Q map into the I/Q table editor.

Selecting a 64QAM Modulation

Press this softkey to select 64-state quadrature amplitude modulation (64QAM) to modulate a continuous stream of the selected data pattern. 64QAM transmits data at the rate of 6 bits per symbol.

The selected modulation is displayed under the **Select** and **QAM** softkeys in the Modulation Type menu.

Loading a 64QAM I/Q Map into the I/Q Table Editor

Press this softkey to load a 64QAM (64-state quadrature amplitude modulation) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

100 Hz

Supported All

Use this softkey to select an automatic leveling control bandwidth of 100.0 Hz.

100 kHz

Supported All

Use this softkey to select an automatic leveling control bandwidth of 100.0 kHz.

126 Hz

Supported All with Option UNR

This softkey enables you to select an internal or external reference oscillator bandwidth of 126 Hz.

256QAM

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation or load a default I/Q map into the I/Q table editor.

Selecting a 256QAM Modulation

Press this softkey to select 256-state quadrature amplitude modulation (256QAM) to modulate a continuous stream of the selected data pattern. 256QAM transmits data at the rate of 8 bits per symbol.

The selected modulation is displayed under the **Select** and **QAM** softkeys in the Modulation Type menu.

Loading a 256QAM I/Q Map into the I/Q Table Editor

Press this softkey to load a 256-state quadrature amplitude modulation (256QAM) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

300

Supported All

This softkey selects 300 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

300 Hz

Supported All with Option UNR

This softkey enables you to select an internal or external reference oscillator bandwidth of 300 Hz.

650 Hz

Supported All with Option UNR

This softkey enables you to select an internal or external reference oscillator bandwidth of 650 Hz.

800MHz Base

Supported All

This softkey selects 800 MHz Base as the frequency band for Personal Digital Cellular (PDC). The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
Frequency: 810.025 MHz

Range *Channels: 1–320*
Frequency: 810.025–818.000 MHz

800MHz Mobile

Supported All

This softkey selects 800 MHz Mobile as the frequency band for Personal Digital Cellular (PDC). The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
Frequency: 940.025 MHz

Range *Channels: 1–320*
Frequency: 940.025–948.000 MHz

1200

Supported All

This softkey selects 1200 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

1500MHz Base

Supported All

This softkey selects 1500 MHz Base as the frequency band for Personal Digital Cellular (PDC). The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
Frequency: 1.477 GHz

Range *Channels: 1–480*
Frequency: 1.477–1.489 GHz

1500MHz Mobile

Supported All

This softkey selects 1500 MHz Mobile as the frequency band for Personal Digital Cellular (PDC). The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
Frequency: 1.429 GHz

Range *Channels: 1–480*

Frequency: 1.429–1.441 GHz

2400

Supported All

This softkey selects 2400 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

4800

Supported All

This softkey selects 4800 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

8340B,8341B

Supported All

This softkey selects 8340B or 8341B compatible commands for remote operation of the signal generator, using the GPIB interface only. The selection appears in the Preset Language softkey menu and the Remote Language softkey menu.

The **8340B,8341B** softkey is a language choice for the signal generator and is compatible with the remote language commands used by the 8340B and the 8341B. Choosing this softkey in the Preset Language menu allows you to select this remote language as the default after you preset the signal generator. Choosing this softkey in the Remote Language menu allows you to immediately use 8340B and 8341B commands for remote operation of the signal generator.

8360 Series

Supported All

This softkey selects 8360 series-compatible commands for remote operation of the signal generator. The selection appears in two places; the **Preset Language** softkey menu and the **Remote Language** softkey menu.

The **8360 Series** softkey is a language choice for the signal generator and is compatible with the remote language commands used by the 8360 series. Choosing **8360 Series** in the Preset Language menu allows you to select this remote language as the default after you preset the signal generator. Choosing **8360 Series** in the Remote Language menu allows you to immediately use 8360 series commands for remote operation of the signal generator.

The selection is not affected by an instrument preset or power cycle.

9600

Supported All

This softkey selects 9600 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

19200

Supported All

This softkey selects 19200 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

38400

Supported All

This softkey selects 38400 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

57600

Supported All

This softkey selects 57600 as the baud rate for RS-232 data communication.

The baud rate is not affected by a preset or by a power cycle.

83711B,83712B

Supported All

This softkey selects 83711B or 83712B compatible commands for remote operation of the signal generator, using the GPIB interface only. The selection appears in the Preset Language softkey menu and the Remote Language softkey menu.

The **83711B,83712B** softkey is a language choice for the signal generator and is compatible with the remote language commands used by the 83711B and the 83712B. Choosing this softkey in the Preset Language menu allows you to select this remote language as the default after you preset the signal generator. Choosing this softkey in the Remote Language menu allows you to immediately use 83711B and 83712B commands for remote operation of the signal generator.

83731B,83732B

Supported All

This softkey selects 83731B or 83732B compatible commands for remote operation of the signal generator, using the GPIB interface only. The selection appears in the Preset Language softkey menu and the Remote Language softkey menu.

The **83731B,83732B** softkey is a language choice for the signal generator and is compatible with the remote language commands used by the 83731B and the 83732B. Choosing this softkey in the Preset Language menu allows you to select this remote language as the default after you preset the signal generator. Choosing this softkey in the Remote Language menu allows you to immediately use 83731B and 83732B commands for remote operation of the signal generator.

83751B,83752B

Supported All

This softkey selects 83751B or 83752B compatible commands for remote operation of the signal generator, using the GPIB interface only. The selection appears in the Preset Language softkey menu and the Remote Language softkey menu.

The **83751B,83752B** softkey is a language choice for the signal generator and is compatible with the remote language commands used by the 83751B and the 83752B. Choosing this softkey in the Preset Language menu allows you to select this remote language as the default after you preset the signal generator. Choosing this softkey in the Remote Language menu allows you to immediately use 83751B and 83752B commands for remote operation of the signal generator.

87570 System

Supported All

This softkey selects 87570-compatible commands for remote operation of the signal generator, using the GPIB interface only. The selection appears in the Preset Language softkey menu and the Remote Language softkey menu.

The **87570 System** softkey is a language choice for the signal generator and is compatible with the remote language commands used by the 87570 system. Choosing this softkey in the Preset Language menu allows you to select this remote language as the default after you preset the signal generator. Choosing this softkey in the Remote Language menu allows you to immediately use 87570 commands for remote operation of the signal generator.

A

Abort

Supported All

Use this softkey to stop the selected test.

Abort Cal

Supported E8267C with Option 002/602

Use this softkey to abort a calibration in process. If you abort the calibration, the previous calibration data is restored.

Add Comment To Seq[n] Reg[nn]

Supported All

This softkey enables you to add a comment that is associated with a register in use. The register number is listed in the text area of the display and the comment is shown immediately following the register.

The **Add Comment to Seq[n] Reg[nn]** softkey changes to **Edit Comment In Seq[n] Reg[nn]** after adding a comment to the selected state.

The comment line is limited to 55 alpha-numeric and special characters.

Adjust Phase

Supported All

This softkey enables you to change the phase of the RF output signal. The change is relative to whatever phase the signal generator locked to the last time a frequency change was performed. For this reason, the phase adjustment does not survive changes in frequency and must be readjusted. If you first press **Phase Ref Set**, the current output phase is set as a zero reference and any subsequent phase adjustment is displayed as relative to the zero reference.

Phase adjustment cannot be used with frequency or phase modulation. Adjustments to phase can be made in 0.1 degree increments.

Preset 0.000 radians

Range ± 3.142 radians or ± 180.0 degrees

ALC BW

Supported All

Use this softkey to access a menu of choices for automatic leveling control (ALC) bandwidth. In Auto mode, the hardware selects an appropriate bandwidth to optimize performance with the current settings. You can also manually choose an ALC bandwidth and override the Auto setting.

This softkey is inactive when internal I/Q modulation is turned on.

Preset Auto

ALC Off On

Supported All

This softkey toggles the operating state of the automatic leveling control (ALC) circuit. The RF output power of the signal generator is constantly monitored and controlled by the ALC circuit. Its purpose is to hold output power at its desired level in spite of drift due to temperature and time.

There are some modulation conditions which the ALC circuit cannot handle properly which lead to output level errors. In these conditions, better power level accuracy can be obtained by turning the ALC off and using power search. ALC Off is useful with pulse modulation with a pulse width narrower than 2 μ s and with certain external I/Q modulation.

Pulse modulation is accomplished using a modulator which precedes the ALC detector. The ALC must, therefore, measure a pulsed signal, and it is able to do this if the pulse width exceeds 2 μ s. For narrower pulses, set the **ALC Off On** softkey to Off.

With external I/Q modulation, the ALC loop acts to hold the signal generator's average output power constant, in spite of variations in the I/Q input power ($I^2 + Q^2$). Rapid variations of ($I^2 + Q^2$) propagate to the output, while slow variations are removed by the ALC loop, with a high-pass corner of 1 kHz. If you do not want this high-pass filtering, set the **ALC Off On** softkey to Off. With ALC off, the I/Q modulation will be DC-coupled. Using power search, power level accuracy is preserved if

$$\sqrt{I^2 + Q^2} = 0.5 V_{\text{rms}}$$

When ALC is off, the ALC OFF display annunciator will turn on.

An alternative to setting the ALC off is to set the ALC to a narrow bandwidth.

Off When the ALC circuit is off, the output power level is not controlled.

On When the ALC circuit is on, the output power level is constantly monitored and controlled.

Preset On

Alignment Left Cent Right

Supported E8267C with Option 002/602

This command will align the two tones either left, center or right of the carrier frequency.

Left This selection aligns the upper tone to the carrier frequency, resulting in a waveform that is left-aligned.

Cent This selection centers the tones on the carrier frequency.

Right This selection aligns the lower tone to the carrier frequency, resulting in a waveform that is right-aligned.

Preset Cent

All

Supported All

This softkey enables you to specify that all signal generator file types in the user file system are to be listed.

All Timeslots

Supported E8267C with Option 002/602

Use this softkey to output a 1-bit pulse at the EVENT 1 rear panel connector that is synchronized to the first bit of each timeslot. If you have entered a value for Sync Out Offset, the synchronizing pulse is offset by the number of bits specified.

The **Data Format Pattern Framed** softkey must be set to Framed to enable this softkey. This softkey is grayed out (not accessible) in Custom.

Alternate Sweep Off On

Supported All with Option 007

Use this softkey to toggle the state of the alternate sweep function. Turn on alternate sweep to alternate between the current sweep and a previously saved sweep, selected with **Alternate Sweep Register** softkey.

Preset Off

Alternate Sweep Register

Supported All with Option 007

Use this softkey to select a previously saved ramp sweep state to alternate with the current sweep.

Ramp sweep states are saved with the **Save** hardkey. You are limited to saving ramp sweep states to registers 1 through 9 in sequence 0.

Preset 1

AM

Supported E8257C and E8267C

Use this hardkey to access a menu of choices that enables you to configure the amplitude modulation type, path, depth and depth coupling, rate, source, mode, and waveform.

AM Depth

Supported E8257C and E8267C

This softkey enables you to set the amplitude modulation depth for the selected modulation path. The AM depth for both AM Path 1 and 2 can be user-defined. If AM Path WB is available, the depth is set at 100% and is not user-defined.

The new value of AM depth applies only to the AM path selected.

Preset 0.1% *Linear*
40 dB *Exponential*

Range 0.0–100.0% Linear (minimum increment is 0.1%)
0–40 dB Exponential

AM Depth Couple Off On

Supported E8257C and E8267C

This softkey toggles the operating state for AM depth coupling. AM depth coupling links the depth values of AM Path 1 and AM Path 2.

When the values are coupled, any change you make to one AM depth value is applied to both.

On AM depth is coupled and applied to both AM Path 1 and AM Path 2.

Off AM depth coupling is disabled.

Preset Off

AM Mode Normal Deep

Supported E8257C and E8267C

This softkey toggles the amplitude modulation mode between normal and deep.

A

Normal	This selection maintains the standard amplitude modulation behavior.
Deep	This mode provides an amplitude modulation depth with a greater dynamic range than the normal mode when the ALC is enabled.
Preset	Normal

AM Off On

Supported E8257C and E8267C

This softkey turns amplitude modulation either off or on for the AM path selected.

Two paths for amplitude modulation can be simultaneously enabled provided that different sources (for example, Internal, Ext1, or Ext2) are used. When amplitude modulation is on, the front panel AM annunciator is displayed.

Although you can enable amplitude modulation with this key, the RF carrier is modulated only when you set **Mod On/Off** to on and is available at the RF Output connector only after **RF On/Off** is set to on.

On	AM is turned on with this key. If two or more paths are enabled then the modulation signals from the paths are summed internally for composite modulation.
Off	AM for a path(s) is turned off with this key.
Preset	Off

AM Path 1 2 WB

Supported E8257C and E8267C

This softkey enables you to select an amplitude modulation path. AM Path 1, 2, and WB define standard amplitude modulation configurations which can be used together.

AM Path 1, AM Path 2, and AM WB can be summed internally for composite modulation. Either path can be switched to any of the modulation sources: Internal 1, Internal 2, Ext1, or Ext2, for example. All modulation types can be simultaneously enabled, except FM with Φ M. The AM, FM, and Φ M can sum inputs from any two sources. Any source can be routed to one modulation type.

The RF carrier is available at the RF OUTPUT connector when you set **RF On/Off** to on. Set **Mod On/Off** to enable the modulation that you have selected.

AM Path 1	This selection enables you to configure the modulation characteristics for AM Path 1, using the remaining softkeys in the AM menu.
AM Path 2	This selection enables you to configure the modulation characteristics for AM Path 2, using the remaining softkeys in the AM menu.
AM WB	This selection enables you to configure the modulation characteristics for AM

WB, using the remaining softkeys in the AM menu.

Preset AM Path 1

AM Rate

Supported E8257C and E8267C

This softkey enables you to change the frequency of the selected internal modulation source.

The new value for the AM rate applies only to the AM path selected.

Preset 400.0 Hz

Range 0.5 Hz–100.0 kHz (minimum increment allowed is 0.5 Hz)
0.5 Hz–1.0 MHz if a sine wave is selected as the internal waveform

AM Source

Supported E8257C and E8267C

Use this softkey to access a menu of available sources for modulation inputs. Internal modulation is always ac-coupled.

A 1.0 volt peak voltage input is required for calibrated AM depth settings. The EXT 1 LO/HI and EXT 2 LO/HI display annunciators will turn on if the peak input voltage differs from 1.0 by more than 3%. (The LO/HI annunciators function only for ac-coupled external inputs.)

Preset Internal

AM Start Rate

Supported E8257C and E8267C

This softkey enables you to change the start frequency of the swept-sine modulation.

This softkey is coupled to the **AM Rate** softkey in the AM menu and the **AM Tone 1 Rate** softkey in the AM Dual-Sine menu. Any value set for the AM start rate is reflected in the **AM Rate** and **AM Tone 1 Rate** softkeys.

Preset 400.0 Hz

Range 1.0 Hz–1.0 MHz (minimum increment allowed is 1.0 Hz)

AM Stop Rate

Supported E8257C and E8267C

This softkey enables you to change the stop frequency of the swept-sine modulation.

This softkey is coupled to the **AM Tone 2 Rate** softkey in the AM Dual-Sine menu. Any value set for the AM stop rate is coupled to the **AM Tone 2 Rate** softkey.

Preset 400.0 Hz
Range 1.0 Hz–1.0 MHz (minimum increment allowed is 1.0 Hz)

AM Sweep Rate

Supported E8257C and E8267C

This softkey enables you to set the sweep rate for the swept-sine modulation.

Preset 400.0 Hz
Range 0.5 Hz–100.0 kHz

AM Sweep Trigger

Supported E8257C and E8267C

Use this softkey to access a menu of choices enabling you to select a triggering mode for the swept-sine modulation.

Preset Free Run

AM Tone 1 Rate

Supported E8257C and E8267C

This softkey enables you to set the frequency for AM tone 1 of the dual-sine modulation.

This softkey is coupled to the **AM Rate** softkey in the AM menu and the **AM Start Rate** softkey in the AM Dual-Sine menu. Any value set for the AM tone 1 rate is reflected in the **AM Rate** and **AM Start Rate** softkeys.

Preset 400.0 Hz
Range 0.5 Hz–1.0 MHz (minimum increment allowed is 0.5 Hz)

AM Tone 2 Ampl Percent of Peak

Supported E8257C and E8267C

This softkey enables you to adjust the tone 2 amplitude of the dual-sine modulation, as a percentage of the total amplitude. For example, if the tone 2 amplitude is set to 30% of the total amplitude, then the tone 1 amplitude is 70% of the total amplitude.

This key is available for the dual-sine mode only.

Preset	50.0%
Range	0.1%–99.9%

AM Tone 2 Rate

Supported	E8257C and E8267C
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This softkey enables you to set the internal modulation frequency for tone 2 of the dual-sine modulation.

This key is available for the dual-sine mode only.

Preset	400.0 Hz
Range	0.5 Hz–1.0 MHz (minimum increment allowed is 0.5 Hz)

AM Type LIN EXP

Supported	E8257C and E8267C
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This softkey toggles the amplitude modulation type between linear and exponential.

LIN	This selection uses a linear (percent/volt) amplitude modulation depth scale.
EXP	This selection uses an exponential (dB/volt) amplitude modulation depth scale.

Preset	LIN
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AM Waveform

Supported	E8257C and E8267C
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Use this softkey to access a menu of choices enabling you to select an amplitude modulation waveform that can be produced by the internal modulation source. This softkey is available after selecting Internal 1 or Internal 2 as the AM source or after presetting the signal generator.

The waveform selection applies only to the AM path selected and the AM Waveform softkey is available for the internal source only.

Preset	Sine
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Ampl

Supported	All
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This softkey enables you to set the signal generator to sweep amplitude data only. The frequency is set at a constant value determined by the **Frequency** hardkey.

You can define a sweep containing both amplitude and frequency information and still choose to sweep only amplitude.

Ampl Offset

Supported All

This softkey enables you to change the value for amplitude offset. An amplitude offset changes the value shown in the amplitude area of the display but does not affect the output power. For example, if the current output power is 0.0 dBm and you enter an amplitude offset of -3.0 dBm, the output power will remain at 0.0 dBm but the display will show an amplitude of -3.0 dBm. This feature lets you simulate the power level at a test point beyond the RF OUTPUT connector.

An amplitude offset can be entered at any time during normal operation and also when you are operating in amplitude reference mode.

Changes to this value affect the displayed amplitude value only, the actual RF output power amplitude is not changed.

Preset 0.00 dB

Range -200 dB to 200 dB

Ampl Ref Off On

Supported All

This softkey toggles the operating state of the amplitude reference mode.

Off When this mode is turned off, the amplitude value displayed is equal to the current hardware output power plus the amplitude offset, if any.

On When this mode is turned on, the amplitude value displayed is equal to the current hardware output power minus the reference value set by the **Ampl Ref Set** softkey. All subsequent amplitude parameters are then relative to the reference value.

Amplitude offsets can be used with amplitude reference mode. In this situation, the display will show the amplitude calculated as the current hardware output power minus the reference value plus the amplitude offset.

Amplitude reference mode changes the display only, it does not change the RF output power.

Preset Off

Ampl Ref Set

Supported All

This softkey enables you to set the current output power as an amplitude reference value. It also causes

the **Ampl Ref Off On** key to toggle to the On position, turning on amplitude reference mode. All subsequent output power settings are then relative to the reference value.

This key sets the reference value equal to the current output power. If you have not yet set the reference value, the normal preset value for amplitude reference is 0.0 dBm.

Preset	0.00 dB
Range	–136 to 20 dBm

Ampl Start

Supported	All
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This softkey enables you to set the amplitude of the first point in the sweep.

Preset	Στανδαρδ ινστρυμεντσ: –20.00 dBm Ινστρυμεντσ ωιτη Οπειον YNB: –135.00 dBm
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Range	You can set the value anywhere in the range of the signal generator’s specified output power.
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Ampl Stop

Supported	All
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This softkey enables you to set the amplitude of the last point in the sweep.

Preset	Στανδαρδ ινστρυμεντσ: –20.00 dBm Ινστρυμεντσ ωιτη Οπειον YNB: –135.00 dBm
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Range	You can set the value anywhere in the range of the signal generator’s specified output power.
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Amplitude

Supported	All
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This hardkey enables you to change the RF output power. In addition, the key accesses a menu of choices that enables you to configure the automatic leveling control (ALC), power search, user flatness, and amplitude options. The current RF output power level is always shown in the amplitude area of the display except under the following conditions:

- amplitude reference mode is turned on
- an offset is applied
- a step or list amplitude sweep is in process

The amplitude area of the display is blanked whenever an amplitude sweep is selected.

Preset	Standard instruments: -20.00 dBm Instruments with Option UNB: -136.00 dBm
Range	The output power range depends on your signal generator options. For more information, refer to the data sheet.

Amplitude Markers Off On

Supported All with Option 007

This softkey toggles the amplitude marker state for the currently activated markers. When the state is switched on, the RF output signal exhibits a spike with a magnitude relative to the power level at each marker's set frequency. (Use the **Marker Amplitude** softkey to set the magnitude of the spike.) The width of the amplitude spike is a nominal eight buckets, based on 1601 buckets per sweep.

Preset Off

APCO 25 C4FM

Supported E8267C with Option 002/602

Use this softkey to select an APCO 25-specified C4FM filter in the Select filter menu. This is a Nyquist filter with an alpha of 0.200 which is combined with a shaping filter.

APCO 25 w/C4FM

Supported E8267C with Option 002/602

Use this softkey to set up a predefined APCO 25-compliant personality with compatible 4-level frequency modulation (C4FM) as the modulation type to modulate a continuous stream of the selected data pattern. The maximum deviation is 1.8 kHz. C4FM uses frequency shift keying (FSK) modulation, which transmits data at the rate of 2 bits per symbol (4.8 kbps).

APCO 25 w/CQPSK

Supported E8267C with Option 002/602

Use this softkey to set up a predefined APCO 25-compliant personality with compatible quadrature phase shift keying (CQPSK) as the modulation type to modulate a continuous stream of the selected data pattern. CQPSK uses $\pi/4$ differential quadrature phase shift keying ($\pi/4$ DQPSK) modulation, which transmits data at the rate of 2 bits per symbol (4.8 kbps).

Apply Bit Errors

Supported E8267C with Option 002/602

This softkey has two uses and appears in multiple locations.

In the Create File/Edit File Menu

In this menu, use the **Apply Bit Errors** softkey to access a menu that enables you to enter a specific number of bit errors or a percentage of bit errors for the current file.

In the Apply Bit Errors Menu

In this menu, use the **Apply Bit Errors** softkey to apply the currently selected bit-error percentage or number of bit errors to the current file.

Apply Multicarrier

Supported E8267C with Option 002/602

Use this softkey to apply the current settings in the Custom Multicarrier table editor.

Apply Multitone

Supported E8267C with Option 002/602

Use this softkey to apply, to the signal, any changes you have made in the phase or state parameters.

Apply Settings

Supported E8267C with Option 002/602

Use this softkey to regenerate the two-tone waveform whenever you make changes to the frequency separation parameter.

Apply To Waveform

Supported E8267C with Option 002/602

Use this softkey to apply the clipping settings to the selected waveform.

Once the clipping has been applied to the waveform, it cannot be undone. If you want to cancel confirmation, press the **Return** hardkey.

Repeated clipping applications are cumulative.

ARB Catalog Types

Supported E8267C with Option 002/602

This softkey selects a menu of ARB type files that can be listed in the user file system.

ARB Off On

Supported E8267C with Option 002/602

This softkey selects the operating state of the dual arbitrary waveform generator.

Off If you select Off, the dual arbitrary waveform generator is turned off.

On If you select On, the dual arbitrary waveform generator is turned on and the currently selected waveform is played. This waveform resides in volatile memory.

Preset Off

ARB Reference Ext Int

Supported E8267C with Option 002/602

This softkey selects the reference for the waveform clock.

Ext If you select Ext, you must enter the reference frequency (as described under the **Reference Freq** softkey) and the signal must be applied to the BASEBAND GEN REF IN rear panel connector.

Int If you select Int, the internal clock is used for the arbitrary waveform (ARB) frequency reference.

Preset Int

ARB Sample Clock

Supported E8267C with Option 002/602

This softkey enables you to adjust the sample clock rate. After entering the desired clock rate, terminate the entry with **GHz**, **MHz**, **kHz**, or **Hz**.

Preset 100.0 MHz

Range 1.0 Hz–100.0 MHz

ARB Setup

Supported E8267C with Option 002/602

This softkey accesses a menu from which you can adjust the dual arbitrary waveform generator (ARB) reference between internal and external (and the reference frequency for external ARB references), the frequency of the ARB sample clock, the runtime scaling value, the marker polarity, and select the type of I/Q modulation filter.

Arb Waveform Generator

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can operate the custom digital modulation waveform generator.

Atten/ALC Control

Supported All

Use this softkey to access a menu from which you can set the attenuation and ALC parameters.

Atten Hold Off On

Supported All

This softkey toggles the operating state of the attenuator hold function.

Off When this function is turned off, the attenuator is in a dynamic state.

On When this function is turned on, the attenuator is frozen at its current setting. You can use this function at any time you want to guarantee that there will be no power discontinuity normally associated with the attenuator switching during power adjustments.

There will be no attenuator switching during power adjustments. The maximum power adjustment range will vary. However, you will have at least +4 dB and at least -13 dB range.

Preset Off

Auto

Supported E8267C

Use this softkey to enable the ESG to automatically choose a filter based on the active digital modulation settings.

Aux Fctn

Supported E8267C

This hardkey accesses a menu of auxiliary functions.

B

BBG 1

Supported E8267C with Option 002/602

This softkey appears in the Source 1 and I/Q Out menus.

In the Source 1 menu

Use this softkey to route the internal baseband generator I and Q signals to the internal I/Q modulator.

The **Source 1** selection is independent of the **I/Q Out** selection.

In the I/Q Out menu

Use this softkey to route the internal baseband generator I and Q signals to the rear panel I and Q output connectors.

The **I/Q Out** selection is independent of the **Source 1** selection.

BBG Data Clock Ext Int

Supported E8267C with Option 002/602

Use this softkey to select the internal data clock for the baseband generator or to select an externally supplied data clock. For more information on input and output signals, see the *User's Guide*.

Ext In external mode, the baseband generator will use an external data clock as its data clock input, unless the external BBG reference is selected. A data clock or symbol sync input must be supplied through the DATA CLOCK or SYMBOL SYNC input connector when external mode is selected.

Int In internal mode, the baseband generator will use the internal data clock as its data clock input.

Preset Int

BBG Ref Ext Int

Supported E8267C with Option 002/602

Use this softkey to select the internal baseband generator reference or to select an externally supplied reference.

Ext In external mode, an external signal will be used as the reference frequency for

the baseband I/Q signal. A signal must be supplied through the rear panel BASEBAND GEN REF IN connector, and the frequency of the signal must be entered using the **Ext BBG Ref Freq** softkey.

Int In internal mode, an internally generated 10 MHz signal will be used as the reference source, unless the **BBG Data Clock Ext Int** softkey is set to Ext. In this case, the external data clock signal is used as the reference.

Preset Int

Begin Pattern

Supported E8267C with Option 002/602

Use this softkey to output a 1-bit pulse to the EVENT 1 rear panel connector that is synchronized to the first bit of an unframed data pattern. The synchronizing pulse occurs with each repetition of the pattern.

If you enter a value for Sync Out Offset, the synchronizing pulse is offset by the number of bits specified.

When using any of the TDMA digital modulation formats, the **Data Format Pattern Framed** softkey must be set to Pattern for the **Begin Pattern** softkey to appear.

Begin Timeslot

Supported E8267C with Option 002/602

Use this softkey to specify which timeslot triggers the rear-panel external trigger EVENT 1 output (a 1-bit signal synchronized to the first bit of the selected timeslot).

If you enter a value for Sync Out Offset, the synchronizing pulse is offset by the number of bits specified.

This softkey is grayed out (not accessible) in Custom.

Beta

Supported E8267C with Option 002/602

This softkey is activated automatically when you select the Kaiser windowing function. The default Beta factor provides a good solution for optimizing out-of-band performance (ACP), without seriously compromising passband performance (EVM).

Changing the Beta factor adjusts the trade-off between ACP and EVM:

- Decreasing the value improves EVM.
- Increasing the value improves ACP.

Key Reference

B

Preset	4.000
Range	1.000–10.000

Binary

Supported	All
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This softkey enables you to specify that only signal generator binary files be listed in the catalog of files.

Bit

Supported	E8267C with Option 002/602
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This softkey enables you to specify that only signal generator bit files be listed in the catalog of files.

Bit Errors

(numeric value)

Supported	E8267C with Option 002/602
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This softkey enables you to specify the number of bit errors applied to the current file when you press the **Apply Bit Errors** terminator softkey. The percent **Bit Errors** softkey also updates to reflect the percentage of bit errors you have chosen.

Bit Errors

(percent value)

Supported	E8267C with Option 002/602
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This softkey enables you to specify the percentage of bit errors applied to the current file when you press the **Apply Bit Errors** terminator softkey. The numeric value **Bit Errors** softkey also updates to reflect the number of bit errors you have chosen.

Black Pixels Screen Test

Supported	All
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This softkey enables you to set all the pixels on the display to black. Pressing the **Local** hardkey returns the display to normal operation.

This key is provided for factory use in testing the display.

Bluetooth

Supported E8267C with Option 002/602

Press this softkey to set up a predefined Bluetooth digital modulation format to modulate a continuous stream of the selected data pattern with the default maximum deviation set to 157.5 kHz. Bluetooth uses 2-level frequency shift keying (FSK) modulation that transmits data at the rate of 1 bit per symbol (1 Msps).

BPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting a BPSK Modulation

Use this softkey to select binary phase shift keying (BPSK) to modulate a continuous stream of the selected data pattern. BPSK modulation transmits data at the rate of 1 bit per symbol.

The modulation selection appears under the **Select** and **PSK** softkeys in the Modulation Type menus.

Loading a BPSK I/Q Map into the Table Editor

Use this softkey to load a binary phase shift keying (BPSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Brightness

Supported All

Use this softkey to adjust the display brightness (intensity). The value shown in the active entry area is a relative value for brightness. Increasing the number increases the brightness; decreasing the number decreases the brightness.

The brightness intensity is not affected by a preset or power cycle.

Range 1–50

Build New Waveform Sequence

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to create a new waveform sequence file.

Burst Gate In Polarity Neg Pos

Supported E8267C with Option 002/602

Use this softkey to select the polarity for the TTL signal at the BURST GATE IN connector.

Neg Selecting Neg configures the TTL logic high at 0 volts.

Pos Selecting Pos configures the TTL logic high as +5 volts.

Burst Shape

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can modify the rise and fall time and delay of the burst shape. In addition, you can select the shape and type of the burst or restore the default burst shape values.

Burst Shape Type

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select the burst shape type. You can choose Sine or a user-defined burst shape that is stored in the signal generator's catalog of burst shapes.

Preset Sine

Bus

Supported All

This softkey sets the trigger source to bus. When the trigger source is set to bus, the signal generator will trigger an event when it receives the appropriate command from the GPIB, RS-232, or LAN.

In the Sweep Trigger Menu

In the Sweep Trigger menu, choosing **Bus** enables you to trigger a full sweep by sending a *TRG command (GPIB, RS-232, or LAN) or by asserting the GPIB group execute trigger (GET) line.

In the Point Trigger Menu

In the Point Trigger menu, choosing **Bus** enables you to trigger a point-by-point sweep by sending a *TRG command (GPIB, RS-232, or LAN) or by asserting the GPIB group execute trigger (GET) line.

In the Trigger Source Menu

In this menu, choosing **Bus** enables you to trigger the internal digital modulation pattern generator by sending a *TRG command (GPIB, RS-232, or LAN) or by asserting the GPIB group execute trigger

(GET) line.

In secondary frame mode, selecting **Bus** allows the next frame type to be toggled by the commands *TRG or GET. This frame type is used once the current frame type has been completely transmitted.

Pattern Trigger functions are not available if you use either a PN data sequence or an external data source.

In the AM, FM, and FM Sweep Trigger Menus

In the AM, FM, and Φ M sweep trigger menus, choosing **Bus** enables you to trigger a swept-sine amplitude, frequency, or phase modulation by sending a *TRG command (GPIB, RS-232, or LAN) or by asserting the GPIB group execute trigger (GET) line.

C

C4FM

Supported E8267C with Option 002/602

This softkey appears in two different situations, to either select a modulation or load a default pattern into the FSK table editor.

Selecting a C4FM FSK Modulation

Use this softkey to select C4FM to modulate a continuous stream of the selected data pattern. C4FM is an APCO 25-compliant, 4-level frequency shift keying (FSK) modulation that transmits data at the rate of 2 bits per symbol.

The modulation selection is displayed under the **Select** softkey in the Modulation Type menu.

Loading a C4FM FSK Pattern into the FSK Table Editor

Use this softkey to load a C4FM frequency shift keying (FSK) modulation pattern into the FSK table editor. C4FM FSK modulation transmits data at the rate of 2 bits per symbol. For more information on using the FSK table editor, see the *User's Guide*.

Calibration Type DC User Full

Supported All

This softkey selects an I/Q calibration type.

DC In this mode the signal generator will calibrate I/Q offset errors for a single frequency at the current signal generator settings. The DC calibration is volatile and must be repeated with each signal generator setting change. A DC calibration can be done while the RF On/Off is set to off; the calibration will still be valid when the RF is enabled. This calibration will take less than two seconds.

User In this mode the signal generator will calibrate I/Q offset, gain, and quadrature error for all signal generator settings over a user defined set of frequencies. This calibration is valid only for the frequencies defined by the user.

Full In this mode the signal generator will calibrate I/Q offset, gain, and quadrature error for all settings over the full frequency range of the signal generator.

Preset N/A

Range N/A

The User and Full I/Q calibration settings are not affected by an instrument preset or power cycle.

Capture current HW configuration

Supported All

Use this softkey to load the current hardware configuration, through consecutive boots, and compare it with all installed devices. Any discrepancies will be reported.

This process will overwrite the previous configuration.

Carrier Phases Fixed Random

Supported E8267C with Option 002/602

This softkey selects the carrier phase operating mode.

Fixed This selection sets the phase of all carriers to 0.

Random This selection sets random phase values for all carriers.

Carrier Setup

Supported E8267C with Option 002/602

This softkey accesses a menu from which you can select a setup for initialization of the multicarrier table.

Catalog Type

Supported All

Use this softkey to access a menu of choices enabling you to select the catalog type for displaying files. When you have made your selection, the display is updated and your choice appears below the **Catalog Type** softkey.

Catalog type selection is not affected by a preset or by a power cycle.

CDPD

Supported E8267C with Option 002/602

Press this softkey to set up a predefined Cellular Digital Packet Data (CDPD) digital modulation format to modulate a continuous stream of the selected data pattern. CDPD uses minimum shift keying (MSK) modulation that transmits data at the rate of 1 bit per symbol (19.2 ksps).

Channel Band

Supported All

Use this softkey to display a menu of softkeys where you can assign channel bands based on the current device settings. The output frequency depends on both the channel band and channel number selections.

Preset P-GSM Base

Channel Number

Supported All

This softkey selects channel numbers (the frame carrier frequency) as the active function based on frequency channels defined in the selected format. The output frequency depends on both the channel band and channel number selections.

Preset 1

Range Depends on selected band

Clear Error Queue(s)

Supported All

This softkey enables you to delete all messages that are stored in the error message queues. When the error message queues are empty, the ERR annunciator is turned off.

You cannot undo this action; once the messages are deleted, they cannot be recalled. There are two error message queues: one for front panel operation and one for remote operation.

Clear Header

Supported E8267C with Option 002/602

This softkey enables you to clear the information stored in the currently displayed header. When this softkey is pressed the settings in the Saved Header Settings fields are set to Unspecified. The actual settings used when the header field is Unspecified are the settings listed in the Current Inst. Settings column.

To activate this softkey, the modulation format must be enabled and the waveform file being displayed must be the active file.

Clear Text

Supported All

Use this softkey to delete all characters and digits in the active entry area. This key is especially useful when you want to clear the current entry so you can create a new entry.

Clip |I| To

Supported E8267C with Option 002/602

Use this softkey to make the modulation level of the I component the active function. You can then clip (limit) the level to a percentage of full scale. A level of 100.0% equates to no clipping.

Clipping type must be set to $|I|,|Q|$ for this softkey to be active.

Preset 100.0%

Range 10.0 through 100.0%, in 0.1% increments

Clip |I+jQ| To

Supported E8267C with Option 002/602

Use this softkey to make the modulation level of the combined I and Q waveform the active function. You can then clip (limit) the level to a percentage of full scale. A level of 100.0% equates to no clipping.

Clipping type must be set to $|I+jQ|$ for this key to be active.

Preset 100.0%

Range 10.0 through 100.0%, in 0.1% increments

Clip |Q| To

Supported E8267C with Option 002/602

Use this softkey to make the modulation level of the Q component the active function. You can then clip (limit) the level to a percentage of full scale. A level of 100.0% equates to no clipping.

Clipping type must be set to $|I|,|Q|$ for this softkey to be active.

Preset 100.0%

Range 10.0 through 100.0% in 0.1% increments

Clipping

Supported E8267C with Option 002/602

Use this softkey to access a menu of options for limiting the modulation level.

The current clipping type is displayed under the **Clipping** softkey.

Clipping Type |I+jQ| |I|,|Q|

Supported E8267C with Option 002/602

Use this softkey to select either |I+jQ| or |I|,|Q| as the clipping type.

|I+jQ| If you select |I+jQ|, the combined I and Q waveform is clipped (circular clipping).

|I|,|Q| If you select |I|,|Q|, the I and Q components of the waveform are clipped independently (rectangular clipping). In this case, you can clip I and Q to different levels.

Preset |I+jQ|

Common Mode I/Q Offset

Supported E8267C

Use this softkey to enter an origin offset voltage for in-phase and quadrature-phase signals that are routed to the external output ports. This offset adjusts the I, I-bar, Q, and Q-bar output signal levels equally, relative to ground.

Preset 0.000 V

Range -3.000 to 3.000 V

Configure Auto External I/Q Atten Settings

Supported E8267C

Use this softkey to access a menu of softkeys for optimizing the automatic external I/Q attenuator.

This softkey becomes active only when **Modulator Atten Manual Auto** is set to Auto, the Source 1 selection is **Ext 50 Ohm** or **Ext 600 Ohm**, and I/Q is on.

Configure Cal Array

Supported All

Use this softkey to access a menu of softkeys for defining a user flatness list sweep. Each point in this sweep will contain a frequency and amplitude correction pair.

Configure Differential Encoding

Supported E8267C with Option 002/602

Press this softkey to display a menu and editor (a differential state map) where you can create user-defined differential encoding for the current user-defined modulation table. Use this table to enter the symbol table offset for each binary data bit. For more information on differential encoding and the

Differential State Map editor, see the *User's Guide*.

Configure Hardware

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can set a particular latch or hardware configuration to meet user-specific needs.

Configure List Sweep

Supported All

Use this softkey to access a menu of softkeys for defining a list sweep. In this menu, you can insert and delete points in a sweep. Each point can contain frequency, amplitude, and dwell time information.

Configure Ramp/Step Sweep

Supported All with Option 007

Use this softkey to access a menu of softkeys for defining a ramp or step sweep. The available selections depend upon the sweep type selected.

In step mode, you can set the frequency and power range, number of points, and dwell time at each point.

In ramp mode, you can set the frequency and power range, sweep time, and enable an alternate sweep.

Configure Step Array

Supported All

Use this softkey to access a menu of softkeys that enables you to define a step sweep with a user flatness connection. In this menu, you can set the start frequency, stop frequency, and the number of points for the sweep.

Configure Step Sweep

Supported All

Use this softkey to access a menu of softkeys for defining a step sweep. In this menu, you can set the start and stop frequencies and power levels for a sweep, and you can set the number of points in the sweep with the dwell time at each point.

Confirm Change

Supported All

Use this softkey to confirm re-configuration of a selected signal generator option. After modifying the license key and proceeding with a re-configuration, pressing this key will implement the change.

Pressing this key re-boots the signal generator.

Confirm Delete

Supported All

Use this softkey to continue to delete the selected file.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Confirm Delete Of All Rows

Supported E8267C with Option 002/602

Use this softkey to continue to delete all rows in the current table.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Confirm Delete of NVWFM Files

Supported E8267C with Option 002/602

Use this softkey to continue to delete all NVWFM files.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Confirm Delete of WFM1 Files

Supported E8267C with Option 002/602

Use this softkey to continue to delete all WFM1 files.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Confirm Load From File

Supported E8267C with Option 002/602

Use this softkey to continue to load the highlighted file into the current table.

Confirm Load From Step Data

Supported All

Use this softkey to continue to load the step data into the user flatness table or the list sweep table.

Confirm Load Mirror Image of Fall Shape

Supported E8267C with Option 002/602

Use this softkey to continue to load the Rise Shape Editor with a mirror image of the Fall Shape Editor when editing a burst shape.

Confirm Load Mirror Image of Rise Shape

Supported E8267C with Option 002/602

Use this softkey to continue to load the Fall Shape Editor with a mirror image of the Rise Shape Editor when editing a burst shape.

Confirm Restore Sys Defaults

Supported All

Use this softkey to restore the signal generator to preset system conditions.

Pressing this key re-boots the signal generator.

Continuous

Supported E8267C with Option 002/602

This softkey is one of the choices in both the Trigger and Segment Advance (trigger) menus of the Dual Arbitrary Waveform Generator personality.

In the Trigger and Pattern Trigger Menus

This softkey sets the trigger type to continuous. In continuous trigger mode, the waveform repeats itself indefinitely. You can control the initial triggering of the continuous waveform using the **Continuous Mode** softkey.

In the Segment Advance Menu

This softkey sets the segment advance mode to continuous. After receiving a trigger, the next segment is played continuously. A segment that is being played when a trigger is received is completed before the next trigger event starts.

This segment advance selection becomes active only when the trigger type is set to Segment Advance.

Continuous Mode

Supported E8267C with Option 002/602

Use this softkey to access a menu of triggering choices for the continuous mode.

Free Run A sequence or segment plays immediately and continuously without a trigger.

Trigger &
Run A sequence or segment waits for a trigger and then runs continuously and does not respond to further triggers.

Reset &
Run A sequence or segment waits for a trigger and then runs continuously and responds to further triggers by restarting back at the start of the sequence or segment.

The continuous mode menu selection becomes active when the trigger type is set to Continuous.

Copy File

Supported All

This softkey enables you to copy and rename a file in the displayed catalog of files.

When you have entered the new file name, press the **Enter** terminator softkey. If you have changed your mind, press the **Return** hardkey. Once you press **Enter**, the new file is stored and displayed immediately in the catalog list.

Create File

Supported E8267C with Option 002/602

Use this softkey to create a new bit file. After the new file is automatically opened by the Bit File Editor, you can edit bits individually, or select from a menu of editing tools.

The Bit File Editor automatically assigns a generic file name, which you can change using the **Rename** softkey.

Custom

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select the real time I/Q baseband generator or the arbitrary waveform generator to create a custom digital modulation.

Custom Digital Mod State

Supported E8267C with Option 002/602

This softkey displays the Digital Modulation Setup Select File menu. From this menu, you can choose a custom digital modulation setup that has previously been defined and stored in the signal generator's memory. Use the front-panel knob, arrow keys, or the data entry keypad to highlight the desired file, then press **Select File** to activate the custom digital modulation state.

Custom Off On

Supported E8267C with Option 002/602

This softkey toggles the operating state of the real time custom modulator.

Off When the **Custom Off On** softkey is set to Off, the real time custom modulator is disabled.

On When the **Custom Off On** softkey is set to On, the real time custom modulator builds a modulation that is specified by the user. You can create custom modulation formats for transmitting continuous streams of unframed data patterns.

Preset Off

D

D8PSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting a D8PSK Modulation

Use this softkey to select differential 8-state phase shift keying (D8PSK) to modulate a continuous stream of the selected data pattern. D8PSK modulation transmits data at the rate of 3 bits per symbol.

The modulation selection appears under the **Select** and **PSK** softkeys in the Modulation Type menus.

Loading a D8PSK I/Q Map into the Table Editor

Use this softkey to load a differential 8-state phase shift keying (D8PSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Data

Supported E8267C with Option 002/602

Use this softkey to access a menu of choices from which you can select pseudorandom bit patterns, fixed 4-bit repeating sequences, alternating bit patterns, user files or external data.

The current selection is displayed under the **Data** softkey.

Data Clock Out Polarity Neg Pos

Supported E8267C with Option 002/602

This softkey is used to configure the polarity of the TTL signal for the data clock out signal. The data clock out signal is available from the AUXILIARY I/O connector on the rear panel of the signal generator.

Neg Selecting Neg uses the falling edge of the TTL signal.

Pos Selecting Pos uses the rising edge of the TTL signal.

Data Clock Polarity Neg Pos

Supported E8267C with Option 002/602

This softkey is used to configure the polarity of the TTL signal at the DATA CLOCK connector.

Neg Selecting Neg uses the falling edge of the TTL signal.

Pos Selecting Pos uses the rising edge of the TTL signal.

This softkey is disabled during external data pattern input and external clock input.

Preset Pos

Data Out Polarity Neg Pos

Supported E8267C with Option 002/602

This softkey is used to configure the polarity of the TTL signal for the data out signal. The data out signal is available from the AUXILIARY I/O connector on the rear panel of the signal generator.

Neg Selecting Neg configures the CMOS logic high as 0 volts.

Pos Selecting Pos configures the CMOS logic high as +3.3 volts.

Preset Pos

Data Polarity Neg Pos

Supported E8267C with Option 002/602

This softkey is used to configure the polarity of the TTL compatible input signal at the DATA connector.

Neg This choice configures the TTL logic high as 0 volts.

Pos This choice configures the TTL logic high as +5 volts.

Data/Clk/Sync Rear Outputs Off On

Supported E8267C with Option 002/602

This softkey is used to disconnect the output signals from the rear panel AUXILIARY I/O data out, data clock out and symbol sync out connectors. Normally, these output signals should be connected (softkey set to On position). However, disconnecting these outputs will decrease spurious signals that are sometimes present when you are operating at high symbol rates.

Off Selecting Off disconnects rear panel output signals.

On Selecting On connects rear panel output signals.

Date Format MDY DMY

Supported All

This softkey is used to set the format of the display of the date.

MDY Use this format to display the date as month-day-year.

DMY Use this format to display the date as day-month-year.

DC

Supported E8257C and E8267C

Use this softkey to specify a dc level as the modulation waveform for the internally generated signal.

This softkey is available after selecting the internal source to operate as a function generator.

DCFM/DC Φ M Cal

Supported E8257C and E8267C

This softkey enables you to initiate a DCFM or a DC Φ M calibration, depending upon which type of modulation is currently active. This calibration eliminates the offset in DCFM or DC Φ M so that the carrier frequency remains the same with no modulation applied.

Use this calibration for externally applied signals. While the calibration can also be performed for internally generated signals, dc offset is not a normal characteristic for them.

NOTE If the calibration is performed with a dc signal applied, any deviation provided by the dc signal will be removed and the new zero reference point will be at the applied dc level. The calibration will have to be performed again when the dc signal is disconnected to reset the carrier signal to the correct zero reference.

DCS Base

Supported All

This softkey selects DCS 1800 Base as the channel band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 512*
Frequency: 1.805 GHz

Range *Channels: 512–885*

Frequency: 1.805–1.879 GHz

DCS Mobile

Supported All

This softkey selects DCS 1800 Mobile as the channel band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 512*

Frequency: 1.710 GHz

Range *Channels: 512–885*

Frequency: 1.710–1.784 GHz

DECT

Supported E8267C with Option 002/602

Use this softkey to select a predefined Digital European Cordless Telecommunications (DECT) personality for the current custom digital modulation format.

DECT Standard

Supported All

This softkey selects a frequency band for DECT. The output frequency depends on both the frequency band and channel selection.

Preset *Channel: 9*

Frequency: 1.881 GHz

Range *Channels: 0–9*

Frequency: 1.897–1.881 GHz

Default Gateway

Supported All

Use this softkey to enter a gateway for LAN access to the signal generator from outside the current sub-network. The entry can remain empty which allows the signal generator to be accessed only by local hosts on the LAN.

Your IT service can set up the default gateway.

Define User Burst Shape

Supported E8267C with Option 002/602

Press this softkey to display a table editor where you can edit the rise and fall shapes of waveforms, and save them for later use. For more information on user burst shapes, see the *User's Guide*.

Define User FIR

Supported E8267C with Option 002/602

This softkey displays a table editor from which you can create and modify FIR filters. The FIR table editor allows a maximum filter length of 1024 coefficients, but the ESG hardware is limited to 64 symbols for real-time and 512 symbols for arbitrary waveform generation. The number of symbols equals the number of coefficients divided by the oversample ratio.

If you enter more than 64 symbols for real-time and 512 symbols for arbitrary waveform generation, the ESG cannot use the filter.

Define User FSK

Supported E8267C with Option 002/602

Use this softkey to display the FSK table editor, where you can define custom asymmetric (or symmetric) FSK modulation patterns. The FSK table editor enables you to define a frequency deviation and load a default symmetric FSK pattern (2-Lvl, 4-Lvl, 8-Lvl, 16-Lvl, or C4FM) or create a modulation pattern based on user-defined frequency values.

Define User I/Q

Supported E8267C with Option 002/602

Use this softkey to display the I/Q table editor, where you can directly define symbol positions. The I/Q table editor enables you to create custom constellation diagrams that you can save to an I/Q file catalog. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Delete

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select different methods of removing bits from the current bit file.

Delete All Files

Supported All

Use this softkey to delete all of the files in the displayed catalog of files. The files will not be deleted until you press **Confirm Delete All Files**. If you change your mind and do not want to delete the files, press the **Return** hardkey before confirming the deletion.

Delete All NVWFM Files

Supported E8267C with Option 002/602

Use this softkey to delete all files of the currently displayed catalog type from the non-volatile waveform memory. Note that confirmation is required, by pressing **Confirm Delete of NVWFM Files**, before the segment will be deleted. This will delete all non-volatile marker (NVMKR) files as well.

To activate this key, the **Load Store** softkey on page 1 of this menu must be set to Load. Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Delete All Regs in Seq [n]

Supported All

This softkey enables you to delete the data saved in all of the registers of the selected sequence. Do not press this key until you have selected the correct sequence using the **Select Seq** key.

You cannot recover data after this step. If you change your mind and do not wish to delete the data, press the **Return** hardkey.

Delete All Rows

Supported E8267C with Option 002/602

Use this softkey to delete all rows in the current table. The files will not be deleted until you press the **Confirm Delete All Files**. If you change your mind and do not want to delete the files, press the **Return** hardkey before confirming the deletion.

Delete All Sequences

Supported All

This softkey enables you to delete all of the data in all saved registers of all sequences.

You cannot recover data after this step. If you change your mind and do not wish to delete the data, press the **Return** hardkey.

Delete All Waveforms

Supported E8267C with Option 002/602

Use this softkey to delete all waveforms from the sequence currently being edited. To save the changes, highlight the sequence and store.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Delete All WFM1 Files

Supported E8267C with Option 002/602

Use this softkey to delete all files of the currently displayed catalog type from waveform memory. Note that confirmation is required, by pressing **Confirm Delete of WFM1 Files**, before the segment will be deleted.

To activate this key, the **Load Store** softkey on page 1 of this menu must be set to Store. Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Delete Bits

Supported E8267C with Option 002/602

Use this softkey to delete bits from the current bit file, including the currently highlighted bit and moving to the right. The number of bits is specified using the Number of Bits softkey.

Delete File

Supported All

This softkey enables you to delete a file in the catalog listing. Use the up and down arrow keys until the file you wish to delete is highlighted. Press **Delete File** and then press the **Confirm Delete** softkey. If you do not want to delete the file, press **Return** instead of **Confirm Delete**.

Delete Previous Comment

Supported All

This softkey will appear when you overwrite a previously saved register that contains comments. Press this key if you want to delete the comment for the newly saved state. Press the **Keep Previous Comment** softkey if you want to keep the comment.

Delete Row

Supported All

This softkey enables you to delete a selected row in the list. Use the up and down arrow keys until any item is selected in the row you wish to delete. Press **Delete Row** and the entire row is deleted. If the last row in a list is deleted, it is replaced by the default value.

You cannot recover data after this step. If you change your mind and do not wish to delete the row, press the **Return** hardkey.

Delete Segment

Supported E8267C with Option 002/602

Use this softkey to delete the selected waveform segment in the displayed catalog. Note that confirmation is required, by pressing **Confirm Delete**, before the segment will be deleted.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Delete Selected Waveform

Supported E8267C with Option 002/602

Use this softkey to delete the highlighted waveform.

Deletions cannot be recovered. If you want to cancel the delete process, press the **Return** hardkey.

Delete Seq[*n*] Reg[*nn*]

Supported All

Use this softkey to delete the contents of a specified register in a specified sequence, once you have selected the correct sequence and register using the **Select Seq** and **Select Reg** softkeys.

You cannot recover the data after this step. If you change your mind and do not wish to delete the data, press the **Return** hardkey.

Delete To Beginning

Supported E8267C with Option 002/602

Use this softkey to delete all bits to the beginning of the file, not including the currently highlighted bit.

Delete To End

Supported E8267C with Option 002/602

Use this softkey to delete all bits to the end of the file, including the currently highlighted bit.

Delete Waveform Sequence

Supported E8267C with Option 002/602

Use this softkey to delete the highlighted waveform sequence from the displayed catalog. Deletions cannot be recovered. Note that confirmation is required, by pressing **Confirm Delete**, before the sequence will be deleted.

Deletions cannot be recovered. If you want to cancel confirmation, press the **Return** hardkey.

Delta Ref Set

Supported All with Option 007

Use this softkey to designate the reference marker when using markers in delta mode. The frequency values for all other markers become relative to the reference marker. Ref appears in the far right column (also labeled Ref) of the marker table editor to indicate which marker is the reference.

Range 0–9

Preset 0

Device BTS MS

Supported All

This softkey sets the frequency band type.

BTS This mode selects the base transceiver station as the frequency band type.

MS This mode selects mobile as the frequency band type

The selected mode will be displayed under the **Channel Band** softkey.

Preset BTS

Diagnostic Info

Supported All

Use this softkey to access diagnostic information about the signal generator. Refer to [Figure 0-1](#) for information on what is included in the display.

Figure 0-1 Diagnostic Instrument Information

FREQUENCY 20.000 000 000 000 GHz		AMPLITUDE -135.00 dBm		Update Diagnostic Info
		RF OFF <input type="checkbox"/> MOD ON <input type="checkbox"/>		
Instrument Information Model E8267C Options 002,005,007,015,520,UNR Options (cont.) Serial Number US41432023 Firmware Revision C.03.00 Firmware Date Jul 26 2002 14:28:00 PRT IDN Response E8267C Hours on/Display on 2421.7/2421.7 Total power cycles 1461 Attenuator cycles 61018 Baseband generator 1 ARB,06.03.00,Jul 26 2002 09:49:07,2				

Model	the model number of the signal generator
Options	a list of installed hardware and software options
Serial Number	the factory assigned serial number
Firmware Revision	the revision number for the signal generator's firmware
IDN Response	the characters returned after a remote *IDN query
Total hours on	the number of hours that the signal generator has been powered on
Total hours display has been on	the number of hours the display has been active (value does not include hours using the screen saver)
Total power cycles	the number of times the line power has been switched on
Attenuator cycles	the number of times the attenuator has been switched
Reverse Power Protection Trips	the number of times the reverse power protection circuit has been tripped.

Diff Data Encode Off On

Supported E8267C with Option 002/602

This softkey toggles the operational state of the signal generator's differential data encoding.

Off When the **Diff Data Encode Off On** softkey is set to Off, data bits are not encoded prior to modulation.

D

On When the **Diff Data Encode Off On** softkey is set to On, data bits are encoded prior to modulation. Differential encoding uses an exclusive-OR function to generate a modulated bit. Modulated bits will have a value of 1 if a data bit is different from the previous bit, or they will have a value of 0 if a data bit is the same as the previous bit.

For more information on differential data encoding, see the *User's Guide*.

Preset Off

Diff. Mode I Offset

Supported E8267C

Use this softkey to enter a differential offset voltage for an in-phase signal that is routed to an external output connector. For example, if you enter a 200.0 mV offset value, the I output signal will have a 100.0 mV offset and the I-bar output signal will have a -100.0 mV offset.

Preset 0.000 V

Range -3.000 to 3.000 V

Diff. Mode Q Offset

Supported E8267C

Use this softkey to enter a differential offset voltage for a quadrature-phase signal that is routed to an external output connector. For example, if you enter a 200.0 mV offset value, the Q output signal will have a 100.0 mV offset and the Q-bar output signal will have a -100.0 mV offset.

Preset 0.000 V

Range -3.000 to 3.000 V

Differential Encoding Off On

Supported E8267C with Option 002/602

Press this softkey to change the operational state of the user-defined differential encoding. For more information on differential encoding, see the *User's Guide*.

This setting is not affected by a preset or by a power cycle.

Off When differential encoding is set to Off, the user-defined differential encoding is disabled.

On When differential encoding is set to On, the user-defined differential encoding table is applied to the current user-defined modulation table.

Digital Mod Define

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to set the symbol rate and assign a modulation type and filter for a custom digital modulation state. This menu also allows you to store the custom state to a file.

This softkey is only available when the **Multicarrier Off On** softkey is toggled to Off.

Digital Modulation Off On

Supported E8267C with Option 002/602

This softkey toggles the operating state of the arbitrary custom digital modulation generator.

Off When the **Digital Modulation Off On** softkey is set to Off, the custom digital modulation generator is disabled.

On When the **Digital Modulation Off On** softkey is set to On, the custom digital modulation generator builds a waveform that is specified by the user. You can create custom waveforms using predefined modulation types and filters.

Preset Off

Display

Supported All

Use this softkey to access a menu for adjusting and testing the display functions. In this menu you can set up the screen saver, change the display brightness, and perform black and white pixel screen tests. In addition, inverse video can be selected and update in remote turned on or off.

Display Burst Shape

Supported E8267C with Option 002/602

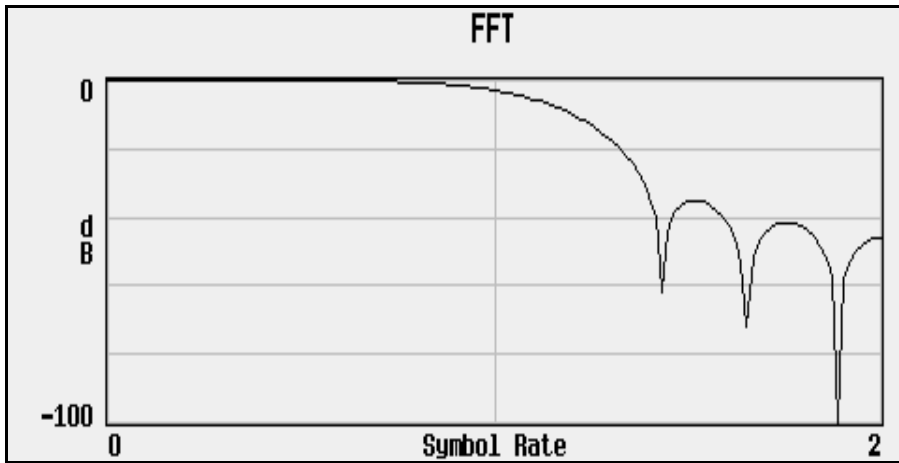
Use this softkey to display a graph of the rise and fall burst shapes. For more information on burst shapes, see the *User's Guide*.

Display FFT

Supported E8267C with Option 002/602

Use this softkey to display a graphical representation of the filter frequency response (calculated using a fast Fourier transform). The following is an example of the frequency response of a root Nyquist

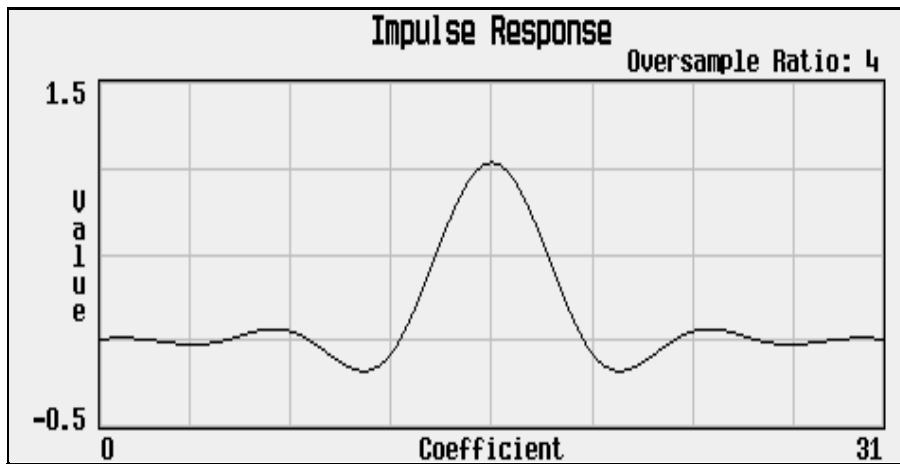
filter with an oversample ratio of 4.



Display Impulse Response

Supported E8267C with Option 002/602

Use this softkey to display a graphical representation of the filter impulse response in time. The following is an example of the impulse response of a root Nyquist filter with an oversample ratio of 4.



Display I/Q Map

Supported E8267C with Option 002/602

Use this softkey to display an I/Q constellation map diagram of the current set of I/Q points. For more information on I/Q constellation map diagrams, see the *User's Guide*.

DMOD

Supported All

Press this softkey to set the current catalog type to DMOD and display the catalog of DMOD files.

Do Cal

Supported All

This softkey enables you to start a flatness calibration using the information from the user flatness list sweep table.

Do External Input Level Measurement

Supported E8267C

Use this softkey to measure the voltage level at the external I/Q inputs. The measurement will be used as the input level setting.

This softkey becomes active only when **Ext Input Level Default Man Meas** is set to Meas.

Done

Supported E8267C with Option 002/602

This softkey is a terminator key. Press it to accept the current values that you are setting up.

Done Inserting

Supported E8267C with Option 002/602

Use this softkey to exit the insertion mode and return to the edit menu.

Do Power Search

Supported E8267C

Use this softkey to execute the power search calibration routine one time. Power search is an internal calibration routine used to achieve calibrated output power when the ALC is off. You can execute a

D

power search at any time by pressing this softkey.

The routine will execute only if RF is on and ALC is off.

Dual ARB

Supported E8267C with Option 002/602

This softkey accesses a menu of choices for generating data patterns using the dual arbitrary waveform generator. Within these menus, you will be able to select and/or modify the waveform, waveform segments, waveform sequences, as well as the waveform generator's sample clock rate, internal/external reference (and with an external reference, the reference frequency) and an I/Q modulation filter.

Dual-Sine

Supported E8257C and E8267C

Use this softkey to select dual sine waves as the modulation for the signal. This softkey will access a menu of choices enabling you to set parameters for the dual-sine amplitude modulation waveform. You can set the rates for two separate tones according to the modulation type.

In the LF Out menu, this softkey is available after selecting the internal source to operate as a function generator.

Dwell Type List Step

Supported All

This softkey selects the source data which defines the dwell times for the current sweep.

List Choose List to sweep with dwell times that you have defined in the list sweep.

Step Choose Step to sweep each point in the list with a dwell time set by the **Step Dwell** softkey in the Configure Step Sweep menu.

When you are sweeping using the step sweep dwell time, the list sweep dwell time values are grayed out to indicate that they are not being used.

Preset List

E

E4416A

Supported All

This softkey enables you to select an Agilent E4416A power meter to perform the automated user flatness correction process.

E4417A

Supported All

This softkey enables you to select an Agilent E4417A power meter to perform the automated user flatness correction process.

E4418B

Supported All

This softkey enables you to select an Agilent E4418B power meter to perform the automated user flatness correction process.

E4419B

Supported All

This softkey enables you to select an Agilent E4419B power meter to perform the automated user flatness correction process.

EDGE

Supported E8267C with Option 002/602

This softkey selects a predefined Enhanced Data Rates for GSM Evolution (EDGE) personality for the custom digital modulation format. Selecting EDGE automatically configures the format with an EDGE filter and digital modulation type.

The EDGE filter and digital modulation type are preset with the EDGE personality.

Edit Comment In Seq[*n*] Reg[*nn*]

Supported All

Key Reference

E

This softkey enables you to edit an existing comment that is associated with a register in use. The register number is listed in the text area of the display and the comment is shown immediately following the register.

The **Add Comment to Seq[n] Reg[nn]** softkey changes to **Edit Comment In Seq[n] Reg[nn]** after adding a comment to the selected state.

The comment line is limited to 55 alpha-numeric and special characters.

Edit Description

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can create and edit text in the header description field for the currently displayed header. The maximum length of the header description field is 32 characters.

For this softkey to be active, the modulation format must be enabled and the file being displayed must be the active file.

Edit Fall Shape

Supported E8267C with Option 002/602

Use this softkey to make the Fall Shape Editor the active function when editing a burst shape. For more information on editing burst shapes, see the *User's Guide*.

Note that this softkey is available when the Rise Shape Editor is the active function; when the Fall Shape Editor is the active function, this softkey toggles to **Edit Rise Shape**.

Edit File

Supported E8267C with Option 002/602

Use this softkey to begin editing the selected file. You can edit bits individually, or select from a menu of editing tools. Binary files are automatically converted to bit files for editing.

There is no undo capability. Bit files are saved after every modification.

Edit Item

Supported All

This softkey allows you to edit the currently highlighted field entry in any editor table. Once the edit has been made, the field will be updated with the selection.

Edit Repetitions

Supported E8267C with Option 002/602

This softkey enables you to edit the number of repetitions of the highlighted sequence. Use the arrow keys, knob, or numeric keypad to enter the number of repetitions.

Edit Rise Shape

Supported E8267C with Option 002/602

Use this softkey to make the Rise Shape Editor the active function when editing a burst shape. For more information on editing burst shapes, see the *User's Guide*.

Note that this softkey is available when the Fall Shape Editor is the active function; when the Rise Shape Editor is the active function, this softkey toggles to **Edit Fall Shape**.

Edit Selected Waveform Sequence

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to edit the selected waveform sequence.

Editing Keys

Supported All

Use this softkey to access a menu from which you can create and edit text. In this menu you can delete the existing text in the active entry area, and you can toggle the editing mode from inserting text to replacing text.

Editing Mode Insert Replace

Supported All

Use this softkey to toggle the editing mode between insert and replace modes.

Insert Insertion mode causes text to be added directly to the left of the character that is highlighted by the cursor.

Replace Replacement mode causes text to be entered in the position held by the cursor, overwriting any existing text in that position.

Preset Insert

E-GSM Base

Supported All

Key Reference

E

This softkey selects E-GSM 900 Base as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset	<i>Channel: 1</i> <i>Frequency: 935.200 MHz</i>
Range	<i>Channels: 0–124, 975–1023</i> <i>Frequency: 935.000–959.800 MHz, 925.200–934.800 MHz</i>

E-GSM Mobile

Supported All

This softkey selects E-GSM 900 Mobile as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset	<i>Channel: 1</i> <i>Frequency: 890.200 MHz</i>
Range	<i>Channels: 0–124, 975–1023</i> <i>Frequency: 890.000–914.800 MHz, 880.200–889.800 MHz</i>

Enter Secure Mode

Supported All

When this softkey is enabled by pressing **Enter Secure Mode > Confirm**, it activates the selected security level. Once the secure mode is entered, the security level can only be increased.

Preset	N/A
Range	N/A

Erase

Supported All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files. You must press **Enter Secure Mode > Confirm** to activate the Erase security level.

Preset	N/A
Range	N/A

Erase All

Supported All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files.

Preset N/A

Range N/A

Erase and Overwrite All

Supported All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files. The memory is then overwritten with random data as follows:

SRAM All addressable locations will be overwritten with random characters.

HARD DISK All addressable locations will be overwritten with random characters.

FLASH MEMORY The flash blocks will be erased.

Preset N/A

Range N/A

Erase and Sanitize All

Supported All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files. The memory is then overwritten with a sequence of data as follows:

SRAM All addressable locations will be overwritten with random characters.

HARD DISK All addressable locations will be overwritten with a single character and then a random character.

FLASH MEMORY The flash blocks will be erased.

Preset N/A

Range N/A

Error Info

Supported All

Use this softkey to access a menu of choices enabling you to view and clear error messages. In this

Key Reference

E

menu you can view any of the error messages in the queue, you can also clear all of the error messages in the queue.

The error queue will hold up to 30 error messages before deleting the oldest error message to make room for the 31st error message.

Execute Cal

Supported E8267C

Use this softkey to begin the I/Q calibration routine for the specified frequency range.

You can perform an I/Q calibration on a frequency range without disturbing calibrations that have already been performed on other frequency ranges.

I/Q calibration data is not affected by a preset or by a power cycle.

The calibration can be aborted at any time during the procedure by pressing the **Abort Cal** softkey. If you abort the calibration, the previous calibration data is restored.

Ext

Supported All

This softkey is one of the choices in the Data, Sweep Trigger, Point Trigger, Pattern Trigger, Frame Trigger, Trigger Source, Alt Ampl Trigger, and AM, FM and Φ M Sweep Trigger menus. Your available settings depend on which menu you have selected.

In the AM, FM, Φ M, LF Output, and Sweep Trigger Menus

In the AM, Amplitude, FM, Φ M, LF Output, and sweep trigger menus, choosing **Ext** enables you to trigger a swept-sine amplitude, frequency, or phase modulation on either the negative or positive edge of a signal applied to the TRIGGER IN rear panel connector.

Set the polarity of the trigger signal using the **Trigger In Polarity Neg Pos** softkey.

In the Data Menu

In the Data menu, choosing **Ext** enables you to use an external signal as the modulating data stream.

In the Pattern Trigger Menu

In this menu, the softkey is grayed out (inactive).

In the Point Trigger Menu

In the Point Trigger menu, choosing **Ext** enables you to trigger a point-by-point sweep on either the negative or positive edge of a signal applied to the TRIGGER IN rear panel connector.

Set the polarity of the trigger signal using the **Trigger In Polarity Neg Pos** softkey.

In the Trigger Source Menu

In the Trigger Source menu, choosing **Ext** enables you to use one of the PATTERN TRIG IN rear-panel inputs as the trigger source.

Select the desired PATTERN TRIG IN input using the **Ext Source** softkey.

Ext1

Supported E8257C and E8267C

Use this softkey to select an externally applied signal as the modulation waveform after a signal source has been connected to the EXT 1 INPUT connector.

The externally applied, ac-coupled input signal is tested for a voltage level and a display annunciator will indicate either a high or low condition if that voltage is $> \pm 3\%$ of $1 V_p$.

Ext2

Supported E8257C and E8267C

Use this softkey to select an externally applied signal as the modulation waveform after a signal source has been connected to the EXT 2 INPUT connector.

The externally applied, ac-coupled input signal is tested for a voltage level and a display annunciator will indicate a high or low condition if that voltage is $>$ or $\pm 3\%$ of $1 V_p$.

Ext 50 Ohm

Supported E8267C

This softkey appears in the Source 1 and I/Q Out menus.

In the Source 1 menu

Use this softkey to route external 50 ohm I and Q input signals to the internal I/Q modulator.

The **Source 1** selection is independent of the **I/Q Out** selection.

In the I/Q Out menu

Use this softkey to route external 50 ohm I and Q input signals to the rear panel I and Q output connectors.

The **I/Q Out** selection is independent of the **Source 1** selection.

Ext 600 Ohm

Supported E8267C

This softkey appears in the Source 1 and I/Q Out menus.

In the Source 1 menu

Use this softkey to route external 600 ohm I and Q input signals to the internal I/Q modulator.

The **Source 1** selection is independent of the **I/Q Out** selection.

In the I/Q Out menu

Use this softkey to route external 600 ohm I and Q input signals to the rear panel I and Q output connectors.

The **I/Q Out** selection is independent of the **Source 1** selection.

Ext BBG Ref Freq

Supported E8267C with Option 002/602

Use this softkey to enter the frequency of the baseband generator reference signal that is supplied to the rear panel BASEBAND GEN REF IN connector.

This softkey is used only when the **BBG Ref Ext Int** softkey is set to Ext.

Preset 13.0000000 MHz

Range 250.0000 kHz–100.0000000 MHz

Ext Data Clock Normal Symbol

Supported E8267C with Option 002/602

Use this softkey to toggle the external data clock between Normal and Symbol.

This softkey has no effect in internal data mode.

Normal When you select Normal, you must supply a bit clock signal to the DATA CLOCK input connector, and a one-shot or continuous signal to the SYMBOL SYNC input connector (an unlock occurs if you select external data without these signals).

Symbol When you select Symbol, a symbol clock must be provided to the DATA CLOCK input.

For 2-bit-per-symbol modulation formats (such as $\pi/4$ DQPSK), no signal is required at the DATA CLOCK input connector. Instead, the data is clocked on

both the rising and falling edges of the SYMBOL SYNC signal.

Preset Normal

Ext Delay Bits

Supported E8267C with Option 002/602

Use this softkey to make the number of bits for the external trigger delay the active function. When **Ext Delay Off On** is On, transmission of the triggered data is delayed after the external trigger event by the number of bits specified.

This softkey is inactive until an external triggering source is selected.

Pattern Trigger functions are not available if you use either a PN data sequence or an external data source.

Preset 0

Range 0-1,048,575 bits

Ext Delay Off On

Supported E8267C with Option 002/602

Use this softkey to enable or disable the insertion of a delay in the path of the selected external trigger.

This softkey is inactive until an external triggering source is selected.

Pattern Trigger functions are not available if you use either a PN data sequence or an external data source.

Off When you select Off, no delay is inserted into the path of the externally applied trigger.

On When you select On, the selected delay is inserted into the path of the externally applied trigger. The duration of the delay is specified using the **Ext Delay Bits** softkey, or the **Ext Delay Time** softkey.

Preset Off

Ext Delay Time

Supported E8267C with Option 002/602

This softkey enables you to set the time for the external trigger delay. External trigger delay may be adjusted to trigger a waveform at a specified length of time after an external trigger signal has been received at the PATTERN TRIG IN or AUXILIARY I/O rear panel connectors.

This softkey is inactive until an external triggering source is selected.

Preset	1.0 ms
Range	10.0 ns through 40 s

Ext Detector

Supported	All
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Use this softkey to select external ALC leveling. In this mode you can use the ALC INPUT connector to control levels.

Ext Detector Coupling Factor

Supported	All
-----------	-----

Use this softkey to set the external detector coupling factor.

Ext In 600 Ohm I Offset

Supported	E8267C
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Use this softkey to enter an origin offset voltage for externally applied in-phase signals. This offset is used to remove imperfections in the in-phase signal or to introduce calibrated impairments.

This adjustment applies only when the Ext 600 Ohm is selected as the Source 1 input.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

Preset	0.000 V
Range	-5.000 to 5.000 V

Ext In 600 Ohm Q Offset

Supported	E8267C
-----------	--------

Use this softkey to set an origin offset voltage for externally applied quadrature-phase signals. This offset is used to remove imperfections in the quadrature-phase signal or to introduce calibrated impairments.

This adjustment applies only when the Ext 600 Ohm is selected as the Source 1 input.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

Preset	0.000 V
Range	-5.000 to 5.000 V

Ext Input Level (nnn mV) Default Man Meas

Supported	E8267C
	Use this softkey to set the external trigger source polarity.
	This softkey is inactive until an external triggering source is selected.
Default	Use this choice to set the external I/Q input level to the default value of 500.0 mV.
Man	Use this choice to manually set the external I/Q input level.
Meas	Use this choice to measure the voltage level at the external I/Q inputs. The measurement will be used as the input level setting.
Preset	Default (500.0 mV)
Range	100.0 mV rms–1.0 V rms

Ext Polarity Neg Pos

Supported	E8267C with Option 002/602
	Use this softkey to set the external trigger source polarity.
	This softkey is inactive until an external triggering source is selected.
Neg	When this softkey is set to Neg, the signal generator will trigger an event when it receives a negative change in the signal at the PATTERN TRIG IN or AUXILIARY I/O rear panel connectors.
Pos	When this softkey is set to Pos, the signal generator will trigger an event when it receives a positive change in the signal at the PATTERN TRIG IN or AUXILIARY I/O rear panel connectors.
Preset	Neg

Ext Polarity Normal Inverted

Supported	E8257C and E8267C
	Use this softkey to set the external pulse source polarity.
Normal	This selects the normal polarity for the external pulse source.
Inverted	This selects an inverted polarity for the external pulse source.
Preset	Normal

Ext Pulse

Supported E8257C and E8267C

This softkey enables you to generate a pulse modulation that follows an external pulse signal applied to the PULSE/TRIG GATE INPUT connector.

Ext Source

Supported All

Use this softkey to access a menu from which you can select an external triggering source. You can select either **Patt Trig In 1** (the PATTERN TRIG IN rear panel BNC connector), or **Patt Trig In 2** (the AUXILIARY I/O D-shell rear panel connector).

The current external triggering source selection appears under the **Ext Source** softkey.

External Ref Bandwidth

Supported All with Option UNR

This softkey enables you to adjust the bandwidth of the external reference oscillator.

F

Fall Delay

Supported E8267C with Option 002/602

Press this softkey to adjust the burst shape fall delay.

Preset 0.000 bits

Range Minimum and maximum values depend on symbol rate.

Fall Time

Supported E8267C with Option 002/602

Press this softkey to adjust the burst shape fall time.

Preset 5.000 bits

Range Minimum and maximum values depend on symbol rate.

Filter

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select a filter type, restore the default filter, define a unique FIR filter, or optimize the filter for the best EVM or ACP.

You can also adjust the filter alpha when Nyquist or root Nyquist filters are selected or the bandwidth time product for Gaussian filters.

Filter Alpha

Supported E8267C with Option 002/602

Use this softkey to make the filter's alpha parameter active in either the Filter menu or the Load Default FIR menu.

In the Filter Menu

In this menu, the **Filter Alpha** softkey changes the alpha parameter of the selected root Nyquist or Nyquist filter.

This key only appears after choosing a root Nyquist or Nyquist filter. If a Gaussian filter is in use, you will see **Filter BbT**. If any other filter is in use, this key is replaced with a grayed-out key labeled **Filter**

Factor N/A.

Preset 0.350
Range 0.000–1.000

In the Load Default FIR Menu

In this menu, the **Filter Alpha** softkey changes the alpha parameter of the root Nyquist or Nyquist filter coefficients loaded into the FIR table editor. After entering the alpha value, you can press **Generate** to modify the filter coefficients in the table editor.

Preset 0.350
Range 0.000–1.000

Filter BbT

Supported E8267C with Option 002/602

Use this softkey to make the bandwidth-multiplied-by-bit-time (BbT) filter parameter active in either the Filter menu or the Load Default FIR menu.

In the Filter Menu

In this menu, the **Filter BbT** softkey changes the BbT parameter of the selected Gaussian filter.

This key only appears after choosing a Gaussian filter. If a root Nyquist or Nyquist filter is in use, you will see **Filter Alpha**. If any other filter is in use, this key is replaced with a grayed-out key labeled **Filter Factor N/A**.

Preset 0.350
Range 0.000–1.000

In the Load Default FIR Menu

In this menu, the **Filter BbT** softkey changes the BbT parameter of the Gaussian filter coefficients loaded into the FIR table editor. After entering the BbT value, press **Generate** to modify the filter coefficients in the table editor.

Preset 0.200
Range 0.000–1.000

Filter Factor N/A

Supported E8267C with Option 002/602

This grayed-out softkey is displayed when a filter is in use that does not contain an adjustable alpha or

BbT parameter (such as the IS-95 filter selections or a user-defined FIR filter).

This softkey changes to either Filter Alpha or Filter BbT when the appropriate root Nyquist, Nyquist or Gaussian filter is selected for use.

Filter Symbols

Supported E8267C with Option 002/602

This softkey selects the number of symbols for the current FIR filter. The FIR table editor allows a maximum filter length of 1024 coefficients with a maximum oversample ratio of 32 and a maximum of 64 symbols. If you create a FIR filter with greater than 32 symbols, the maximum symbol rate decreases by one half. If you create a FIR filter with greater than 16 and less than or equal to 32 symbols, the maximum symbol rate decreases by one quarter.

Preset 8

Range 1–64

FIR

Supported E8267C with Option 002/602

This softkey enables you to specify that only signal generator FIR files be listed in the catalog of files.

First Mkr Point

Supported E8267C with Option 002/602

This softkey enables you to set the first marker point when you define a range of points. You can use either the knob or the numeric keys to set this value, which must be greater than or equal to 1, and less than or equal to the total number of waveform points in the selected waveform.

Preset 1

Range 1–total number of waveform points

FIX4

Supported E8267C with Option 002/602

Use this softkey to select a 4-bit repeating sequence data pattern and make it the active function. The selected 4-bit pattern will be repeated as necessary to fill the data area.

Preset 0000

Range 0000–1111

Flatness Off On

Supported All

This softkey toggles the operating state of the user flatness corrections to the output power.

Off When flatness is off, user flatness correction is not applied to the output power.

On When flatness is on, user flatness correction is applied to the output power. You can use flatness correction to maintain a constant power level at the point of detection.

Preset Off

FM/ Φ M

Supported E8257C and E8267C

Use this hardkey to access a menu from which you can configure modulation type (FM, normal phase modulation, or wideband phase modulation), path, deviation and deviation coupling, source, rate, waveform, and DCFM/DC Φ M calibration.

FM Φ M Normal High BW

Supported E8257C and E8267C

This softkey toggles between the menus for frequency modulation (FM), normal phase modulation (Φ M), and wideband phase modulation (Φ M High BW).

The deviation limits are dependent upon the carrier frequency. This limiting occurs only after the modulation is turned on.

Normal This choice enables you set the phase deviation as high as $N \times 80$ radians with a 3.0 dB bandwidth at 100.0 kHz. Refer to the **FM Dev** softkey description for N values.

High BW This choice provides increased bandwidth while restricting the maximum deviation to deviation settings up to $N \times 8$ radians. Refer to the **FM Dev** softkey description for N values.

Preset FM

FM Dev

Supported E8257C and E8267C

This softkey enables you to set the frequency deviation for the currently selected modulation path. The range of values allowed depends on the carrier frequency. The maximum peak deviation for a

frequency is calculated by multiplying N times 8 MHz. (Table 0-1 lists the values for N and the resulting maximum peak deviations.)

Table 0-1

<i>Carrier Frequency</i>	<i>N</i>	<i>Maximum Peak Deviation</i>
100 kHz to 250 MHz	1	8 MHz
> 250 MHz to 500 MHz	1/2	4 MHz
> 500 MHz to 1 GHz	1	8 MHz
> 1 GHz to 2 GHz	2	16 MHz
> 2 GHz to 4 GHz	4	32 MHz
> 4 GHz to 10 GHz	8	64 MHz
> 10 GHz to 20 GHz	16	128 MHz
> 20 GHz to 28.1 GHz	24.24	193.92 MHz
> 28.2 GHz to 40 GHz	40	320 MHz

For example, if you choose a carrier frequency of 450 MHz, multiply 1/2 by 8 MHz resulting in a 4 MHz maximum peak deviation.

The new value of FM deviation applies only to whichever FM path configuration you have currently selected. Also, whenever FM Path 1 is used with FM Path 2, the deviation for FM Path 1 must be greater than or equal to the deviation for FM Path 2.

Preset 1.0 kHz

Range Depends on current carrier frequency setting.

FM Dev Couple Off On

Supported E8257C and E8267C

This softkey toggles the operating state of the FM deviation coupling.

Off When FM deviation coupling is off, the FM Path 1 and FM Path 2 deviation values are independent of each other.

On When FM deviation coupling is on, the FM Path 1 and FM Path 2 deviation values are linked. Any change you make to one FM deviation value is applied to both.

Preset Off

FM Off On

Supported E8257C and E8267C

This softkey toggles the operating state of the currently selected frequency modulation.

Off Use this setting to turn off the currently selected frequency modulation.

On Use this setting to turn on the currently selected frequency modulation.

Whenever frequency modulation is enabled, the FM annunciator is turned on in the display.

Although you can turn on frequency modulation with this key, the RF carrier is modulated by the enabled modulation only when you have also set **Mod On/Off** to On.

Preset Off

FM Path 1 2

Supported E8257C and E8267C

This softkey toggles the selection between FM Path 1 and FM Path 2.

FM Path 1 This selection enables you to configure the modulation characteristics for FM Path 1, using the remaining softkeys in the FM menu.

FM Path 2 This selection enables you to configure the modulation characteristics for FM Path 2, using the remaining softkeys in the FM menu.

FM Path 1 and FM Path 2 define two standard frequency modulation configurations which can be used together. FM Path 1 and FM Path 2 are summed internally for composite modulation. Either path can be switched to any one of the modulation sources: Internal, Ext1, or Ext2.

FM Path 2 is limited to a maximum rate of 1 MHz. FM Path 2 must be set to a deviation less than FM Path 1.

Preset FM Path 1

FM Rate

Supported E8257C and E8267C

This softkey enables you to change the internal modulation frequency for the FM Path 1 and FM Path 2 configurations.

The new value of FM rate applies only to whichever FM path configuration you have currently selected.

Preset	400.0 Hz
Range	500.0 mHz–100.0 kHz (minimum increment is 0.1 Hz) 500.0 mHz–1.0 MHz (if sinewave is selected as the internal waveform)

FM Source

Supported	E8257C and E8267C
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Use this softkey to access a menu from which you can select an internally generated or externally applied modulation input for the frequency modulation source. The internal modulation is always ac-coupled. For externally applied signals, you can choose between ac- and dc-coupled modulation.

A 1.0 volt peak voltage input is required for calibrated FM deviation settings. The EXT 1 LO/HI and EXT 2 LO/HI display annunciators will turn on if the peak input voltage differs from 1.0 volt by more than 3%. (The LO/HI annunciators only function for ac-coupled external inputs.)

Preset	Internal
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FM Start Rate

Supported	E8257C and E8267C
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This softkey enables you to change the starting frequency of the internally generated modulation source for swept-sine frequency modulation.

This key is coupled to the **FM Rate** softkey in the initial FM menu and the **FM Tone 1 Rate** softkey in the FM dual-sine menu. Any value set for **FM Start Rate** is reflected in the **FM Rate** and **FM Tone 1 Rate** softkeys.

Preset	400.0 Hz
Range	1.0 Hz–1.0 MHz (minimum increment is 1.0 Hz)

FM Stop Rate

Supported	E8257C and E8267C
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This softkey enables you to change the ending frequency of the internally generated modulation source for swept-sine frequency modulation.

This key is coupled to the **FM Tone 2 Rate** softkey in the FM dual-sine menu. Any value set for **FM Stop Rate** is reflected in the **FM Tone 2 Rate** softkey.

Preset	400.0 Hz
Range	1.0 Hz–1.0 MHz (minimum increment is 1.0 Hz)

FM Sweep Rate

Supported E8257C and E8267C

Use this softkey to set the sweep rate of the swept sine analog modulation.

Preset 400.0 Hz

Range 0.5 Hz-100.0 kHz

FM Sweep Trigger

Supported E8257C and E8267C

Use this softkey to access a menu from which you can select the triggering mode for the swept-sine frequency modulation.

You can also configure the polarity of the TTL signal output at the TRIGGER IN connector using the **Trigger In Polarity Neg Pos** softkey on this menu.

Preset Free Run

FM Tone 1 Rate

Supported E8257C and E8267C

This softkey enables you to set the internal modulation rate for tone 1 of the dual-sine FM waveform.

This key is coupled to the **FM Rate** softkey in the initial FM menu and the **FM Start Rate** softkey in the FM swept-sine menu. Any value set for FM Tone 1 Rate is reflected in the **FM Rate** and **FM Start Rate** softkeys.

Preset 400.0 Hz

Range 0.5 Hz–1.0 MHz (minimum increment is 0.5 Hz)

FM Tone 2 Ampl Percent Of Peak

Supported E8257C and E8267C

This softkey enables you to adjust the amplitude of the alternate frequency as a percentage of the peak analog modulation amplitude. For example, if the tone 2 amplitude is set to 30.0% of the total amplitude, then the amplitude of the primary frequency is 70.0% of the total amplitude.

This is applicable only for the dual-sine function.

Default 50.0%

Range 0.0%–100.0%

FM Tone 2 Rate

Supported E8257C and E8267C

This softkey enables you to set the internal modulation rate for tone 2 of the dual-sine FM waveform.

This key is coupled to the **FM Stop Rate** softkey in the FM swept-sine menu. Any value set for FM Tone 2 Rate is reflected in the **FM Stop Rate** softkey.

Default 400.0 Hz

Range 0.5 Hz–1.0 MHz (minimum increment is 0.5 Hz)

FM Waveform

Supported E8257C and E8267C

Use this softkey to access a menu of choices that enables you to select the frequency modulation waveform that can be produced by the internal modulation source.

This softkey is only enabled when Internal is selected in the FM Source menu.

Preset Sine

Free Run

Supported All

This softkey appears in the Continuous Mode, Sweep Trigger, and Point Trigger Menus.

In the Continuous Mode Menu

When this softkey is selected, the waveform generator immediately plays a sequence or segment continuously without waiting for a trigger. The waveform generator does not respond to triggers.

In the Sweep Trigger and Point Trigger Menus

Sweep Trigger Selecting the **Free Run** softkey in the Sweep Trigger menu immediately triggers the sweep.

Point Trigger The **Free Run** softkey in the Point Trigger menu causes the sweep to pause for the dwell time that has been configured for each point in the sweep.

Freq

Supported All

This softkey enables you to set the signal generator to sweep frequency data only. The amplitude is set at a constant level determined by the **Amplitude** hardkey.

You can define a sweep containing both amplitude and frequency information and still choose to sweep frequency only.

Freq & Ampl

Supported All

Use this softkey to set the signal generator to sweep both frequency and amplitude data when using ramp or step as the sweep type.

In a list sweep, both the frequency and the amplitude lists must have the same number of points or one must have only one point. If a list has only one point, then that point is used for each of the other list's points.

Freq Center

Supported All with Option 007

This softkey sets the center frequency for a ramp sweep. The center frequency symmetrically divides the selected frequency span and is coupled to the start and stop frequency settings.

Preset *Option 520: 20GHz*
Option 540: 40GHz

Range *Option 520: 100kHz–20GHz*
Option 540: 100kHz–40GHz

Freq Channels

Supported All

Use this softkey to display a menu of softkeys from which you can assign frequency channels and frequency bands.

Freq Channels Off On

Supported All

This softkey sets the operating state of the RF output.

Freq offset and Freq Multiplier still affect the real RF output frequency when Freq Channels is On.

Off When you select off, the state of the RF output is set in terms of Hertz.

On When you select on, the operating state of the RF output frequency is determined by the frequency band and frequency channel settings.

Preset Off

Freq CW

Supported All with Option 007

This softkey activates the CW frequency mode. Any currently running frequency sweeps are turned off and the current CW frequency settings control the output frequency. Pressing this softkey also allows you to change the frequency value.

Preset *Option 520: 20GHz*
Option 540: 40GHz

Range *Option 520: 100kHz–20GHz*
Option 540: 100kHz–40GHz

Freq Dev

Supported E8267C with Option 002/602

This softkey appears in two different situations. You can use this softkey to select the maximum frequency deviation for an FSK modulation or to set a deviation for the FSK table editor.

Selecting a Symmetric FSK Modulation

Press this softkey to set the maximum frequency deviation for symmetric FSK modulation.

Preset 400.0 Hz

Range 0 Hz–4 times the current symbol rate setting (20 MHz maximum)

Loading a Symmetric FSK Pattern into the FSK Table Editor

Press this softkey to define a custom frequency deviation convention in the FSK table editor. For more information on using the FSK table editor, see the *User's Guide*.

This setting is not affected by a preset or by a power cycle.

Preset 3.1250000 Hz

Range 0 Hz–20 MHz

Freq Multiplier

Supported All

This softkey enables you to multiply the frequency shown on the display without changing the frequency output at the RF OUTPUT connector (simulating the frequency at the output of a harmonic multiplier).

For any multiplier other than 1, the MULT indicator is shown in the frequency area of the display.

The displayed frequency value is equal to the actual frequency, minus the reference frequency, times the multiplier, plus the offset frequency.

Preset	1
Range	-100 to +1000 (excluding 0)

Freq Offset

Supported	All
------------------	-----

This softkey enables you to set a value for frequency offset. For example, if the current output frequency is 1.0 MHz and you enter a frequency offset of 3.0 MHz, the output frequency will remain at 1.0 MHz but the display will show a frequency of 4.0 MHz. This feature enables you to simulate the frequency at the output of a frequency translating device.

When an offset has been entered, the OFFS indicator is turned on in the frequency area of the display.

A frequency offset can be entered at any time during normal operation and also when you are operating in frequency reference mode.

A frequency offset changes the value shown in the frequency area of the display but does not affect the output frequency.

Preset	0.00 Hz
Range	-200.0 GHz to 200.0 GHz

Freq Ref Off On

Supported	All
------------------	-----

This softkey toggles the operating state of the frequency reference mode.

Off The frequency reference mode is turned off, and the output frequency is not affected by the reference value set by the **Freq Ref Set** softkey.

On The frequency value displayed is equal to the current hardware output frequency minus the reference value set by the **Freq Ref Set** softkey. All frequency parameters will now be set as relative to the reference value.

Frequency offsets can be used with frequency reference mode. In this situation, the display will show the frequency calculated as the current hardware output frequency minus the reference value plus the frequency offset.

Frequency reference mode only changes the display; it does not change the RF output frequency.

Preset	Off
---------------	-----

Freq Ref Set

Supported All

Use this softkey to set the current output frequency plus the offset frequency as the frequency reference value. Pressing this softkey also causes the **Freq Ref Off On** softkey to toggle to the On position, turning on frequency reference mode. All frequency parameters are then set as relative to the reference value.

Preset 0.00 Hz

Range 0.00 Hz–highest frequency (depends on the signal generator option)

Freq Separation

Supported E8267C with Option 002/602

This softkey enables you to set the spacing between tones in a two-tone waveform. The mid point between the tones is placed at the carrier frequency.

Preset 10.000 kHz

Range 100.0 Hz–80.0 MHz

Freq Spacing

Supported E8267C with Option 002/602

This softkey enables you to set the spacing between tones in the multitone table editor. When there are an odd number of tones, the center tone is placed at the carrier frequency and the other tones are spaced incrementally, according to the set value. With an even number of tones, the mid-point of the two center tones is placed at the carrier frequency.

Preset 10.000 kHz

Range 100.0 Hz–80.0 MHz (depends on the number of tones)

Freq Span

Supported All with Option 007

This softkey enables you to configure a sweep based on the span and the center frequency. In ramp sweep, this setting is coupled with the start frequency and stop frequency settings.

Preset 0.00 Hz

Range 00.0 Hz–highest frequency minus 100kHz (depends on the signal generator option)

Freq Start

Supported All

This softkey enables you to set the frequency start point for a step sweep or ramp sweep (Option 007). In a ramp sweep setup, the selected value must be less than or equal to the value selected for the frequency stop point (**Freq Stop** softkey). In ramp sweep, this setting is coupled with the span and center frequency settings.

Preset Highest frequency (depends on the signal generator option)

Range 0.00 Hz–highest frequency (depends on the signal generator option)

Freq Stop

Supported All

This softkey enables you to set the frequency stop point for a step sweep or ramp sweep (Option 007). In a ramp sweep setup, the selected value must be greater than or equal to the value selected for the frequency start point (**Freq Start** softkey). In ramp sweep, this setting is coupled with the span and center frequency settings.

Preset Highest frequency (depends on the signal generator option)

Range 0.00 Hz–highest frequency (depends on the signal generator option)

Frequency

Supported All

This hardkey enables you to change the RF output frequency. In addition, the key accesses a menu of softkeys that enables you to configure the reference frequency and the phase, and specify the oscillator source.

When Freq Channels is turned On this hardkey enables Frequency Channel selection.

Preset Highest frequency (depends on the signal generator option)

Range 100 kHz–highest frequency (depends on the signal generator option)

FSK

Supported E8267C with Option 002/602

Use this softkey to access a menu of frequency shift keying (FSK) modulation types for modulating a continuous stream of the selected data pattern. You can also change the default frequency deviation.

In the memory catalog, this softkey enables you to specify that only signal generator FIR files be listed in the catalog of files.

Function Generator 1

Supported E8257C and E8267C

This key configures the first internal source to operate as a function generator.

When you use the internal source in this capacity, any modulation with the internal source selected is turned off.

Function Generator 2

Supported E8257C and E8267C

This key configures the second internal source to operate as a function generator.

When you use the internal source in this capacity, any modulation with the internal source selected is turned off.

G

Gate Active Low High

Supported E8267C with Option 002/602

This softkey toggles the polarity of the “through” or active state of a gated trigger signal.

This softkey is inactive until the trigger selection has been set to Gated.

Low Set this softkey to Low to output the signal while the signal level at the PATTERN TRIG IN connector is in a TTL low state.

High Set this softkey to High to output the signal while the signal level at the PATTERN TRIG IN connector is in a TTL high state.

Gated

Supported E8267C with Option 002/602

This softkey sets the trigger type to Gated. Using a gated trigger, you can set the signal to output when a TTL high or low is present at the PATTERN TRIG IN connector. To set the gate to trigger on either high or low, press **Gated** and then press **Gate Active Low High**.

Gaussian

Supported All

This softkey selects a Gaussian pre-modulation filter from either the Select (filter) menu or the Load Default FIR menu.

In the Select (filter) Menu

In this menu, use the **Gaussian** softkey to select this FIR filter for use in a modulation setup.

In the Load Default FIR Menu

In this menu, use the **Gaussian** softkey to access a menu from which you can change the filter BbT value, specify the number of symbols, apply a windowing function, and generate a new FIR table that is loaded with the coefficients for a Gaussian filter. If you change a parameter, you can press the **Generate** softkey again to reload the FIR table.

In the Noise Menu

This softkey enables you specify noise with a Gaussian distribution as the modulation waveform for

the internally generated, ac-coupled signal.

Generate

Supported E8267C with Option 002/602

Use this softkey to create a new FIR table that is based on the user-specified alpha or filter Bbt value, number of symbols, and windowing selection.

Goto

Supported All

Use this softkey to access a menu from which you can select a row or page in a table or list of items.

Goto Bottom Row

Supported All

Use this softkey to move the selection bar to the last row in the current table or list of items.

Goto Middle Row

Supported All

Use this softkey to move the selection bar to the middle row in the current table or list of items.

Goto Row

Supported All

Use this softkey to access a menu from which you can select a row in the current table or list of items.

Goto Top Row

Supported All

Use this softkey to move the selection bar to the first row in the current table or list of items.

GPIB Address

Supported All

This softkey enables you to change the signal generator's GPIB address. The GPIB address is set to 19 at the factory.

G

The GPIB address setting is not affected by a preset or by a power cycle.

Preset	19
Range	0–30

GPIB Listener Mode

Supported	All
------------------	-----

Use this softkey to return the GPIB back to the listener mode after a user flatness calibration.

GPIB/RS-232/LAN

Supported	All
------------------	-----

Use this softkey to access a menu of configuration choices for GPIB, RS-232, and LAN.

Gray Coded QPSK

Supported	E8267C with Option 002/602
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This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting a Gray Coded QPSK Modulation

Use this softkey to select Gray Coded quadrature phase shift keying (QPSK) to modulate a continuous stream of the selected data pattern. Gray Coded QPSK modulation transmits data at the rate of 2 bits per symbol. The constellations for this modulation type are designed so that adjacent symbols differ by only one bit. The modulation selection appears under the **Select, QPSK and OQPSK**, and **PSK** softkeys in the Modulation Type menus.

Loading a Gray Coded QPSK I/Q Map into the Table Editor

Use this softkey to load a Gray Coded quadrature phase shift keying (QPSK) I/Q map into the I/Q table editor.

For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

GSM

Supported	E8267C with Option 002/602
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Use this softkey to select a predefined Global System for Mobile Communication (GSM) personality for the digital modulation format.

GSM/Edge Bands

Supported All

This softkey accesses a menu from which you can select the frequency bands for GSM. The output frequency depends on both frequency band and channel selections.

GSM 450 Base

Supported All

This softkey selects GSM 450 Base as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 259*
Frequency: 460.600 MHz

Range *Channels: 259–293*
Frequency: 460.600–467.400 MHz

GSM 450 Mobile

Supported All

This softkey selects GSM 450 Mobile as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 259*
Frequency: 450.600 MHz

Range *Channels: 259–293*
Frequency: 450.600–457.400 MHz

GSM 480 Base

Supported All

This softkey selects GSM 480 Base as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 306*
Frequency: 489.000 MHz

Range *Channels: 306–340*
Frequency: 489.000–495.800 MHz

GSM 480 Mobile

Supported All

This softkey selects GSM 480 Mobile as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 306*

Frequency: 479.000 MHz

Range *Channels: 306–340*

Frequency: 479.000–485.800 MHz

GSM 850 Base

Supported All

This softkey selects GSM 850 Base as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 128*

Frequency: 869.200 MHz

Range *Channels: 128–251*

Frequency: 869.200–893.800 MHz

GSM 850 Mobile

Supported All

This softkey selects GSM 850 Mobile as the frequency band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 128*

Frequency: 824.200 MHz

Range *Channels: 128–251*

Frequency: 869.200–848.800 MHz

H

Hamming

Supported E8267C with Option 002/602

Use this softkey to apply the Hamming windowing function to the selected filter.

Windowing can be applied to any default FIR filter that you load into the Define User FIR table. Windowing improves out of band performance (ACP), but simultaneously degrades passband performance (EVM), by smoothing the filter's transition to zero.

Hamming is the windowing type applied when you toggle the **Optimize FIR For EVM ACP** softkey to the ACP selection.

Hann

Supported E8267C with Option 002/602

Use this softkey to apply the Hann windowing function to the selected filter.

Windowing can be applied to any default FIR filter that you load into the Define User FIR table. Windowing improves out of band performance (ACP), but simultaneously degrades passband performance (EVM), by smoothing the filter's transition to zero.

Header Utilities

Supported E8267C with Option 002/602

This softkey accesses the menu where you can view a waveform's header information. From this menu you can edit the header description, clear the header file information or save the current signal generator settings for the header file.

Help Mode Single Cont

Supported All

The utility menu **Instrument Info/Help mode** softkey access the **Help Mode Single Cont** softkey. The help text is a short description of any hardkey or softkey. There are two help modes available on the signal generator: single and continuous.

The help mode is not affected by a preset or by a power cycle.

Single In single mode, when you press the **Help** hardkey, help text is provided for your next key press. Pressing any key afterward exits the help function and activates

the key.

Cont In continuous mode, when you press the **Help** hardkey, help text is provided for each key press in addition to activating the function of the key (except for the **Preset** hardkey). You will remain in continuous mode until either the **Help** softkey is pressed again or the help mode is toggled back to single mode.

High Crest Mode Off On

Supported All

This softkey toggles the operating state of the high crest mode.

This softkey is enabled only if the I/Q source is external and I/Q is turned on.

Off Turn high crest mode off to disable the high crest mode.

On Turn high crest mode on for externally applied signals with high crest factors. High crest mode allows the signal generator to process these signals with less distortion. For crest factors higher than 4 dB, I/Q drive levels should be reduced by 1 dB for each dB above that level. In high crest mode, the maximum output level is reduced and power level accuracy is degraded.

Preset On

Hostname

Supported All

This softkey enables you to enter the hostname for the local area network connection. No hostname is entered at the factory.

The hostname setting is not affected by a preset or by a power cycle.

Immediate

Supported E8267C with Option 002/602

Use this softkey to enable immediate retriggering for single trigger operation. In this state, the waveform will reset and replay from the start immediately upon receiving a trigger.

Initialize Phase Fixed Random

Supported E8267C with Option 002/602

This softkey sets the initial state for the tones, as part of initializing the multitone table editor.

Fixed When you select Fixed, the initial phase of all tones are set to 0 degrees.

Random When you select Random, the initial phase of the tones is set to randomly generated phases based on the **Random Seed Fixed Random** softkey selection.

Preset Fixed

Initialize Table

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to set the initial values for the multitone configuration.

Insert

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select different methods of inserting bits, or to execute the insertion of a specified number of bits.

Insert 0's

Supported E8267C with Option 002/602

Use this softkey to insert a specified number of zeros into the current position of the bit file editor.

Insert 1's

Supported E8267C with Option 002/602

Key Reference

I

Use this softkey to insert a specified number of ones into the current position of the bit file editor.

Insert PN9

Supported E8267C with Option 002/602

Use this softkey to adjust the seed value of a 9-bit pseudorandom bit sequence. You can then insert it into the current bit file.

Insert PN15

Supported E8267C with Option 002/602

Use this softkey to adjust the seed value of a 15-bit pseudorandom bit sequence. You can then insert it into the current bit file.

Insert Row

Supported All

Use this softkey to insert a copy of the highlighted row directly above that row in a table or list.

Insert Selected Waveform

Supported All

Use this softkey to insert the highlighted waveform into the sequence you are building.

Insert Waveform

Supported All

This softkey accesses a menu and table editor which enable you to insert a waveform into the current row of the table editor.

Insert Waveform Sequence Contents

Supported All

Use this softkey to insert the contents of the highlighted sequence into the sequence you are building.

Installed Board Info

Supported All

Use this softkey to display information about the installed boards in the signal generator. Refer to [Figure 0-2](#).

Figure 0-2 Installed Board Information

FREQUENCY		4.000 000 000 00 GHz		AMPLITUDE		-136.00 dBm		RF OFF		MOD ON	
Installed Board Information											
	Name	Part Number	Serial Number	Version	Bus	Status					
	BASEBAND GEN	E4400-60501	1012405279	A0100	P00M	DETECTED✓					
	BERT	E4400-60519	1013001720	A0100	P03	DETECTED✓					
	CPU	E4400-60500	1011700015	A0100	F00	DETECTED✓					
	DEM0D	E4400-60510	1013001768	A0100	P01	DETECTED✓					
	DOWNCONVERT	E4400-60544	1994907513	A0100	S06	DETECTED✓					
	ELEC ATTN	E4400-60515	1999901414	A0100	00	FIXED					
	HARD DRIVE	E4400-XXXXX		A0100	F02	DETECTED✓					
	IQ MUX	E4400-60191	1010809299	A0100	P02	DETECTED✓					
	MOTHERBOARD	E4400-60504	1011401383	A0100	F01	DETECTED✓					
	OUTPUT	E4400-60505	1010916117	A0120	S01	DETECTED✓					

Page Up

Page Down

Additional Page Indicator

The gray and white vertical bar on the left side of the display indicates that there is an additional page of information. Use the **Page Down** softkey to display the next page. Use the **Page Up** softkey to return to the previous page.

A status of DETECTED means that the installed board was automatically detected by the internal computer.

A status of INSTALLED or FIXED means that the installed board is available for use.

Instrument Adjustments

Supported All

Use this softkey to access a menu of front panel adjustments for the signal generator. This menu enables you to adjust the reference oscillator, set the value of the step keys and the front panel knob and so forth.

Instrument Info/Help Mode

Supported All

Use this softkey to display a menu of softkeys detailing some of the signal generator functions and operations.

Instrument Options

Supported All

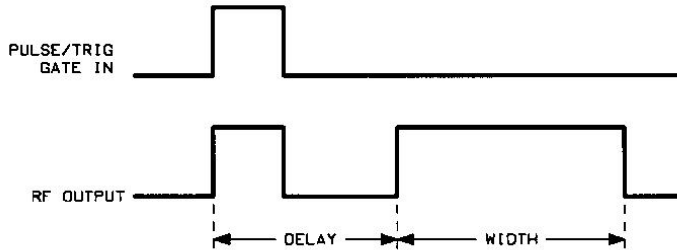
Use this softkey to access a menu from which you can install license keys and manage hardware options.

Int Doublet

Supported E8257C and E8267C

Use this softkey to select an internal doublet pulse modulation. When doublet pulse is enabled, each trigger event will produce two pulses at the RF OUTPUT connector. The first pulse will follow the external trigger signal that is applied to the TRIGGER IN connector. The second pulse will have delay and width parameters as set via the front panel or with programming commands. Pulse delay is measured from the leading edge of the external trigger signal. Refer to [Figure 0-3](#).

Figure 0-3



This modulation source requires an external trigger source.

Int Free Run

Supported E8257C and E8267C

This softkey enables you to internally generate a continuously running pulse modulation with user-defined period, width and delay.

Int Gated

Supported E8257C and E8267C

This softkey enables you to internally generate a gated pulse modulation. An RF pulse train will occur

at the RF OUTPUT connector when a valid gate signal occurs at the TRIGGER IN connector. The generated pulse train will have a user-defined period and width.

Int I/Q Skew Correction RF BB Off

Supported E8267C with Option 002/602

This softkey is used to select the skew path to be optimized.

RF When RF is selected, the skew is optimized for the I/Q signal applied to the RF Output. The BB (external I/Q output) output will be functional, but the I/Q skew applied will be optimized for the RF path. When using this choice, seven symbols of latency are added to the Arb based waveform. While in real-time mode, the maximum number of user symbols for the FIR is limited to 32.

BB When BB is selected, the skew is optimized for the I/Q signal outputs on the rear panel. The RF output will be functional, but the I/Q skew applied will be optimized for the BB path. When using this choice, seven symbols of latency are added to the Arb based waveform. While in real-time mode, the maximum number of user symbols for the FIR is limited to 32.

Off When Off is selected, the factory I/Q skew is turned off. Using the signal generator in this mode does not add any latency symbols. This setting is equivalent to performance achieved with firmware revisions prior to C.03.10.

Preset RF

Range N/A

Remarks This softkey is not active for existing ESG customers downloading C.03.10 firmware. See [“I/Q Skew” on page 110](#) for manual adjustments.

Int Phase Polarity Normal Invert

Supported E8267C

Use this softkey to invert the internal Q signal, reversing the rotation direction of the phase modulation vector.

Normal When you choose Normal, the phase relationship between the I and Q signals is not altered by the phase polarity function.

Invert When you choose Invert, the in-phase component lags the quadrature-phase component by 90° in the resulting modulation.

Preset Normal

Int Triggered

Supported E8257C and E8267C

This softkey enables you to internally generate a triggered pulse modulation. An RF pulse will occur at the RF OUTPUT connector when a valid trigger signal occurs at the TRIGGER IN connector. The generated pulse will have a user-defined period, width and delay.

Internal

Supported All

Use this softkey to select internal ALC leveling.

Internal 1

Supported E8257C and E8267C

This softkey selects the first internal source to generate an AC-coupled signal as the modulation output.

Internal 2

Supported E8257C and E8267C

This softkey selects the second internal source to generate an AC-coupled signal as the modulation output.

Internal 1 Monitor

Supported E8257C and E8267C

This softkey selects the first internal source as the low frequency output. The signal is available at the LF OUTPUT connector. The frequency and shape of the signal is internally configured.

The internal 1 monitor is selected after an instrument preset or when the on/off power-line switch is cycled.

Internal 2 Monitor

Supported E8257C and E8267C

This softkey selects the second internal source as the low frequency output. The signal is available at the LF OUTPUT connector. The frequency and shape of the signal is internally configured.

Internal Ref Bandwidth

Supported All with Option UNR

This softkey enables you to adjust the bandwidth of the internal reference oscillator.

Internal Square

Supported E8257C and E8267C

This softkey enables you to internally generate a square wave as the modulation waveform.

Inverse Video Off On

Supported All

This softkey selects the display mode, text and background, for the signal generator.

The inverse video state is not affected by a preset or by a power cycle.

Off Inverse mode is off, the signal generator has dark text on a light background; the normal display mode for the signal generator.

On Inverse mode is on, the signal generator display has light text on a dark background.

I Offset

Supported E8267C

This softkey adjusts the level of the in-phase signal. This key appears as a percentage of full scale for standard I/Q and as an offset voltage for wideband I/Q.

For Standard I/Q

Use this softkey to enter an origin offset for standard in-phase signals. 100% offset is equivalent to 500 mV DC at the input connector. This offset is used to remove imperfections in the in-phase signal or to introduce calibrated impairments.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

When using this key to minimize the LO feedthrough signal, optimum performance is achieved when the adjustment is made after all other I/Q path adjustments, such as those made with the **Int Phase Polarity Normal Invert** or **Modulator Atten nnn db Manual Auto** softkeys. If other adjustments are made after minimization is performed, the LO feedthrough signal may increase.

Preset 0.0%

Range -50% to 50%

For Wideband I/Q (Option 015)

Use this softkey to enter an origin offset for in-phase signals in wideband I/Q mode. This offset is used to remove imperfections in the in-phase signal or to introduce calibrated impairments.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

Preset	0.0000 V
Range	-1.0000 V to 1.0000 V

IP Address

Supported All

This softkey enables you to enter the internet protocol (IP) address for your IP network connection. No IP address is entered at the factory.

The IP address setting is not affected by a preset or by a power cycle.

I/Q

As the front panel hardkey

Supported E8267C

Use this hardkey to access a menu from which you can configure the internal I/Q modulator.

As a softkey in the Utility menu

Supported E8267C with Option 002/602

In the memory catalog, this softkey enables you to specify that only signal generator I/Q files be listed in the catalog of files.

I/Q Adjustments

Supported E8267C

Use this softkey to access a menu of I/Q adjustment choices for internally generated or externally applied I and Q signals. In this menu you can change the I/Q gain balance, I and Q offset voltages, and quadrature skew. You can also toggle the operational state of these I/Q adjustments.

The current operating state of the I/Q adjustments function is displayed under the **I/Q Adjustments** softkey.

I/Q Adjustments Off On

Supported E8267C

This softkey toggles the operating state of the I/Q adjustments.

Off When this softkey is in the off position, I/Q adjustment values are not applied to the I and Q signals.

On When this softkey is in the on position, the values entered for I/Q gain balance, quadrature skew, I offset, and Q offset are applied to the I and Q signals.

Preset Off

I/Q Calibration

Supported E8267C

Use this softkey to access a menu from which you can configure and execute an I/Q calibration. You can set the start and stop frequency for a user-defined I/Q calibration, or choose an I/Q calibration over the entire frequency range of the signal generator. In this menu, you can also restore the original factory calibration data for the I/Q modulator.

You can perform an I/Q calibration on a frequency range without disturbing calibrations that have already been performed on other frequency ranges.

I/Q calibration data is not affected by a preset or by a power cycle.

An I/Q calibration should be performed approximately every 30 days or if the temperature changes $\pm 5^\circ\text{C}$, but it can be performed at any time to peak the performance of the I/Q modulator.

I/Q Gain Balance Source 1

Supported E8267C

Use this softkey to change the I to Q gain balance for the **Source 1** selection. For example, if you enter a value of 1 dB, the I signal will have 1 dB more amplitude than the Q signal. The gain balance adjustment can be used with externally applied I and Q signals or with internally generated I and Q signals. Use the gain balance to remove imperfections in I and Q or to introduce calibrated impairments.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

Preset 0.00 dB

Range -4 dB to 4 dB

I/Q Mod Filter Manual Auto

Supported E8267C

Use this softkey to access a menu from which you can either manually apply an I/Q modulation filter or select Auto to enable the ESG to automatically choose a filter based on the active digital modulation settings. You can override the automatic mode at any time by manually selecting a filter from this menu.

The selected filter type is displayed in parentheses.

Preset Auto

I/Q Off On

Supported E8267C

This softkey toggles the operating state of the internal I/Q modulator.

Off This setting disables the internal I/Q modulator. You can turn off the I/Q modulation with this softkey even though the digital modulation mode is enabled. With this configuration, the RF output signal would not be modulated but the I/Q signals will be present at the rear panel I/Q outputs.

On This setting enables the internal I/Q modulator. **I/Q Off On** is also toggled automatically to On when any of the digital modulation formats are enabled.

When this softkey is set to On, the I/Q annunciator will be displayed.

RF output power will be attenuated if the I/Q modulator is turned on and an I/Q signal is not applied.

Although you can enable I/Q modulation with this softkey, the RF carrier is modulated only when you have also set **Mod On/Off** to On.

Preset Off

I/Q Out

Supported E8267C

Use this softkey to access a menu from which you can select a signal source to be routed to the rear panel I and Q output connectors.

When a digital modulation format is turned on, the **Source 1** and **I/Q Out** selections automatically switch to BBG1. When the digital modulation is turned off, the **Source 1** and **I/Q Out** selections automatically switch to Ext 50 Ohm. You can override the automatic settings by manually selecting a different source.

Preset Ext 50 Ohm

I/Q Out Gain Balance

Supported E8267C

Use this softkey to change the I to Q gain balance at the rear panel I and Q external outputs. For example, if you enter a value of 1 dB, the I signal will have 1 dB more amplitude than the Q signal. Use the gain balance to remove imperfections in I and Q or to introduce calibrated impairments.

Preset 0.00 dB

Range -4 dB to 4 dB

I/Q Output Atten

Supported E8267C

Use this softkey to set the attenuation level of the I/Q signal at the rear panel I and Q output connectors. A setting of 0.00 dB will result in 100 percent output signal power, while a setting of 40.00 dB will result in 0.01 percent output signal power.

Preset 6.00 dB

Range 0.00–40.00 dB

I/Q Output Control

Supported E8267C

Use this softkey to access a menu from which you can change the parameters that control the I and Q output signals. In this menu you can control the I/Q output attenuation levels, I/Q output gain balance, and I and Q offset voltages. You can also select an I/Q output filter.

I/Q Output Filter Manual Auto

Supported E8267C

Use this softkey to access a menu from which you can either manually apply an I/Q output filter or select Auto to enable the ESG to automatically choose a filter based on the active settings. You can override the automatic mode at any time by manually selecting a filter from this menu.

The selected filter type is displayed in parentheses.

Preset Auto

I/Q Path Normal Wide

Supported E8267C with Option 015

This softkey toggles the I and Q modulator inputs between the mux source or the rear panel wide I and Q inputs.

Normal This choice sets the I and Q inputs to the **Source 1** selection under the Mux hardkey.

Wide This choice sets the I and Q inputs to the external WIDE I and WIDE Q rear panel input connectors.

Preset Normal

I/Q Scaling

Supported E8267C with Option 002/602

Use this softkey to adjust the amplitude of the I/Q outputs (for better ACP).

Preset 100%

Range 1-200%

I/Q Skew

Supported E8267C with Option 002/602

Use this softkey to input skew changes to the I and Q paths. Equal and opposite skew is applied to both paths (RF Output and I/Q outputs) simultaneously. A positive value delays the I signal relative to the Q signal, and a negative value delays the Q signal relative to the I signal.

If the **Int I/Q Skew Correction RF BB Off** softkey is active, the I/Q signals are already optimized and adjusting I/Q skew would add an impairment to the signals. For signals routed to the rear panel outputs (BB), you may want to adjust the I/Q skew to account for any mismatch in the cables connected to the I/Q BNC connectors. If the **Int I/Q Skew Correction RF BB Off** softkey is set to Off, then adjusting the I/Q skew could improve the EVM (Error Voltage Magnitude).

I/Q skew adjustments are preserved when the instrument state is saved. I/Q skew adjustments are also preserved when instrument settings are changed.

Using I/Q skew while playing a user FIR file greater than 32 symbols will generate an error.

Preset 0.000 sec

Range ± 5 nsec

Remarks MSK, FSK, and C4FM are constant envelope modulations and cannot be skewed (**Int I/Q Skew Correction RF BB Off** softkey should be set to Off). Refer to [“Int I/Q](#)

Skew Correction RF BB Off' on page 103.

I/Q Source 1

Supported All

Use this softkey to access a menu from which you can select a signal source to be routed to the internal I/Q modulator.

When a digital modulation format is turned on, the **I/Q Source 1** and **I/Q Out** selections automatically switch to BBG1. When the digital modulation is turned off, the **I/Q Source 1** and **I/Q Out** selections automatically switch to Ext 50 Ohm. You can manually override the automatic settings.

Preset Ext 50 Ohm

Range N/A

I/Q Source 2

Supported All

Use this softkey to access a menu from which you can select an additional signal source to be summed with I/Q Source 1 and then routed to the internal I/Q modulator.

Preset Off

Range N/A

IS95 OQPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting an IS95 OQPSK Modulation

Use this softkey to select IS95 offset quadrature phase shift keying (OQPSK) for modulating a continuous stream of the selected data pattern. IS95 OQPSK modulation transmits data at the rate of 2 bits per symbol.

The modulation selection appears under the **Select, QPSK and OQPSK**, and **PSK** softkeys in the Modulation Type menus.

Loading an IS95 OQPSK I/Q Map into the Table Editor

Use this softkey to load an IS95 offset quadrature phase shift keying (OQPSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the

User's Guide.

IS95 QPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting an IS95 QPSK Modulation

Use this softkey to select IS95 quadrature phase shift keying (QPSK) for modulating a continuous stream of the selected data pattern. IS95 QPSK modulation transmits data at the rate of 2 bits per symbol.

The modulation selection appears under the **Select, QPSK and OQPSK**, and **PSK** softkeys in the Modulation Type menus.

Loading an IS95 QPSK I/Q Map into the Table Editor

Use this softkey to load an IS95 quadrature phase shift keying (QPSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

K

Kaiser

Supported E8267C with Option 002/602

Use this softkey to apply the Kaiser windowing function to the selected filter. Selecting **Kaiser** also activates the Beta factor which you can adjust to change the trade-off between optimized ACP or EVM.

Windowing can be applied to any default FIR filter that you load into the Define User FIR table. Windowing improves out of band performance (ACP), but simultaneously degrades passband performance (EVM), by smoothing the filter's transition to zero.

Keep Previous Comment

Supported All

This softkey will appear when you overwrite a previously saved register that contains comments. Press this key if you want to keep the comment for the newly saved state. Press the **Delete Previous Comment** softkey if you do not want to keep the comment.

L

LAN Setup

Supported All

Use this softkey to access a menu enabling you to enter a local area network (LAN) host name and IP address for communication over the LAN.

Last Mkr Point

Supported E8267C with Option 002/602

This softkey enables you to set the last marker point when you define a range of points. You can use either the knob or the numeric keys to set this value, which must be greater than or equal to 1, and less than or equal to the total number of waveform points in the selected waveform.

If you enter a value for either the first marker point or the last marker point that would make the first marker point occur after the last, the last marker point is automatically adjusted to match the first marker point.

Preset last waveform point

Range 1–total number of waveform points

Leveling Mode

Supported All

Use this softkey to access a menu from which you can select a leveling mode.

LF Out

Supported All

Use this hardkey to access a menu of softkeys that enable you to configure the internal, low frequency source.

LF Out Amplitude Into 50 Ohms

Supported E8257C and E8267C

This softkey enables you to scale the output of the signal at the LF OUTPUT connector.

This softkey is available after selecting the internal source to operate as Function Generator 1 and

selecting dual-sine as the waveform type.

Preset	0.0 V
Range	0.0–3.5 Vp

LF Out Freq

Supported E8257C and E8267C

Pressing this key allows you to enter a frequency for the internal function generator.

This softkey is available after selecting Function Generator 1 or 2 as the LF Out Source.

Preset 400.0 Hz

Range 0.5 Hz–1.0 MHz if sine or dual sine is selected.
1.0 Hz–1.0 MHz if swept sine is selected.
0.5 Hz to 100.0 kHz if triangle, ramp or square wave is selected.

LF Out Off On

Supported E8257C and E8267C

This softkey toggles the operating state of the source at the LF OUTPUT connector on and off.

Off The low frequency output is disabled and no signal is available at the LF OUTPUT connector.

On The selected source, for example function generator, is enabled and the signal is available at the LF OUTPUT connector.

Refer to [LF Out Source](#) for more information on choosing the source.

Once you have toggled this state on, the signal is immediately available at the LF OUTPUT connector. Neither the **RF On/Off** hardkey nor the **Mod On/Off** hardkey affect this state.

Preset Off

LF Out Source

Supported E8257C and E8267C

Use this softkey to access a menu of available sources for the low frequency output. You can choose to output the signal from one of the internal sources as it is being used by a modulation or you can use the internal source as a function generator and select that signal to output at the LF OUTPUT connector.

If you choose an internal source, the frequency and shape of the signal at the LF OUTPUT connector is set by the internal source. For example, if the internal source is currently assigned to an AM path

L

configuration and AM is turned on, the signal output at the LF OUTPUT connector will have the frequency and shape of the amplitude modulating signal. You can scale the amplitude of the output signal using the **LF Out Amplitude Into 50 Ohms** softkey.

If you choose to set the internal source as a function generator, you can select a frequency and shape in addition to selecting the amplitude for the LF output signal.

When you use an internal source as a function generator, any modulation with the internal source selected is turned off.

Preset Internal 1 Monitor

LF Out Start Freq

Supported All

This softkey enables you to change the starting frequency for swept-sine low frequency output. This key is coupled to the **LF Out Freq** softkey in the LF Out menu and the **LF Out Tone 1 Freq** softkey in the LF Out dual-sine menu. An LF Out start frequency setting is reflected in the **LF Out Freq** and **LF Out Tone 1 Freq** softkeys. Conversely, if you change the value for either the **LF Out Freq** softkey or the **LF Out Tone 1 Freq** softkey, the value for the LF Out start frequency is changed.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting swept-sine as the waveform type.

Preset 400.0 Hz

Range 1.0 Hz–1.0 MHz (minimum increment is 1.0 Hz)

LF Out Stop Freq

Supported All

This softkey enables you to change the stop frequency for swept-sine low frequency output.

This key is coupled to the **LF Out Tone 2 Freq** softkey in the LF Out Dual-Sine menu. Any value set for the LF Out stop frequency is reflected in the **LF Out Tone 2 Freq** softkey.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting swept-sine as the waveform type.

Preset 400.0 Hz

Range 1.0 Hz–1.0 MHz (minimum increment is 1.0 Hz)

LF Out Sweep Rate

Supported All

This softkey enables you to set the sweep rate for the low frequency swept-sine output. The signal generator will sweep from the specified start frequency to the stop frequency at the rate set with this key.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting swept-sine as the waveform type.

Preset	400.0 Hz
Range	0.5 Hz–100 kHz (minimum increment is 0.5 Hz)

LF Out Sweep Trigger

Supported All

Use this softkey to access a menu of choices that enables you to select the triggering mode for the swept-sine low frequency output.

Free Run	The source will continue sweeping without a trigger signal.
Trigger Key	The source will sweep after the front panel Trigger hardkey is pressed.
Bus	The GPIB is used to trigger the source for a sweep.
Ext	An external trigger, either a positive or negative signal, is used to generate a sweep. Use the Trigger In Polarity Neg Pos softkey to set the external trigger polarity.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting swept-sine as the waveform type.

Preset Free Run

LF Out Tone 1 Freq

Supported E8257C and E8267C

This softkey enables you to set the frequency for the low frequency output tone 1.

This key is coupled to the **LF Out Freq** softkey in the LF Out menu and the **LF Out Start Freq** softkey in the LF Out Swept-Sine menu. An LF Out tone 1 frequency setting is reflected in the **LF Out Freq** and **LF Out Start Freq** softkeys.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting dual-sine as the waveform type.

Preset	400.0 Hz
Range	0.5 Hz–1.0 MHz (minimum increment allowed is 0.5 Hz)

LF Out Tone 2 Ampl % Of Peak

Supported E8257C and E8267C

This softkey enables you to set the amplitude of the alternate frequency as a percent of the peak modulated amplitude. The sum of the two LF Out amplitudes results in the total LF Out amplitude set by the **LF Out Amplitude** softkey in the LF Out menu.

For example, if the total LF Out amplitude is 300 mVp and you set the LF Out tone 2 amplitude percent of peak to 33%, then the amplitude of LF Out tone 1 will be 200.0 mVp and the amplitude of LF Out tone 2 will be 100.0 mVp (33% of 300.0 mVp). The amplitude of the two tones will equal 300.0 mVp.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting dual-sine as the waveform type.

Preset 50.0%

Range 0.0–100% (minimum increment is 0.1%)

LF Out Tone 2 Freq

Supported E8257C and E8267C

This softkey enables you to change the alternate frequency of the modulation source. The alternate frequency is the second frequency in the dual-sine mode or the stop frequency in swept-sine mode. This key is coupled to the **LF Out Freq** softkey in the LF Out menu and the **LF Out Stop Freq** softkey in the LF Out Swept-Sine menu.

This softkey is available after selecting the internal source to operate as Function Generator 1 and selecting dual-sine as the waveform type.

Preset 400.0 Hz

Range 0.5 Hz–1.0 MHz (minimum increment allowed is 0.5 Hz)

LF Out Waveform

Supported E8257C and E8267C

This softkey accesses a menu from which you can choose a waveform to be generated by the internal modulation source.

This softkey is only enabled when Function Generator 1 or 2 is selected in the LF Out Source menu.

List

In the Sweep Type Menu

Supported All with Option 007

Use this softkey to select list as the sweep type.

In Catalog Type Menu

Supported All

This softkey enables you to specify that only signal generator list sweep files be included in the catalog of files.

Load All from NVWFM Memory

Supported E8267C with Option 002/602

This softkey enables you to load all of the files from non-volatile arbitrary waveform (NVWFM) memory to waveform (WFM1) memory where you can play the waveforms.

Load Cal Array From Step Array

Supported All

This softkey enables you to set up a table that includes the start frequency, stop frequency, and number of points that are defined in the Configure User Flatness Step Array menu.

Load Default FIR

Supported E8267C with Option 002/602

Use this softkey to access a menu for automatically filling the FIR table editor with coefficient values from pre-defined filters such as root Nyquist, Nyquist, Gaussian and rectangle. The default filter parameters can also be selected in this menu allowing you to choose the filter alpha or BbT and the number of filter symbols.

Load Default FSK

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select a default symmetric FSK modulation and configure the frequency deviation for the FSK modulation selected.

Load Default I/Q Map

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select a standard I/Q mapping from a set of either PSK or QAM modulations.

Load From Selected File

Supported All

Use this softkey to replace the current information in a table editor with the information in the highlighted file. You will be prompted for confirmation.

This key is inactive unless at least one file has been stored to memory.

Load List From Step Data

Supported All

This softkey enables you to copy the step sweep data points into the list sweep data points.

You can have only one sweep list at a time so be certain that you wish to overwrite the existing list.

Load Mirror Image of Fall Shape

Supported E8267C with Option 002/602

Use this softkey to load the Rise Shape Editor with a mirror image of the Fall Shape Editor when editing a burst shape. For more information on editing burst shapes, see the *User's Guide*.

This softkey is available when the Rise Shape Editor is the active function; when the Fall Shape Editor is the active function, this softkey toggles to Load Mirror Image of Rise Shape.

Load Mirror Image of Rise Shape

Supported E8267C with Option 002/602

Use this softkey to load the Fall Shape Editor with a mirror image of the Rise Shape Editor when editing a burst shape. For more information on editing burst shapes, see the *User's Guide*.

This softkey is available when the Fall Shape Editor is the active function; when the Rise Shape Editor is the active function, this softkey toggles to Load Mirror Image of Fall Shape.

Load Segment from NVWFM Memory

Supported E8267C with Option 002/602

This softkey enables you to load the selected file from non-volatile arbitrary waveform (NVWFM) memory to waveform (WFM1) memory where you can play the waveform.

Load/Store

Supported All

Use this softkey to access a menu for loading tables from, and storing tables to, non-volatile memory. Non-volatile memory enables you to retain files for future use after an instrument power cycle.

Load Store

Supported All

This softkey accesses a menu that enables you to load table values from, and store table values to, non-volatile memory. Non-volatile memory retains files for future use after an instrument power cycle.

Load This enables you to load arbitrary waveform (NVARB) segments to the displayed catalog of files.

Store This enables you to store waveform segments (WFM1) from volatile memory to non-volatile arbitrary waveform (NVWFM) memory.

Loop Selected Tests

Supported All

This softkey is provided for self test diagnostics. Refer to the troubleshooting chapter of the service guide for more information.

This key is included for use by service personnel.

M

M1->Start M2->Stop

Supported All with Option 007

This softkey sets the start and stop frequencies for a ramp sweep to be equal to the current frequencies of marker 1 and marker 2, respectively. This action cannot be undone.

Manual Freq

Supported All with Option 007

This softkey enables you to choose an individual frequency value in a frequency-only ramp sweep to control the RF output. **Manual Mode Off On** must be set to On for this key to be active.

Preset Depends on the model of signal generator

Range Freq Start to Freq Stop

Manual Mode Off On

Supported All

This softkey toggles the operating state for manual mode in a step, list, or ramp sweep.

Off When manual mode is off, normal sweeping occurs in accordance with the current sweep parameters.

On When manual mode is turned on in a step or list sweep, the selected manual sweep point controls the RF output. The sweep point is selected with the **Manual Point** softkey.

When manual mode is turned on in ramp sweep, the selected manual frequency value controls the RF output. This value is selected with the **Manual Freq** softkey.

This key is disabled when the **Sweep** softkey is set to Off.

Preset Off

Manual Point

Supported All

This softkey enables you to choose an individual point in a step or list sweep to control the RF output. **Manual Mode Off On** must be set to On for this key to be active.

If list or step mode is controlling frequency and/or power, then the indexed point in the respective list(s) will be used.

If the point selected is beyond the maximum number in current sweep configuration, then the point will be set to the maximum possible point, and an error will be generated.

Preset	1
Range	1-maximum number in current sweep configuration

Marker 1 2

Supported All

This softkey selects the active marker for setting or clearing.

1 This selects marker 1 as the active marker.

2 This selects marker 2 as the active marker.

Preset 1

Marker Amplitude

Supported All with Option 007

Use this softkey to set the relative power for the amplitude spikes at each marker's set frequency when the amplitude marker mode is activated. (Use the

Amplitude Markers Off On softkey to activate the amplitude marker mode.)

Preset 2.0 dB

Range -10.0 dB to 10 dB

Marker->Center Freq

Supported All with Option 007

This softkeys sets the center frequency to the frequency value in the highlighted marker row of the marker table editor. The marker does not have to be turned on for this function to work. This action cannot be undone.

Marker Delta Off On

Supported All with Option 007

Use this softkey to display the marker frequency values relative to the designated reference marker. The reference marker must be designated before this mode can be selected. (Use the **Delta Ref Set** softkey to select the reference marker.)

Marker Freq

Supported All with Option 007

Use this softkey to set the frequency for the highlighted marker. The frequency value must be within the current sweep range.

Preset 525 MHz

Range equivalent to current sweep range

Marker On/Off

Supported All with Option 007

Use this softkey to toggle the state of the highlighted marker in the marker table editor.

Preset Off

Markers

Supported All with Option 007

Use this softkey to access a menu of marker function softkeys and a table editor for configuring markers. The menu and table editor allow you to configure the markers on the PSG for viewing on the 8757D.

Master

Supported All with Option 007

Use this softkey to select this instrument as the master in a dual-PSG ramp sweep setup. The PSG in master mode provides the triggering for the setup.

MDMOD

Supported All

Press this softkey to set the current catalog type to MDMOD and display the catalog of MDMOD files.

Catalog type selection is not affected by a preset or by a power cycle.

Memory Catalog

Supported All

Use this softkey to access a menu of choices enabling you to display a catalog of user files. In addition, the menu displays file management functions and a menu for choosing file types.

Meter Address

Supported All

This softkey enables you to select the external power meter GPIB address for use during the user flatness calibration.

The meter address is not affected by a preset or by a power cycle.

The power meter is controlled only through a GPIB cable.

Range 0–30

Meter Channel A B

Supported All

Use this softkey to toggle external power meter monitoring between channel A and channel B.

A The external power meter is instructed to monitor channel A for input.

B The external power meter is instructed to monitor channel B for input.

This softkey is only available when using external power meters that have two channels.

The power meter channel selection is not affected by a preset or by a power cycle.

The power meter is controlled only through a GPIB cable.

Meter Timeout

Supported All

This softkey enables you to select the remote timeout length of the external power meter during user flatness calibration.

The meter timeout setting is not affected by a preset or by a power cycle.

The power meter is controlled only through a GPIB cable.

Range 1.0 ms–100.0 s

Mirror Table

Supported E8267C with Option 002/602

Use this softkey to mirror the FIR table entries such that the table doubles in size and the values in the top half of the table are duplicated in the bottom half of the table in reverse order.

Mkr 2 To RF Blank Off On

Supported All

This softkey enables you to select the operating state of the RF blanking function.

Off When you select Off, RF blanking is turned off when marker 2 is set low.

On When you select On, RF blanking is turned on when marker 2 is set low.

Preset Off

Mod Status Info Off On

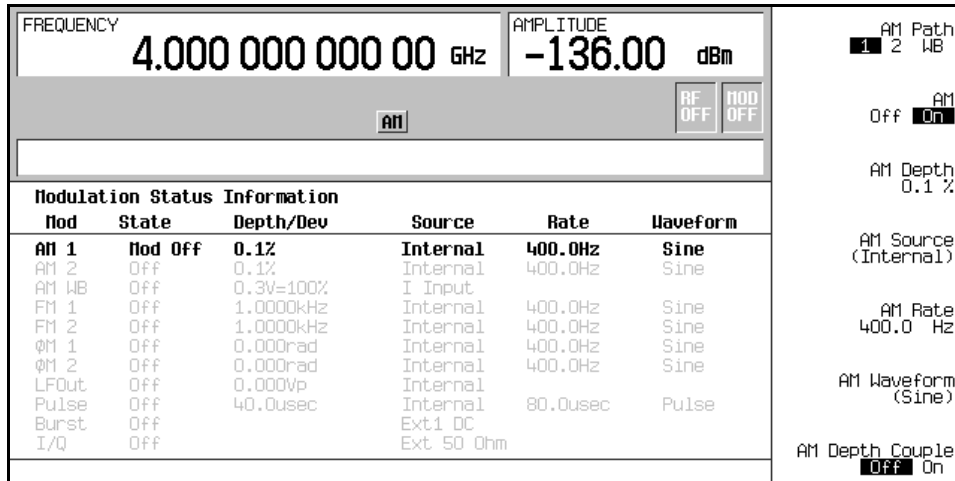
Supported All

This softkey turns the Modulation Status Information listing on or off.

On When the modulation status is set to on, modulation information is displayed when you access one of the modulation menus, for example AM as shown in [Figure 0-4 on page 126](#).

Off When the modulation status is set to off, information about the status of the modulation is not displayed.

Figure 0-4 Modulation Status Information



Preset On

Mode

Supported E8267C with Option 002/602

Use this hardkey to access a menu of digital modulation formats.

Mode Setup

Supported E8267C with Option 002/602

Use this hardkey to return to the main menu of the digital modulation format you most recently accessed under the **Mode** hardkey. If a digital modulation format offers softkey selections for both **Arb Waveform Generator** and **Real Time I/Q Baseband**, as it does with the Custom format, you must select one of these choices for the **Mode Setup** key to recognize you accessed the format, so it can return you to its main menu. After a power cycle, if you have not yet accessed a digital modulation format, the **Mode Setup** key accesses the digital modulation format menu, as if you pressed the **Mode** key.

Modify License Key

Supported All

Press this softkey to enter the license key for the highlighted software option. Software options are linked to specific hardware options that must be installed before the software option is valid. Adding new software options requires the use of a license key provided by Agilent Technologies at the time of purchase. Once the license key is entered, the software option will be enabled when you press the **Proceed with Reconfiguration** softkey.

If you enable an option that does not have the required hardware installed, the menus for that option will be activated but the option *cannot* operate, regardless of what the menus may indicate.

Modulation Catalog Types

Supported All

Press this softkey to reveal a menu of real time I/Q modulation file types that can be selected.

Modulation Type

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select predefined or custom modulation types, create user-defined I/Q and FSK modulations, or restore the default modulation type.

Modulator Atten (nnn dB) Manual Auto

Supported E8267C

M

This softkey toggles the attenuation mode of the internal I/Q modulator between manual and automatic.

Manual	In the manual mode, you can manually set the attenuation level of the I/Q modulator. A setting of 0.00 dB will result in 100 percent signal power, while a setting of 40.00 dB will result in 0.01 percent signal power.
Auto	In the automatic mode, the attenuation level is automatically set to a factory-determined value for best performance, based on the digital modulation settings.
Preset	Auto
Range	<i>Manual:</i> 0.00–40.00 dB <i>Auto:</i> N/A

MSK

Supported E8267C with Option 002/602

Use this softkey to select minimum shift keying (MSK) modulation for modulating a continuous stream of the selected data pattern. MSK modulation transmits data at the rate of 1 bit per symbol.

The current phase deviation value appears under the **MSK** softkey in the Modulation Type menu.

MTONE

Supported E8267C with Option 002/602

Press this softkey to set the current catalog type to MTONE and display the catalog of MTONE files.

Multicarrier Off On

Supported E8267C with Option 002/602

This softkey toggles the operating state of the multicarrier mode.

Off In this state, the selected modulation format has a single carrier.

On In this state, you can select a user-defined custom multicarrier signal.

Preset Off

Multitone

Supported E8267C with Option 002/602

This softkey accesses a menu of softkeys that enables you to create multitone signals using the dual arbitrary waveform generator. Within these menus, you will be able to create, select, and/or modify the

waveform.

Multitone Off On

Supported E8267C with Option 002/602

This softkey sets the operating state for the multitone function of the dual-arbitrary waveform generator.

Off When you select Off, the multitone signal is turned off.

On When you select On, the multitone signal is turned on.

Preset Off

Mux

Supported E8267C

Use this hardkey to access a menu from which you can configure the I/Q multiplexer.

N

NADC

Supported E8267C with Option 002/602

Use this softkey to select a predefined North American Digital Cellular (NADC) personality for the digital modulation format.

NADC Base

Supported All

This softkey selects Standard Base as the frequency band for NADC. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
Frequency: 870.030 MHz

Range *Channels: 1–799, 990–1023*
Frequency: 870.030–893.970 MHz, 869.010–870.000 MHz

NADC Mobile

Supported All

This softkey selects Standard Mobile as the frequency band for NADC. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
Frequency: 825.030 MHz

Range *Channels: 1–799, 990–1023*
Frequency: 825.030–848.970 MHz, 824.010–825.000 MHz

Name And Store

Supported All

This softkey enables you to store and rename (if necessary) the highlighted sequence.

Negative

Supported E8257C and E8267C

This key enables you to select a negatively sloped ramp, or sawtooth, as the modulation waveform for the internally generated, ac-coupled, signal.

Noise

Supported E8257C and E8267C

Use this softkey to select noise as the modulation waveform.

The selected waveform applies to the path configuration you have selected. In the LF Out menu this softkey is available after selecting the internal source to operate as a function generator.

Noise is generated as a peak to peak value; the RMS value is about 80.0% of the displayed value.

None

Supported E8267C with Option 002/602

In the Predefined Mode Menu

In this menu, use the **None** softkey to set up **Custom** based on no particular format.

In the Security Level Menu

The **None** softkey presets the signal generator to the factory state.

Preset N/A

Range N/A

Remarks You must press **Enter Secure Mode > Confirm** to activate the None security level.

In the Window Menu

No windowing function is used for the selected filter. The filter is optimized for maximum passband performance: error vector magnitude (EVM).

Number of Bits

Supported E8267C with Option 002/602

Use this softkey to specify the number of bits that will be affected by the current operation. Press the **Enter** softkey to apply the specified value.

N

Preset 1

Number of Tones

Supported E8267C with Option 002/602

This softkey enables you to set the number of tones in the multitone table editor. This is done as part of initializing the table editor.

Preset 10

Range 2–64

NVARB Catalog Types

Supported All

This softkey accesses a menu from which you can select a non-volatile ARB waveform file type.

NVMKR

Supported All

This softkey specifies that only non-volatile ARB marker file types be listed in the catalog of files.

NVWFM

Supported All

This softkey specifies that only non-volatile ARB waveform file types be listed in the catalog of files.

Nyquist

Supported E8267C with Option 002/602

This softkey selects a Nyquist (raised cosine) pre-modulation filter from either the Select (filter) menu or the Load Default FIR menu.

In the Select (filter) Menu

In this menu, use the **Nyquist** softkey to select this FIR filter for use in a modulation setup.

In the Load Default FIR Menu

In this menu, use the **Nyquist** softkey to access a menu from which you can change the filter alpha value, specify the number of symbols, apply a windowing function, and generate a new FIR table that is loaded with the coefficients for a Nyquist filter. If you change a parameter, you can press the **Generate** softkey again to reload the FIR table.

0

Off

In the Retrigger Mode Menu

Use this softkey to disable retriggering for single trigger operation. In this state, triggers are ignored if they occur while a waveform is playing.

In the Sweep Menu

Use this softkey to turn off all sweep functions. The output signal is then set according to the current frequency and amplitude settings defined by the **Frequency** and **Amplitude** hardkeys.

In the Sweep Control Menu (Option 007)

Use this softkey to turn off master or slave mode when the PSG is being used in a dual-PSG ramp sweep setup.

In the Source 1 Menu

Supported E8267C

Use this softkey to turn off the Source 1 signal routing function. When this softkey is selected, no signals are routed to the internal I/Q modulator.

The **Source 1** selection is independent of the **I/Q Out** selection.

In the I/Q Out Menu

Supported E8267C

Use this softkey to turn off the I/Q Out signal routing function. When this softkey is selected, no signals are routed to the rear panel I and Q output connectors.

The **I/Q Out** selection is independent of the **Source 1** selection.

Offset Q Off On

Supported E8267C with Option 002/602

Press this softkey to change the operational state of the user I/Q offset Q.

Off When this softkey is set to Off, the Q output is not delayed from the I output.

On When this softkey is set to On, the Q output is delayed by 1/2 symbol from the I

output.

This setting is not affected by a preset or by a power cycle.

On

Supported E8267C with Option 002/602

Use this softkey to enable retriggering for single trigger operation. In this state, the waveform will retrigger at the end and play one more time if a trigger occurs while the waveform is playing.

Retriggers do not accumulate. If several triggers are received during a waveform, it will only be replayed only once.

Optimize FIR For EVM ACP

Supported E8267C with Option 002/602

Use this softkey to optimize the filter for minimized error vector magnitude (EVM) or for minimized adjacent channel power (ACP).

EVM The EVM selection provides the most ideal passband.

ACP The ACP selection improves stopband rejection.

This feature applies only to root Nyquist, and Nyquist filters; the softkey is grayed out when any other filter is selected.

Preset EVM

Optimize for (nnn sps) Bandwidth

Supported E8267C

Use this softkey to set the expected bandwidth of the external I/Q signal. The automatic external I/Q attenuator will use this setting to determine the proper attenuation level.

Preset 1.0 Msps

Range 1.0 kspss–100.0 Msps

Options Info

Supported All

Use this softkey to display all available options and the associated hardware. Refer to [Figure 0-5 on page 135](#).

Figure 0-5 Installed Option Information

FREQUENCY		4.000 000 000 00 GHz		AMPLITUDE		-136.00 dBm	
BLUETHH				I/Q	ERR	RF OFF	MOD OFF
Installed Options Information							
	Option Description	Version	DSP-Version				
	002 BASEBAND GENERATOR (32 MSAMPLE)	A	06.02.00				
	005 HARD DRIVE	A	-				
	400 3GPP W-CDMA FDD PERSONALITIES	-	-				
	401 CDMA2000 AND ISS9A PERSONALITIES	-	-				
	402 TDMA: GSM/EDGE/NADC/PDC/PHS/TETRA/DECT	-	-				
	403 CALIBRATED NOISE PERSONALITY	-	-				
	404 ENABLES 1XEV-DO SIGNAL STUDIO SOFTWARE	-	-				
	405 ENABLES 802.11B SIGNAL STUDIO SOFTWARE	-	-				
	406 ENABLES BLUETOOTH SIGNAL STUDIO SW	-	-				
	407 RESERVED	-	-				
							Page Up
							Page Down

Option The option number

Option An alphabetic representation of the option revision

Version

DSP Version Version number of additional DSP code used with some hardware options

OQPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting a OQPSK Modulation

Use this softkey to select offset quadrature phase shift keying (OQPSK) for modulating a continuous stream of the selected data pattern. OQPSK modulation transmits data at the rate of 2 bits per symbol.

The modulation selection appears under the **Select, QPSK and OQPSK**, and **PSK** softkeys in the Modulation Type menus.

Loading a OQPSK I/Q Map into the Table Editor

Use this softkey to load an offset quadrature phase shift keying (OQPSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Other Patterns

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can select a data pattern. Each pattern contains an equal number of ones and zeroes. The selected pattern will be repeated as necessary to fill the data area.

Output Blanking Off On Auto

Supported All

This softkey sets the state for RF Output blanking. Blanking occurs when the RF output is momentarily turned off as the sweep transitions from one frequency segment (band) to another, allowing the signal to settle. Blanking also occurs during the retrace, so the signal can settle before the next sweep. In CW mode, blanking occurs whenever you change the frequency.

Off Blanking is always disabled.

On Blanking occurs on all frequency changes, including segment transitions and retrace.

Auto The signal generator determines the blanking occurrences for optimum performance.

Preset Auto

Oversample Ratio

Supported E8267C with Option 002/602

This softkey enables you to set the oversample ratio (number of filter coefficients per symbol) to be applied to a custom FIR filter design. Acceptable values range from 1 through 32, where the maximum combination of symbols and oversample ratio is 1024 coefficients.

Generally, the higher the symbol rate, the lower the oversample ratio of the resampled filter. [Table 0-2](#) describes the signal generator's maximum oversample ratio capabilities for each real-time modulation type:

Table 0-2 Maximum Oversample Ratio Capabilities

Modulation Type	BPS	Maximum Oversample Ratio
BPSK MSK 2-LVL FSK	1	16

Table 0-2 **Maximum Oversample Ratio Capabilities**

Modulation Type	BPS	Maximum Oversample Ratio
QPSK IS95 QPSK ISAT QPSK OQPSK IS95 OQPSK	2	16
8PSK D8PSK 8-LVL FSK	3	15
16PSK 16QAM	4	16
32QAM	5	15
64QAM	6	15
256QAM	8	16

When the filter is selected for use, the signal generator may resample the filter with an oversample ratio between 2 and 16, based on the number of symbols, the symbol rate, and the number of bits per symbol of the modulation type.

This oversample ratio setting is not affected by a preset or by a power cycle.

Range 1–32

Overwrite

Supported All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files. The memory is then overwritten with random data as follows:

SRAM All addressable locations will be overwritten with random characters.

HARD DISK All addressable locations will be overwritten with random characters.

FLASH MEMORY The flash blocks will be erased.

Preset N/A

Range N/A

Key Reference

0

Remarks	You must press Enter Secure Mode > Confirm to activate the Overwrite security level.
----------------	--

P

Page Down

Supported All

This softkey enables you to move down in the display one page at a time.

Page Up

Supported All

This softkey enables you to move up in the display one page at a time.

Patt Trig In 1

Supported E8267C with Option 002/602

This softkey enables you to trigger the internal digital modulation pattern generator with a TTL/CMOS signal applied to the PATTERN TRIG IN rear panel BNC connector.

Patt Trig In 2

Supported E8267C with Option 002/602

This softkey enables you to trigger the internal digital modulation pattern generator with a signal applied to the AUXILIARY I/O rear panel D-connector. For a description of the AUXILIARY I/O rear panel D-connector, refer to the rear panel section of chapter 1 of the *User's Guide*.

Pattern Trigger

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can choose between the continuous, single or gated triggering modes. The menu also contains a **Trigger Setup** softkey that enables you to adjust the trigger source, the continuous mode, and the gate active polarity.

The pattern trigger function is not available if you use either a PN data sequence, or an external data source.

PCS Base

Supported All

Key Reference

P

This softkey selects PCS 1900 Base as the channel band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset	<i>Channel: 512</i> <i>Frequency: 1.930 GHz</i>
Range	<i>Channels: 512–810</i> <i>Frequency: 1.930–1.989 GHz</i>

PCS Mobile

Supported All

This softkey selects PCS 1900 Mobile as the channel band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset	<i>Channel: 512</i> <i>Frequency: 1.930 GHz</i>
Range	<i>Channels: 512–810</i> <i>Frequency: 1.850–1.909 GHz</i>

PDC

Supported E8267C with Option 002/602

Use this softkey to select a predefined Personal Digital Cellular (PDC) personality for the digital modulation format.

PDC Bands

Supported All

Use this softkey to access a menu from which you can select the frequency bands for PDC. The output frequency depends on both frequency band and channel selections.

P-GSM Base

Supported All

This softkey selects P-GSM 900 Base as the channel band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset	<i>Channel: 1</i> <i>Frequency: 935.2 MHz</i>
---------------	--

Range *Channel: 1–124*
 Frequency: 935.2–959.8 MHz

P-GSM Mobile

Supported All

This softkey selects P-GSM 900 Mobile as the channel band for GSM. The output frequency depends on both the channel band and channel number selections.

Preset *Channel: 1*
 Frequency: 890.2 MHz

Range *Channel: 1–124*
 Frequency: 890.2–913.8 MHz

Phase Dev

Supported E8267C with Option 002/602

Use this softkey to set the phase deviation for minimum shift keying (MSK) modulation.

The current phase deviation value appears under the **MSK** softkey in the Modulation Type menu.

Preset 90°

Range 0°-100°

Phase Polarity Normal Invert

Supported E8267C with Option 002/602

Use this softkey to invert the internal Q signal, reversing the rotation direction of the phase modulation vector.

Normal When you choose Normal, the phase relationship between the I and Q signals is not altered by the phase polarity function.

Invert When you choose Invert, the in-phase component lags the quadrature-phase component by 90° in the resulting modulation. Inverted phase polarity is required by some radio standards, and it is useful for lower sideband mixing applications. The inverted selection also applies to the I, I-bar, Q, and Q-bar output signals.

Preset Normal

Phase Ref Set

Supported All

This softkey enables you to define the current relative phase of the RF output signal as zero. Then all phase parameters are set relative to this zero reference.

PHS

Supported E8267C with Option 002/602

Use this softkey to select a predefined Personal Handy Phone System (PHS) personality for the digital modulation format.

PHS Standard

Supported All

This softkey selects a frequency band for PHS. The output frequency depends on both the frequency band and channel selection.

Preset *Channel: 1*

Frequency: 1.895 GHz

Range *Channels: 1–82, 251–255*

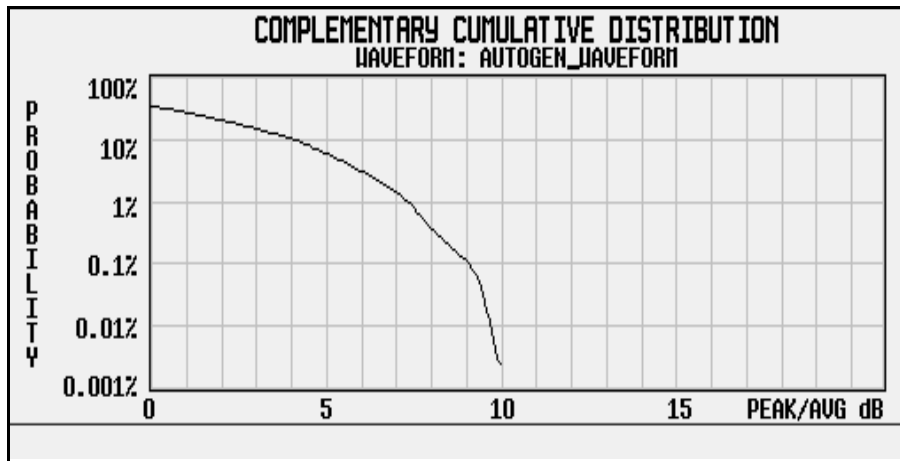
Frequency: 1.895–1.919 GHz, 1.893–1.894 GHz

Plot CCDF

Supported E8267C with Option 002/602

This softkey displays a plot of the complementary cumulative distribution function for the selected waveform. The plot displays the probability that the instantaneous envelope power is x dB above the

average power, where x is the number on the horizontal axis.



PN9

Supported E8267C with Option 002/602

This softkey selects an internally generated, ITU standard PN9 pseudorandom bit pattern.

PN9 Mode Preset Normal Quick

Supported All

This softkey selects the preset value for PN9 mode.

Normal The PN9 sequence is continuous from ONE timeslot to a matching timeslot.

Quick The PN9 sequence is reset at the beginning of each timeslot.

PN11

Supported E8267C with Option 002/602

This softkey selects an internally generated, ITU standard PN11 pseudorandom bit pattern.

PN15

Supported E8267C with Option 002/602

This softkey selects an internally generated, ITU standard PN15 pseudorandom bit pattern.

PN20

Supported E8267C with Option 002/602

This softkey selects an internally generated, ITU standard PN20 pseudorandom bit pattern.

PN23

Supported E8267C with Option 002/602

This softkey selects an internally generated, ITU standard PN23 pseudorandom bit pattern.

PN Sequence

Supported E8267C with Option 002/602

Use this softkey to access a menu of choices for pseudorandom internal data generation.

Preset PN23

Point Trigger

Supported All

Use this softkey to access a menu from which you can select a triggering mode for a point-by-point sweep. You can also configure the polarity of the TTL signal output at the TRIGGER IN connector using the **Trigger In Polarity Neg Pos** softkey in this menu. This softkey is disabled when ramp is the selected sweep type.

Preset Free Run

Positive

Supported E8257C and E8267C

This key enables you to select a positively sloped ramp as the modulation waveform for the internally generated, ac-coupled signal.

Power Meter

Supported All

Use this softkey to access a menu from which you can select the external power meter model for use during the user flatness calibration.

The power meter selection is not affected by a preset or by a power cycle.

The power meter is controlled only through a GPIB cable.

Power On Last Preset

Supported All

This softkey selects the power-on operating state for the signal generator. You can select either last or preset.

Last Each time you cycle power to the signal generator, it will turn on using the same settings as when last turned off.

Preset Each time you cycle power to the signal generator, it will turn on in either the factory-defined preset condition or in a user-defined preset condition. You make the choice between factory and user-defined preset with the **Preset Normal User** softkey.

If Last is active, the signal generator must not receive commands for at least 3 seconds before the power is turned off to guarantee that the most recent state is saved. The power-on state is not affected by a preset or by a power cycle.

Power On/Preset

Supported All

Use this softkey to access a menu of choices for power on and preset conditions. Refer to [“Power On Last Preset” on page 145](#), [“Preset Normal User” on page 147](#), and [“Save User Preset” on page 165](#).

Power Search

Supported All

This softkey enables you to select the power search mode. Power search is an internal calibration routine that improves output power accuracy when the automatic leveling control circuit (ALC) is off. A power search is recommended for pulse-modulated signals with pulse widths less than one microsecond.

If you are using external I/Q modulation, the power search routine assumes that the I/Q input level is $\sqrt{I^2 + Q^2} = 0.5 V_{\text{rms}}$. Actual output amplitude will scale directly with $\sqrt{I^2 + Q^2}$.

The power search mode softkey selections are **Manual**, **Auto** and **Span**. They are described below.

Manual The routine is not run until the **Do Power Search** softkey is pressed.

Auto The routine will run automatically with each change to the RF frequency or power, and with each change to the AM, burst, pulse, or I/Q modulation state.

Span Span mode activates the **Do Power Search** softkey and enables you to perform power searches over a selected range of frequencies. The power search

corrections are then stored and used whenever the signal generator is tuned within the selected range.

Preset	Manual
Range	N/A
Remarks	The ALC Off On softkey must be set to Off to enable the power search mode.

Power Search Reference Fixed Mod

Supported	E8267C
Use this softkey to select the reference used by the power search mode.	
Fixed	A 0.5 V reference is used in this mode.
Mod	In modulated mode, the reference is the RMS value of the current I/Q modulation.
The ALC Off On softkey must be set to Off to enable the power search mode.	
Preset	Fixed

Predefined Mode

Supported	E8267C with Option 002/602
This softkey accesses a menu of single-keypress setups for various formats. When you select a format, default values for components of the format (such as modulation type, filter, and bits per symbol) are automatically set up.	

Preset Language

Supported	All
Use this softkey to access a menu of choices for selecting the programming language that is implemented after the Preset key is pressed. You can choose between SCPI, which is the language chosen for the signal generator for remote implementation of all features, 8648-compatible, and four versions of 8656/57-compatible languages. The 8648- and 8656/67-compatible languages are provided for remote implementation of some features so that this signal generator can be compatible with systems that use those instruments. Refer to the programming guide for specifics on which commands are implemented.	
The preset language is not affected by an instrument preset or by a power cycle.	

Preset List

Supported	All
------------------	-----

This softkey enables you to delete the current sweep list and replace it with a new list consisting of one point at a default frequency, amplitude, and dwell time.

Be certain that you want to delete the current sweep list; you cannot recover the information once you press **Preset List**.

Preset Normal User

Supported All

This softkey enables you to select a factory-defined preset or user-defined preset state for the signal generator.

Normal A factory-defined preset is used if **Normal** is selected.

User A user-defined preset is used if **User** is selected.

A user-defined preset state is saved with the **Save User Preset** softkey.

Proceed With Reconfiguration

Supported All

Press this softkey to enable the selected hardware or software options. In the Hardware Options menu, selected options are indicated by an X in the column to the left of the option number. In the Software Options menu, selected options include any options that have a license key entered. After pressing this softkey, press the **Confirm Change** softkey to verify that you want to reconfigure the signal generator with the options selected. Pressing the Confirm Change softkey also reboots the signal generator. If you do not want to continue, press the **Return** key.

If you enable an option that does not have the required hardware installed, the menus for that option will be activated but the option *cannot* operate, regardless of what the menus may indicate.

PSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting a PSK Modulation

Use this softkey to display a menu of phase shift keying (PSK) modulation types to modulate a continuous stream of the selected data pattern. You can choose from QPSK and OQPSK, BPSK, $\pi/4$ DQPSK, 8PSK, 16PSK, D8PSK and EDGE.

Loading a PSK I/Q Map into the I/Q Table Editor

Use this softkey to display a menu of phase shift keying (PSK) modulation types that you can load into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Pulse

Supported E8257C and E8267C

Use this hardkey to access a menu of choices that enables you to configure the pulse modulation.

Pulse Delay

Supported E8257C and E8267C

This softkey enables you to change the pulse delay of the internally generated pulse modulation source.

The pulse delay applies only to internal pulse modulation; when external pulse modulation or internal square pulse modulation is selected, this key is disabled.

Preset 0.0 s

Range Depends on pulse period and pulse width settings.

Pulse Off On

Supported E8257C and E8267C

This softkey toggles the operating state for the currently selected pulse modulation source.

When pulse modulation is on, the PULSE annunciator is shown in the display.

The RF carrier is modulated by the enabled modulation only when you have also set **Mod On/Off** to On.

Preset Off

Pulse Period

Supported E8257C and E8267C

This softkey enables you to change the pulse period for internally generated pulse modulation.

If the value for pulse period is less than the value for pulse width, pulse width is changed to be 20 μ s less than pulse period.

The pulse period applies only to internal free-run and gated pulse modulation.

Preset 2.0 μ s

Range 70.0 ns–42.0 s

Pulse Rate

Supported E8257C and E8267C

This softkey enables you to change the pulse rate for the internal square pulse modulation.

The new value of pulse rate applies only to internal square pulse modulation; when external pulse modulation or internal pulse modulation is selected, this key is disabled.

Preset 400.0 Hz

Range 100.0 mHz–10.0 MHz

Pulse Source

Supported E8257C and E8267C

Use this softkey to access a menu of choices that enables you to select the pulse source for modulation inputs.

The RF carrier is modulated by the enabled modulation only when you have also set **Mod On/Off** to On.

Preset Internal Pulse

Pulse Width

Supported E8257C and E8267C

This softkey enables you to change the pulse width for internally generated pulse modulation source.

If the value for pulse period is less than the value for pulse width, pulse width is changed to be 20 ns less than pulse period.

The pulse width applies only to internal pulse modulation; when external pulse modulation or internal square pulse modulation is selected, this key is disabled.

NOTE A power search is recommended for signals with pulse widths less than one microsecond. Refer to [“Power Search” on page 145](#).

Preset 1.0 μ s

Range 10.0 ns–41.99999998 s

PWT

Supported E8267C with Option 002/602

This softkey selects a predefined personal wireless telephone (PWT) personality for the digital modulation format. The PWT standard is an adaptation of the DECT air-interface with a $\pi/4$ DQPSK modulation to reduce radio channel bandwidth.

Q

QAM

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load a default I/Q map into the I/Q table editor.

Selecting a QAM Modulation

Use this softkey to display a menu of quadrature amplitude modulation (QAM) types to modulate a continuous stream of the selected data pattern. You can choose from 4QAM, 16QAM, 32QAM, 64QAM, and 256QAM.

The modulation selection appears under the **Select** and **QAM** softkeys in the Modulation Type menus.

Loading a QAM I/Q Map into the I/Q Table Editor

Use this softkey to display a menu of quadrature amplitude modulation (QAM) types that you can load into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Q Offset

Supported E8267C

This softkey adjusts the level of the quadrature-phase signal. This key appears as a percentage of full scale for standard I/Q and as an offset voltage for wideband I/Q.

For Standard I/Q

Use this softkey to enter an origin offset for standard quadrature-phase signals. 100% offset is equivalent to 500 mV DC at the input connector. This offset is used to remove imperfections in the quadrature-phase signal or to introduce calibrated impairments.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

When using this key to minimize the LO feedthrough signal, optimum performance is achieved when the adjustment is made after all other I/Q path adjustments, such as those made with the **Int Phase Polarity Normal Invert** or **Modulator Atten nnn db Manual Auto** softkeys. If other adjustments are made after minimization is performed, the LO feedthrough signal may increase.

Preset 0.0%

Range -50% to 50%

For Wideband I/Q (Option 015)

Use this softkey to enter an origin offset for quadrature-phase signals in wideband I/Q mode. This offset is used to remove imperfections in the quadrature-phase signal or to introduce calibrated impairments.

The **I/Q Adjustments Off On** softkey must be set to On to enable this adjustment.

Preset 0.0000 V

Range -1.0000 V to 1.0000 V

QPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load an I/Q map into the I/Q table editor.

Selecting a QPSK Modulation

Use this softkey to select quadrature phase shift keying (QPSK) to modulate a continuous stream of the selected data pattern. QPSK modulation transmits data at the rate of 2 bits per symbol.

The modulation selection appears under the **Select, QPSK and OQPSK**, and **PSK** softkeys in the Modulation Type menus.

Loading a QPSK I/Q Map into the Table Editor

Use this softkey to load a quadrature phase shift keying (QPSK) I/Q map into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

QPSK and OQPSK

Supported E8267C with Option 002/602

This softkey appears in two different situations, enabling you to either select a modulation, or load a default I/Q map into the I/Q table editor.

Selecting a QPSK and OQPSK Modulation

Use this softkey to access a menu of quadrature phase shift keying (QPSK) and offset quadrature phase shift keying (OQPSK) modulation types to modulate a continuous stream of the selected data pattern. QPSK and OQPSK modulations transmit data at the rate of 2 bits per symbol. You can choose from QPSK, IS95 QPSK, Gray Coded QPSK, OQPSK, and IS95 OQPSK.

Loading a QPSK and OQPSK I/Q Map into the Table Editor

Use this softkey to access a menu of quadrature phase shift keying (QPSK) and offset quadrature phase shift keying (OQPSK) modulation types that you can load into the I/Q table editor. For more information on mapping symbol positions with the I/Q table editor, see the *User's Guide*.

Quadrature Skew

Supported E8267C

Use this softkey to adjust the phase angle between the I and Q vectors. When the quadrature skew is zero, the phase angle is 90 degrees. Positive skew increases the angle from 90 degrees while negative skew decreases the angle from 90 degrees.

Preset 0.0 degrees

Range ± 10 degrees, minimum increment of 0.01 degrees

R

Ramp

In the Sweep Type Menu

Supported All with Option 007

Use this softkey to select ramp as the sweep type.

In All Other Menus

Supported E8257C and E8267C

Use this softkey to access a menu from which you can select ramp as the modulating waveform with either a positive or negative slope.

In the LF Out menu this key is available after selecting the internal source to operate as a function generator.

Random Seed Fixed Random

Supported E8267C with Option 002/602

This softkey sets the mode of the random seed for the randomly generated phases of the multitone table editor tones. This is done as part of initializing the multitone table editor.

Fixed When you select Fixed, the same random phases will be generated after each initialization.

Random When you select Random, new phases will be generated after each initialization.

Use this softkey when the **Initialize Phase Fixed Random** softkey is set to the Random selection.

Preset Fixed

Real Time I/Q Baseband

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can build customized unframed data formats using the real time I/Q baseband generator.

Recall

Supported All

Use this hardkey to access a menu of softkeys that enables you to select or delete registers and sequences.

Preset RECALL Reg

Recall Ref Osc Setting

Supported All

Use this softkey to recall the last saved reference oscillator coarse and fine adjustment setting.

This adjustment is intended for use by service personnel. Refer to the calibration guide for more information.

RECALL Reg

Supported All

Use this softkey to recall an instrument state from a saved register. Recalling a register also selects that register number for all keys which specify a register number in this menu. You can also use the front panel knob and the up and down arrow keys to scroll through all saved registers for the selected sequence.

Rectangle

Supported E8267C with Option 002/602

Use this softkey to select a, rectangular pre-modulation filter from either the Select menu or the Load Default FIR menu.

In the Select (filter) Menu

In this menu, pressing the **Rectangle** softkey selects this FIR filter for use in a modulation setup.

In the Load Default FIR Menu

In this menu, use the **Rectangle** softkey to access a menu from which you can specify the number of symbols, apply a windowing function, and generate a new FIR table that is loaded with the coefficients for a rectangular filter. If you change a parameter, you can press the **Generate** softkey again to reload the FIR table.

Ref Osc Coarse

Supported All

This softkey is provided for adjusting the internal reference oscillator. Refer to the calibration guide for more information.

This adjustment is intended for use by service personnel.

Ref Osc Fine

Supported All

This softkey is provided for adjusting the internal reference oscillator. Refer to the calibration guide for more information.

This adjustment is intended for use by service personnel.

Ref Oscillator Source Auto Off On

Supported All

This softkey switches off and on the signal generator's capability of automatically selecting between the internal reference oscillator and an external reference oscillator.

Off The signal generator uses the internal reference only, even if an external reference is connected.

On The signal generator detects when a valid reference signal is present at the 10 MHz IN connector and automatically switches from internal to external reference operation.

Preset On

Reference Freq

Supported E8267C with Option 002/602

This softkey enables you to set the reference frequency of the external clock.

This softkey is only available when you are using an external ARB reference applied to the BASEBAND GEN REF IN connector.

Preset 10.0000000 MHz

Range 250.0000 kHz–100.0000000 MHz

Reference Oscillator Adjustment

Supported All

Use this softkey to access a menu of keys that are provided for adjusting the internal reference oscillator.

This adjustment is intended for use by service personnel. Refer to the calibration guide for more information.

Remote Language

Supported All

Pressing this softkey reveals a menu of choices for the signal generator's remote language. The language selected will be implemented immediately without presetting the signal generator. Instrument specific languages such as 8657D NADC are available for compatibility with the signal generator. The SCPI language implements all of the signal generator's functions.

Numerous instrument compatible languages are available for use by the signal generator. Refer to the programming guide for specifics on commands and information on programming languages.

Rename

Supported E8267C with Option 002/602

Use this softkey to rename the current bit file.

Rename File

Supported All

This softkey enables you to rename the highlighted file in the displayed catalog of files. When you have entered the new file name, press the **Enter** terminator softkey. If you have changed your mind, press the **Return** hardkey. Once you press **Enter**, the new file is stored and displayed immediately in the catalog list.

Rename Segment

Supported E8267C with Option 002/602

This softkey enables you to rename the selected waveform segment in the displayed catalog.

Re-**SAVE Seq[n] Reg[nn]**

Supported All

This softkey enables you to save the current instrument state in the specified register within the specified sequence. If data has already been stored in this location, it will be overwritten. The instrument state includes all of your setup selections except list sweep data and functions that do not change by the preset function or by a power cycle.

The **SAVE Seq[n] Reg[nn]** softkey changes to **Re-**SAVE Seq[n] Reg[nn]**** when an instrument state has been saved or selected.

Reset & Run

Supported E8267C with Option 002/602

Use this softkey to select the Reset & Run mode for continuous triggering. When this mode is selected, the waveform generator plays a sequence or frame continuously upon triggering. The waveform generator responds to subsequent triggers by immediately restarting the sequence.

Reset RS-232

Supported All

Use this softkey to clear the RS-232 read/write buffer. Any unprocessed data is cleared and the buffer is readied for sending and receiving data over the RS-232 interface.

All other RS-232 communication parameters are unaffected.

Restore Default Burst Shape

Supported E8267C with Option 002/602

Use this softkey to reset the burst shape parameters to their preset values.

Restore Default Filter

Supported E8267C with Option 002/602

Use this softkey to replace the current FIR filter with the default filter for the selected format.

Preset Root Nyquist $\alpha = 0.350$

Restore Default Modulation Type

Supported E8267C with Option 002/602

Use this softkey to restore the default modulation type for the current real time custom digital modulation setup.

Restore Default Signal Polarities

Supported All

This softkey is used to restore the signal generator's default signal polarities.

Restore Default Symbol Rate

Supported E8267C with Option 002/602

Use this softkey to replace the current symbol rate with the default symbol rate for the selected format.

Preset 24.300000 ksp/s

Restore Factory Defaults

Supported All with Option UNR

This softkey re-sets the bandwidth of the reference oscillator to the factory-defined default state. The default value for the internal reference bandwidth is 125 Hz. The default value for the external reference bandwidth is 25 Hz.

Restore Sys Defaults

Supported All

This softkey is used to restore the signal generator's system defaults.

Retrigger Mode

Supported E8267C with Option 002/602

Use this softkey to access a menu for operating the retrigger mode of single trigger operation. The retrigger mode enables the user to choose between normal single triggering (Off), retriggering after the completion of the current sequence (On), or immediately resetting a sequence and running from the start (Immediate).

The retriggers do not accumulate. If several triggers are received during a waveform, it will only be replayed once.

Preset On

Revert to Default Cal Settings

Supported E8267C

Use this softkey to restore the original factory calibration data for the internal I/Q modulator.

RF During Power Search

Supported All

This softkey enables you to select between **Normal** and **Minimum** power search modes.

Normal When set to **Normal**, a power search is performed without setting the internal step attenuator to its maximum setting.

Minimum When set to **Minimum**, the internal step attenuator is set to its maximum setting

during power search to protect sensitive circuits.

Preset	Normal
Range	N/A

R-GSM Base

Supported	All
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This softkey selects R-GSM 900 Base as the channel band for GSM. The output frequency depends on both the frequency band and channel selection.

Preset	<i>Channel: 1</i> <i>Frequency: 935.200 MHz</i>
Range	<i>Channels: 0–124, 975–1023</i> <i>Frequency: 935.000–959.800 MHz, 921.200–934.800 MHz</i>

R-GSM Mobile

This softkey selects R-GSM 900 Mobile as the channel band for GSM. The output frequency depends on both the frequency band and channel selection.

Supported	All
Preset	<i>Channel: 1</i> <i>Frequency: 890.200 MHz</i>
Range	<i>Channels: 0–124, 975–1023</i> <i>Frequency: 890.000–914.800 MHz, 876.200–889.800 MHz</i>

Rise Delay

Supported	E8267C with Option 002/602
	Press this softkey to adjust the burst shape rise delay.
Preset	0.000 bits
Range	Minimum and maximum values depend on modulation type and symbol rate.

Rise Time

Supported	E8267C with Option 002/602
	Press this softkey to adjust the burst shape rise time.

Preset:	5.000 bits
Range	Minimum and maximum values depend on modulation type and symbol rate.

Root Nyquist

Supported E8267C with Option 002/602

This softkey selects a root Nyquist (root-raised cosine) pre-modulation filter from either the Select menu or the Load Default FIR menu.

In the Select (filter) Menu

In this menu, use the **Root Nyquist** softkey to select this FIR filter for use in a custom modulation setup.

In the Load Default FIR Menu

In this menu, use the **Root Nyquist** softkey to access a menu from which you can change the filter alpha value, specify the number of symbols, apply a windowing function, and generate a new FIR table that is loaded with the coefficients for a root Nyquist filter. If you change a parameter, you can press the **Generate** softkey again to reload the FIR table.

RS-232 Baud Rate

Supported All

Use this softkey to access a menu of choices enabling you to set the baud rate for data communication over the RS-232 interface.

The baud rate is not affected by a preset or by a power cycle.

Range 300 – 57600 baud

RS-232 Echo Off On

Supported All

This softkey selects the operating state of the RS-232 echo function.

On When set to on, every character sent to the signal generator is echoed to the controller display.

Off When set to off, characters sent to the signal generator are not echoed to the controller display.

The echo state is not affected by a preset or by a power cycle.

RS-232 Setup

Supported All

Use this softkey to access a menu of choices enabling you to configure communication protocol over the RS-232 interface.

RS-232 Timeout

Supported All

This softkey enables you to set the RS-232 interface timeout period. If further input is not received within the assigned timeout period while a SCPI command is being processed, then the command is aborted and the RS-232 input buffer is cleared.

The timeout period value is not affected by a preset or by a power cycle.

Run Complete Self Test

Supported All

Use this softkey to run an automated, internal diagnostic test that checks for detectable hardware failures. If there are hardware failures in the signal generator, refer to the troubleshooting section of the service guide.

This key is included for use by service personnel.

Run Highlighted Tests

Supported All

This softkey is provided for self-test diagnostics. If any tests fail then refer to the troubleshooting section of the service guide.

This key is included for use by service personnel.

Run Selected Tests

Supported All

This softkey is provided for self-test diagnostics. If any tests fail then refer to the troubleshooting section of the service guide.

This key is included for use by service personnel.



S



Sanitize

Supported All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files. The memory is then overwritten with a sequence of data as follows:

SRAM All addressable locations will be overwritten with random characters.

HARD DISK All addressable locations will be overwritten with a single character and then a random character.

FLASH MEMORY The flash blocks will be erased.

Preset N/A

Range N/A

Remarks You must press **Enter Secure Mode > Confirm** to activate the Sanitize security level.

Save

Supported All

Use this hardkey to access a menu from which you can select, delete, and re-save registers (instrument states) and sequences (groups of registers). The menu shows the registers in use and any comments associated with the registers for the last sequence accessed. The menu is updated whenever you make any changes to the registers or to the comments.

Up to 100 storage registers and 10 register sequences are available, depending on the number and size of files.

Save Reg

Supported All

Use this softkey to save the current instrument state in the specified register.

SAVE Seq[*n*] Reg[*nn*]

Supported All

This softkey enables you to save the current instrument state in the specified register within the specified sequence. The instrument state includes all of your setup selections except list sweep data and functions that do not change by the preset function or by a power cycle.

Do not press this key until you have specified the correct sequence and register using the **Select Seq** and **Select Reg** softkey.

The **SAVE Seq[n] Reg[nn]** softkey changes to **Re-SAVE Seq[n] Reg[nn]** when an instrument state has been saved or selected.

Save Setup to Header

Supported E8267C with Option 002/602

This softkey enables you to save the header information displayed in the `Current Inst. Settings` field of the table editor to a header file for the modulation format currently being used. Once this softkey is pressed, the instrument settings of the `Current Inst. Settings` field will be displayed in the `Saved Header Settings` field.

For this softkey to be active, the modulation format must be enabled and the file being displayed must be the active file.

Save User Preset

Supported All

Use this softkey to establish a user-defined preset state. Set up the signal generator for conditions that you want to use for your unique preset state. Once defined, press the **Save User Preset** softkey to save the state. Only one user-defined preset state is allowed, any previously-saved state will be over-written. Press the **Preset Normal User** softkey to select **User**, and your instrument state will be recalled by the signal generator any time you press **Preset**. Refer to [“Preset Normal User” on page 147](#) for more information.

The user’s state definition is a state file; it is not affected by an instrument preset or by a power cycle.

Scalar

Supported All

This softkey enables you to internally generate a 27 kHz square pulse, which is needed for a scalar network analyzer sweep setup.

Scale Waveform Data

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to scale the waveform data. To enable scaling of non-volatile waveform (NVWFM) memory, move the waveform to WFM1 memory first. This can be done by selecting the waveform in NVWFM memory, the **Load Store** softkey must be set to Load, and selecting Load Segment from NVWFM memory. Then toggle the **Load Store** softkey to Store. This activates the **Waveform Utilities** softkey from which you can select the **Scale Waveform Data** softkey.

As the waveform is scaled down, it can lose bits of resolution. Once a bit of resolution is lost, it can not be regained by increasing the scaling value of the waveform.

Scaling

Supported E8267C with Option 002/602

This softkey enables you to change the scaling percentage of the selected waveform segment. You can set the scaling percentage to a resolution of 0.01% within the specified range. After entering the desired scaling percentage, terminate the entry with the % softkey.

Preset 100.00%

Range: 1.00%–100.00%

SCPI

Supported All

This softkey is available in the Preset Language menu and the Remote Language menu. All signal generator features can be accessed using SCPI (Standard Commands for Programmable Instruments). Choosing **SCPI** in the Preset Language menu allows you to select this remote language as the default after a normal preset. Choosing **SCPI** in the Remote Language menu allows you to immediately use this language to control the signal generator.

Screen Saver Delay:

Supported All

This softkey enables you to set a time interval before the screen saver is activated. This event, activating the screen saver, occurs after the specified time interval if there is no input from the front panel.

The screen saver delay state is not affected by a preset or by a power cycle.

Range 1–12 hours

Screen Saver Mode

Supported All

This softkey selects **Light Only** or **Light & Text** for the screen saver. When you set the screen saver to Light Only, the display light is turned off after screen saver delay time has expired. When you set the screen saver to Light & Text, the display light and the text are turned off.

The screen saver mode is not affected by a preset or by a power cycle.

If you are leaving the display unchanged for long periods of time, set the mode to light & text; this

prevents text burn-in on the display.

Screen Saver Off On

Supported All

This softkey selects the screen saver mode.

Off With the screen saver off, the display remains on indefinitely.

On With the screen saver on, the display is turned off after a specified time interval when no input from the front panel has occurred. The display will turn back on when any front panel signal generator key is pressed

The screen saver mode is not affected by a preset or by a power cycle.

Security Level

Supported All

This softkey selects the secure mode and enables you to select a level of security. The **Enter Secure Mode** softkey must be selected and set to **Confirm** to activate the selected security level. Power must be cycled to perform the selected cleaning operation. Selecting **None** will preset the signal generator to the factory state. For other cleaning operation descriptions, see **Erase**, **Overwrite**, and **Sanitize**.

Preset None

Range N/A

Remarks You must press **Enter Secure Mode > Confirm** to activate the selected security level.

Seed

Supported E8267C with Option 002/602

Use this softkey to enter the initial value of the pseudorandom bit sequence.

Seg Advance Mode

Supported E8267C with Option 002/602

This softkey accesses a menu of choices for segment advance as the dual arbitrary waveform (ARB) generator trigger type.

Segment Advance

Supported E8267C with Option 002/602

This softkey selects segment advance as the dual arbitrary waveform (dual ARB) generator trigger

type. After receiving a trigger, while operating with a waveform sequence, the sequencer will play the next segment in the sequence.

Select

Supported E8267C with Option 002/602

There are two softkeys named Select, one in the Filter menu and one in the Modulation type menu. In the Filter menu, you can select a pre-modulation filter type; in the Modulation type menu, you can select a modulation.

Selecting a Filter

In the Filter menu, use this softkey to access a menu for selecting the pre-modulation filter type. You can choose from Root Nyquist, Nyquist, Gaussian, Rectangle, APCO 25 C4FM, and UN3/4 GSM Gaussian (for backward compatibility with previous models of ESG). In addition to the pre-defined filters, you can access the catalog of files stored in the signal generator memory. You can select any filter that you have either created externally and downloaded into memory, or that you have created internally in the Define User FIR menu and then subsequently stored.

The selected filter type is displayed under the **Select** softkey.

Preset Root Nyquist

Selecting a Modulation

In the Modulation Type menu, use this softkey to access a menu for defining the modulation types. In addition to the pre-defined modulations, you can access a catalog of FSK or I/Q files stored in the signal generator memory, where you can select a modulation that you have created and stored in either the Define User FSK or Define User I/Q menu.

The selected modulation type is displayed under the **Select** softkey.

Preset p/4 DQPSK

Select/Deselect All

Supported All

This softkey is provided for self-test diagnostics. Refer to the troubleshooting section of the service guide.

This key is intended for use by service personnel.

Select/Deselect Test

Supported All

This softkey is provided for self-test diagnostics. Refer to the troubleshooting section of the service guide.

This key is intended for use by service personnel.

Select File

Supported E8267C with Option 002/602

Use this softkey to select a file in the displayed catalog of files. If you select a custom file as a data pattern for modulated transmissions, `UserFile` appears in the `Data` field of the text display. If you select a custom file as the modulation type, `UserFile` appears in the `Mod Type` field of the text display.

Select File is located in each of the catalogs of files.

Select Reg

Supported All

Use this softkey to select a specific register to be highlighted in the list of saved states.

If you use the front panel knob, each state is automatically activated as you pass over it.

Select Reg:

Supported All

This softkey enables you to select a register for all softkeys that specify a register in this menu. For example, if you want to select register 5, press **Select Reg**. The currently selected register is displayed in the active entry area. Change the number to 5 and press the **Select Reg** terminator softkey. Register 5 is now displayed in all softkeys which specify a register in this menu.

You can also use this softkey to select a register and save the current instrument state to that register. For example, if you want to select and save to register 6, press **Select Reg**. The currently selected register is displayed in the active entry area. Change the number to 6 and press the **Save Reg** terminator softkey. Register 6 is now displayed in all softkeys which specify a register in this menu and the current instrument state has been saved to register 6.

This setting is not affected by a preset or by a power cycle.

Range 00–99

Select Seq:

Supported All

This softkey enables you to select a sequence for all softkeys which specify a sequence in this menu.

S

For example, if you want to select sequence 4, press **Select Seq:**. The currently selected sequence is displayed in the active entry area. Change the number to 4 and press the **Enter** terminator softkey. Sequence 4 is now displayed in all softkeys that specify a sequence in this menu.

This setting is not affected by a preset or by a power cycle.

Range 0–9

Select Waveform

Supported E8267C with Option 002/602

This softkey enables you to select the type of signal for the dual arbitrary waveform (Dual ARB) to generate.

If there are no waveforms or sequences, this softkey selects None.

Self Test

Supported All

This softkey accesses an automatic, internal diagnostic test that checks for detectable hardware failures. If there are hardware failures in the signal generator, refer to the troubleshooting section of the service guide.

This key is intended for use by service personnel.

Seq

Supported All

Press this softkey to set the current catalog type to Seq and display the catalog of sequence files.

This key is intended for use by service personnel.

Set ALC Level

Supported All

This softkey enables you to change the ALC level. The output power is the ALC level minus the attenuator setting.

This key is active only when you have toggled the **Atten Hold Off On** key to On.

Preset –20.00 dBm

Range –20.00 dBm to 25.00 dBm

Set Atten

Supported All

This softkey enables you to set the attenuation level when the attenuator hold is active. For the E8267C, the attenuation is set in increments of 5 dB. For the E8247C and E8257C with Option 1E1, the progression is 0, 5, 15, 25 and continues in 10 dB increments. The output power is the ALC level minus the attenuator setting.

This key is active only when you have toggled the **Atten Hold Off On** key to On.

Preset 115.00 dB

Range 0.00 dB–115.00 dB

Set Date

Supported All

This softkey is used to set the date of the display clock. Enter the date in the year-month-day (YYYYMMDD) format and terminate the entry by pressing the **Enter** softkey.

Set Marker Off All Points

Supported E8267C with Option 002/602

This softkey enables you to clear the active marker from all waveform points.

This softkey is not available unless a waveform segment is selected.

Set Marker Off Range Of Points

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to clear the active marker over a range of points on the selected waveform.

This softkey is not available unless a waveform segment is selected.

Set Marker On First Point

Supported E8267C with Option 002/602

This softkey turns on the active marker on the first point of the selected waveform.

This softkey is not available unless a waveform segment is selected.

Set Marker On Range Of Points

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to set the active marker over a range of points on the selected waveform.

This softkey is not available unless a waveform segment is selected.

Set Markers

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to set waveform markers on a selected waveform in arbitrary waveform (ARB) memory. To set markers in non-volatile arbitrary waveform (NVARB) memory, move the waveform to ARB memory first. This can be done by selecting the waveform in NVARB memory and setting the **Load Store** softkey to Store. This activates the **Set Markers** softkey.

Set Time

Supported All

This softkey is used to set the time of the display clock in the 24 hour format. Enter the hour values (00–23), minute and seconds values (00–59), and terminate the entry by pressing the **Enter** softkey.

Setup Select

Supported E8267C with Option 002/602

Use this softkey to access a menu for defining the type of custom digital modulation setup required for your application.

Preset NADC

Shape

Supported E8267C with Option 002/602

This softkey enables you to specify that only signal generator shape files be listed in the catalog of files.

Show Waveform Sequence Contents

Supported E8267C with Option 002/602

This softkey displays the contents of the selected waveform sequence in a table format. The content information displayed is a list of the waveforms and corresponding repetitions for that sequence.

This softkey is only active when a sequence is highlighted.

Signal Polarity Setup

Supported E8267C with Option 002/602

This softkey accesses a menu of external signals and choices for selecting the polarity of those signals.

Sine

Supported E8257C and E8267C

This softkey appears in two different situations, enabling you to either select a sine burst shape, or specify sine as a modulation waveform.

Selecting Sine as a Burst Shape

Use this softkey to specify sine for the timeslot burst shape. Sine, as it is modified by the default burst rise and fall values, is the default burst shape.

Specifying Sine as a Modulation Waveform

This softkey enables you to specify sine as the modulation waveform for the internally generated, ac-coupled signal.

The selected waveform applies only to the path configuration you have currently selected.

Single

Supported E8267C with Option 002/602

In the Trigger Menu

This softkey sets the trigger type to single. After receiving a trigger, the waveform will play once and then wait for another signal from the selected trigger source before playing again.

In the Seg Advance Mode Menu

This softkey sets the segment advance mode to single. After receiving a trigger, the next segment is played once. Triggers received during play are ignored.

This segment advance selection becomes active only when the trigger type is set to Segment Advance.

Single Sweep

Supported All

Use this softkey to arm the sweep. The signal generator will begin the sweep as soon as the sweep

trigger is received. The sweep sets the power and the frequency to the first point of the sweep while it is not initiated or is waiting for the sweep trigger. If you have set the sweep trigger to **Free Run**, a sweep is initiated as soon as you arm the sweep.

The ARMED annunciator will turn on in the display, unless the sweep trigger is set to **Free Run**.

This key is disabled when **Sweep** is set to Off.

Slave

Supported All with Option 007

Use this softkey to select this instrument as the slave in a dual-PSG ramp sweep setup. In slave mode, this instrument submits to the triggering parameters provided by the master PSG in a dual-PSG ramp sweep setup. However, you must set the slave PSG triggering to continuous.

Software Options

Supported All

This softkey accesses a menu from which you can configure your signal generator to enable any software option that you have purchased. Software options are linked to specific optional hardware that must first be installed before the software option can be used. Adding new software options requires the use of a license key that is provided by Agilent Technologies at the time of purchase.

Do not modify the license key for enabled software options: you will disable the option.

NOTE If a previously installed software option becomes disabled, verify the following:

- the optional hardware is present/installed.
- the hardware option is enabled.
- the software option is enabled with the correct license key.

Refer to your License Key Certificate for the correct license key or, if the option was installed by Agilent Technologies, contact your local service office and tell them the instrument's model number, the host ID number, and the software option that should be enabled

Source Module

Supported All

Use this softkey to use an external source module for leveling control.

Source Module Off On

Supported All

Use this softkey to toggle the state of the external source module. Turning the source module on also selects **Source Module** as the leveling mode.

Preset Off

Span Type User Full

Supported All

This softkey enables you to select the frequency range for a span power search. You can specify the range by selecting **User**, or you can select the full range of the signal generator by selecting **Full**.

Preset N/A

Range N/A

Square

Supported E8257C and E8267C

This softkey enables you specify a square wave as the modulating waveform.

In the LF Out menu this softkey is available after selecting the internal source to operate as a function generator. The modulation applies only to the path configuration you have selected.

Start Frequency

In the I/Q Calibration Menu:

Supported All

Use this softkey to set the start frequency for an I/Q calibration.

You can select a portion of the frequency range for an I/Q calibration by setting the **Calibration Type User Full** softkey to User and entering new start and stop frequencies. This softkey is automatically set to the minimum specified frequency of the signal generator if you have set the **Calibration Type User Full** softkey to Full. If you toggle back to User from the Full setting, the User value for **Start Frequency** will be restored.

Preset N/A

Range 100 kHz-stop frequency setting (up to maximum frequency of instrument)

Remarks This softkey is grayed out (not editable) until the calibration type is set to User.
The **Start Frequency** setting is not affected by an instrument preset or by a power

cycle.

In the Power Search Menu:

Supported All

This softkey sets the start frequency for a span power search over a user specified range.

Preset N/A

Range N/A

Step

Supported All with Option 007

Use this softkey to select Step as the sweep type.

Step Dwell

Supported All

This softkey enables you to set the dwell time for each point of a step sweep. The dwell time is the amount of time the sweep is guaranteed to pause after setting the frequency and power for the current sweep/list point.

Dwell time is used when the point trigger is set to **Free Run**.

Preset 2.0 ms

Range 1.0 ms–60.0 s (in 1.0 ms increments)

Step/Knob Ratio

Supported All

This softkey enables you to set the ratio between the increment value of the step keys and the front panel knob. For example, if you set the increment value for frequency to 1.0 MHz and set the step/knob ratio to 10/1, when frequency is the active function the up and down arrow keys will change the frequency in 1.0 MHz steps and the front panel knob will change the frequency in 1/10th of 1.0 MHz steps.

When you press **Step/Knob Ratio** the number displayed in the active entry area represents the arrow keys step size in the ratio. To enter a new value, rotate the front panel knob until the desired value is displayed, use the up and down arrow keys, or enter the value using the numeric keypad and press the **Enter** terminator key.

This ratio applies only when you have a function active that has an associated increment value. The step/knob ratio is not affected by a preset or by a power cycle.

Range 1–10,000

Stop Frequency

In the I/Q Calibration Menu:

Supported All

Use this softkey to set the stop frequency for an I/Q calibration.

You can select a portion of the frequency range for an I/Q calibration by setting the **Calibration Type User Full** softkey to User and entering new start and stop frequencies. This softkey is automatically set to the maximum specified frequency of the signal generator if you have set the **Calibration Type User Full** softkey to Full. If you toggle back to User from the Full setting, the User value for **Stop Frequency** will be restored.

Preset N/A

Range Current start frequency setting-maximum frequency of instrument

Remarks This softkey is grayed out (not editable) until the calibration type is set to User.
The **Stop Frequency** setting is not affected by an instrument preset or by a power cycle.

In the Power Search Menu:

Supported All

This softkey sets the stop frequency for a span power search over a user specified range.

Preset N/A

Range N/A

Store All To NVWFM Memory

Supported E8267C with Option 002/602

This softkey enables you to store all of the files from arbitrary waveform (WFM1) memory to non-volatile arbitrary waveform (NVWFM) memory.

Store Custom Dig Mod State

Supported E8267C with Option 002/602

This softkey accesses a menu that enables you to store the current custom digital modulation state into a user-defined file. Afterward, you can recall this custom state from the signal generator's memory using the **Custom Digital Mod State** softkey.

This softkey stores the following signal generator state information to the memory catalog:

- filter information
- symbol rate
- modulation type
- FSK deviation

This softkey is only available when **Multicarrier Off On** is toggled to Off.

Store Ref Osc Setting

Supported All

This softkey enables you to store the current coarse and fine reference oscillator adjustment settings. Refer to the calibration guide for more information.

This adjustment is intended for use by service personnel.

Store Segment To NVWFM Memory

Supported E8267C with Option 002/602

This softkey enables you to store the selected file from arbitrary waveform (WFM1) memory to non-volatile arbitrary waveform (NVWFM) memory.

Store To File

Supported All

Use this softkey to store the current data to a file in the internal non-volatile memory for later recall and use.

The file name can consist of up to 23 alpha-numeric and special characters.

Subnet Mask

Supported All

This softkey is used to configure the LAN subnet mask.

Your IT service can define up a subnet mask for the signal generator.

Sweep

Supported All

This softkey accesses a menu that enables you to configure the sweep parameters. In this menu you can choose to sweep frequency only, amplitude only, or both frequency and amplitude. You can also choose to turn off all sweep functions.

Preset Off

Sweep Control

Supported All with Option 007

This softkey accesses a menu that enables you to designate whether the PSG is performing as the master or the slave in a dual-PSG ramp sweep setup.

Preset Off

Sweep Direction Down Up

Supported All

This softkey enables you to change the direction of a list or step sweep. This softkey is disabled when ramp is the selected sweep type.

Down Choose Down to sweep from the last point in the list sweep to the first point, or from the step sweep stop frequency and amplitude to the start frequency and amplitude.

Up Choose Up to sweep from the first point in the list sweep to the last point, or from the step sweep start frequency and amplitude to the stop frequency and amplitude.

Preset Up

Sweep/List

Supported All

Use this hardkey to access a menu of softkeys that enable you to configure step, list, and ramp (Option 007) sweeps.

Sweep Repeat Single Cont

Supported All

This softkey toggles the sweep repetition between single sweep and continuous sweep types. The sweep and point triggers will then trigger the sweep.

Single Choose Single to configure the instrument to perform a single sweep upon triggering.

Cont Choose Cont to configure the instrument to perform a continuous sweep loop upon triggering.

Preset Cont

Sweep Time Manual Auto

Supported All with Option 007

Use this softkey to set the sweep time mode for a ramp sweep.

The sweep time is the duration of the sweep from the start frequency to the stop frequency. It does not include the bandcross time that occurs during a sweep or the retrace time that occurs between sweep repetitions.

Manual This choice enables you to manually set the sweep time for a ramp sweep. The sweep time cannot be set to a value faster than what the automatic mode provides.

Auto This choice enables the signal generator to automatically calculate and set the fastest allowable sweep time.

Preset Auto

Range 13 ms–99 s

Sweep Trigger

Supported All

Use this softkey to access a menu from which you can select a triggering mode for a sweep. You can choose triggering that, once a sweep is armed, occurs immediately, is supplied by the GPIB or LAN, occurs on either the positive or negative edge of a signal supplied to the TRIG IN connector, or is initiated by the **Trigger** hardkey.

You can also configure the polarity of the TTL signal at the TRIGGER IN connector using the **Trigger In Polarity Neg Pos** softkey on this menu.

Preset Free Run

Sweep Type

Supported All with Option 007

This softkey accesses a menu that enables you select between the following sweep types:

Ramp	You can create a ramp sweep by supplying the frequency, amplitude, and sweep time for the sweep.
List	You can create a list sweep by supplying the frequency, amplitude, and dwell time for each point in the sweep.
Step	You can create a step sweep by supplying the start and stop frequency and amplitude, the number of points, and a dwell time. The signal generator then calculates the points between the first and last point in a linear manner.
Preset	Ramp

Sweep Type List Step

Supported All without Option 007

This softkey toggles the sweep type between list sweep and step sweep.

List	You can create a list sweep by supplying the frequency, amplitude, and dwell time for each point in the sweep.
Step	You can create a step sweep by supplying the start and stop frequency and amplitude, the number of points, and a dwell time. The signal generator then calculates the points between the first and last point in a linear manner.

Swept-Sine

Supported E8257C and E8267C

This softkey selects a swept-sine wave for the modulation waveform. A menu of choices for setting the parameters is also available with this softkey. The menu selections are dependent on the modulation format.

In each of these menus the TRIGGER OUT polarity can be selected to be either positive or negative.

In the LF Out menu this softkey is available after selecting the internal source to operate as a function generator.

Symbol Rate

This softkey occurs in different locations.

S

As a menu

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can set a new transmission symbol rate or restore the default symbol rate.

As a Setting

Supported E8267C with Option 002/602

Use this softkey to set a new transmission symbol rate value.

The current symbol rate is displayed under the **Symbol Rate** setting softkey.

Preset 24.300 ksps

Range *Arb Custom:* 1.000 ksps-50.000000 Msps
Real Time Custom: 45.000 sps-50.000000 Msps

Symbol Sync Out Polarity Neg Pos

Supported E8267C with Option 002/602

This softkey is used to configure the polarity of the TTL signal at the SYM SYNC OUT pin of the AUXILIARY I/O connector.

Neg Selecting Neg configures the TTL logic high at 0 volts.

Pos Selecting Pos configures the TTL logic high as +5 volts.

Symbol Sync Polarity Neg Pos

Supported E8267C with Option 002/602

This softkey is used to configure the polarity of the TTL signal at the SYMBOL SYNC connector.

Neg Selecting Neg configures the TTL logic high at 0 volts.

Pos Selecting Pos configures the TTL logic high as +5 volts.

Preset Pos

Sync Out

Supported E8267C with Option 002/602

Use this softkey to access a menu of choices for outputting a 1-bit synchronization signal to the EVENT 1 rear panel connector. You can set the synchronization signal to occur at various points, relative to the selected data pattern.

Preset Begin Pattern

Sync Out Offset

Supported E8267C with Option 002/602

Press this softkey to set an offset from the synchronization location.

The **Data Format Pattern Framed** softkey must be set to Pattern to enable this softkey.

This softkey is grayed out (not accessible) in Custom.

T

TETRA

Supported E8267C with Option 002/602

Use this softkey to select a predefined Trans European Trunked Radio (TETRA) personality for the digital modulation format.

TETRA Bands

Supported All

Use this softkey to access a menu from which you can select the frequency bands for TETRA. The output frequency depends on both frequency band and channel selections.

TETRA Base 390/400

Supported All

This softkey selects Base 390–400 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset *Channel: 3600*
Frequency: 390.000 MHz

Range *Channels: 3600–4000*
Frequency: 390.000–400.000 MHz

TETRA Base 420/430

Supported All

This softkey selects Base 420–430 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset *Channel: 800*
Frequency: 420.000 MHz

Range *Channels: 800–1200*
Frequency: 420.000–430.000 MHz

TETRA Base 460/470

Supported All

This softkey selects Base 460-470 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset *Channel: 2400*
Frequency: 460.000 MHz

Range *Channels: 2400–2800*
Frequency: 460.000–470.000 MHz

TETRA Base 915/921

Supported All

This softkey selects Base 915-921 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset *Channel: 600*
Frequency: 915.000 MHz

Range *Channels: 600–840*
Frequency: 915.000–921.000 MHz

TETRA Mobile 380/390

Supported All

This softkey selects Mobile 380–390 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset *Channel: 3600*
Frequency: 380.000 MHz

Range *Channels: 3600–4000*
Frequency: 380.000–390.000 MHz

TETRA Mobile 410/420

Supported All

This softkey selects Mobile 410-420 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

T

Preset	<i>Channel: 800</i> <i>Frequency: 410.000 MHz</i>
Range	<i>Channels: 800–1200</i> <i>Frequency: 410.000–420.000 MHz</i>

TETRA Mobile 450/460

Supported	All
This softkey selects Mobile 450-460 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.	
Preset	<i>Channel: 2400</i> <i>Frequency: 450.000 MHz</i>
Range	<i>Channels: 2400–2800</i> <i>Frequency: 450.000–460.000 MHz</i>

TETRA Mobile 870/876

Supported	All
This softkey selects Mobile 870–876 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.	
Preset	<i>Channel: 600</i> <i>Frequency: 870.000 MHz</i>
Range	<i>Channels: 600–840</i> <i>Frequency: 870.000–876.000 MHz</i>

Through

Supported	E8267C
Use this softkey to enable a path selection that bypasses all filters. This is useful for using external filters at frequencies different to those supplied internally.	

Time/Date

Supported	All
Use this softkey to access a menu from which you can set the time and date functions of the clock	

display.

Time/Date Off On

Supported All

Use this softkey to set the state of the display clock.

Off When you select Off, the display clock is off.

On When you select On, the display clock is turned on.

Preset Off

Toggle Marker 1

Supported E8267C with Option 002/602

This softkey enables or disables marker1 for the selected segment of a waveform sequence.

Preset Off

Toggle Marker 2

Supported E8267C with Option 002/602

This softkey enables or disables marker 2 for the selected segment of a waveform sequence.

Preset Off

Toggle Markers

Supported E8267C with Option 002/602

This softkey accesses a menu from which you can toggle markers 1 and 2 to enable or disable markers for selected segments of a sequence.

Toggle State

Supported E8267C with Option 002/602

In the multitone editor, this key enables you to turn the individually selected tone on and off. This determines whether or not a particular tone is generated.

Triangle

Supported E8257C and E8267C

This softkey selects a triangle wave as the modulation.

In the LF Out menu this softkey is available after selecting the internal source to operate as a function generator. The modulation applies only to the path configuration you have currently selected.

Trigger

Supported E8267C with Option 002/602

Use this softkey to access a menu from which you can choose between the continuous, single or gated triggering modes. The menu also contains a **Trigger Setup** softkey that enables you to adjust the trigger source, the continuous mode, the retrigger mode and the gate active polarity.

Preset Continuous

Trigger & Run

Supported E8267C with Option 002/602

Use this softkey to select the Trigger & Run mode for continuous triggering. When this mode is selected, the waveform generator plays a sequence or segment continuously upon triggering. The waveform generator does not respond to further triggers.

Trigger In Polarity Neg Pos

Supported All

This softkey toggles the polarity of the TTL trigger signal at the TRIGGER IN connector.

Pos The swept-sine sweep will start on the rising edge of a positive (+5.0 V) input trigger signal and stop with the falling edge of the trigger signal.

Neg The swept-sine sweep will start on the falling edge of the negative (+5.0 V) input trigger signal and stop with the rising edge of the trigger signal.

This key is used in the swept-sine FM, Φ M, and LF Out, and the Sweep/List menus. When the polarity is changed in any one of these menus, it is changed in all the menus. In the LF Out menu, this key appears after first selecting the internal source to operate as a function generator and then selecting Ext as the LF Out sweep trigger.

Preset Pos

Trigger Key

Supported All

Use this softkey to enable the front panel **Trigger** hardkey to trigger an event.

Pressing the **Trigger Key** softkey in the appropriate menu will enable the front panel **Trigger** hardkey to immediately do one of the following:

- Sweep trigger– Initiate a step or list sweep.
- Point trigger– Cause the sweep to step point-by-point in a step or list sweep.
- AM, FM, or Φ M– Initiate a single sweep of swept-sine amplitude, frequency, or phase modulation.
- Swept-sine LF output– Initiate a swept-sine low frequency output.
- Digital modulation formats– Initiate a burst to output a frame or data sequence. For framed transmissions, you can toggle between the primary and/or secondary framed data. For patterned transmissions, you can trigger a single output of modulated data that is not framed.
- Bit error rate test (BERT)– Initiate a bit error rate test.

The **Trigger** hardkey has autorepeat capability. Hold it down and you will repeatedly trigger until you release the key.

Pattern Trigger functions are not available if you use either a PN data sequence or an external data source.

Trigger Out Polarity Neg Pos

Supported All

This softkey toggles the polarity of the TTL signal at the rear panel TRIGGER OUT connector.

Pos The trigger out signal is asserted high (+5.0 V) at the start of the swept-sine modulation sweep and low (0.0 V) when the sweep is concluded.

Neg The trigger out signal is low (0.0V) at the start of the swept-sine modulation sweep and high (5.0V) when the sweep ends.

This key is used in the swept-sine FM, Φ M, and LF Out, and the Sweep/List menus. When the polarity is changed in any one of these menus, it is changed in all the menus.

In the LF Out menu this key is available after selecting the internal source to operate as Function Generator 1.

Preset Pos

Trigger Setup

Supported E8267C with Option 002/602

This softkey accesses the trigger setup menu. This menu enables you to adjust the trigger source, the continuous mode, the retrigger mode (not available for real-time waveform generation), and the gate active polarity.

Trigger Source

Supported E8267C with Option 002/602

This softkey accesses the trigger source menu. This menu enables you to adjust the trigger source between the front panel **Trigger** hardkey, a trigger command sent over the GPIB bus or LAN, or an external trigger applied to the PATTERN TRIG IN or AUXILIARY I/O connectors.

Turn Off Markers

Supported All

This softkey turns off all active markers in the marker table editor.

Two Tone

Supported E8267C with Option 002/602

This softkey accesses a menu of softkeys that enables you to create two-tone signals using the dual-arbitrary waveform generator.

Two Tone Off On

Supported E8267C with Option 002/602

This softkey sets the operating state for the two-tone function of the dual-arbitrary waveform generator.

Off When you select Off, the two-tone signal is turned off.

On When you select On, the two-tone signal is turned on.

Preset Off

U

Update Diagnostic Info

Supported All

This softkey refreshes the [Diagnostic Info](#) display (described on [page 58](#)).

Update in Remote Off On

Supported All

This softkey turns display updating on and off. The signal generator's display updates and displays the results of remote commands when this softkey is set to on. However, command processing time is faster when the softkey is set to off.

On When on, remote commands update the signal generator's display.

Off When off, remote commands will not update the display.

This key is not affected by a preset. However, it resets to off when the power is cycled. This mode affects the signal generator when it is in remote mode.

Uniform

Supported E8257C and E8267C

This softkey enables you specify noise with a uniform distribution as the modulation waveform.

User File

Supported E8267C with Option 002/602

Use this softkey to display the catalog of binary/bit files stored in the signal generator's memory. You can select a custom file from this catalog for the data pattern or burst shape.

User files should exactly fill the data fields in a framed transmission (create the files to fill an integer number of frames). If the end of a user file does not coincide with the end of a frame, data is truncated. For more information, see the *User's Guide*.

User FIR

Supported E8267C with Option 002/602

Use this softkey to display the catalog of user-defined FIR filter files stored in the signal generator's

U

memory, and to access a menu for selecting a file.

User Flatness

Supported All

Use this softkey to configure user flatness or to select the user flatness catalog type.

In the Amplitude Menu

This softkey accesses a menu of softkeys for setting up user flatness corrections.

In the Catalog Type Menu

This softkey enables you to specify that only user flatness correction files be listed in the catalog of files currently displayed.

User FSK

Supported E8267C with Option 002/602

Use this softkey to display the catalog of frequency shift keying (FSK) files stored in the signal generator's memory. You can select a custom file from this catalog for an FSK modulation by scrolling through the listed files, highlighting the desired file, and pressing the **Select File** softkey.

The selected file name and type is displayed under the **Select** softkey.

User I/Q

Supported E8267C with Option 002/602

Use this softkey to display the catalog of I/Q files stored in the signal generator's memory. You can select a custom file from this catalog for an I/Q modulation by scrolling through the listed files, highlighting the desired file, and pressing the **Select File** softkey.

The selected file name and type is displayed under the **Select** softkey.

Utility

Supported All

Use this softkey to access a menu of choices that enables you to view and erase error messages, access the GPIB/RS-232 LAN menu, adjust the display, access a menu of adjustments for the signal generator, set the help mode and power on state, and access the memory catalog menu.

V

View Details

Supported All

This softkey enables you to view detailed information about the highlighted test. Refer to the troubleshooting section in the service guide for more information.

This is intended for use by service personnel.

View Different Header

Supported E8267C with Option 002/602

This softkey accesses a menu from which you can select another header file to view.

View Next Error Message

Supported All

Use this softkey to display the next error message in the queue. (The first error message is the oldest error.) There may be more than one error message in the queue; the number of error messages is displayed along with the first message. Press any key to exit the Error Info menu.

View Previous Error Message

Supported All

Use this softkey to display the newest error message first. Continue pressing this key to view additional error messages in order of newest to oldest. Press any key to exit the Error Info menu.

View Test Info

Supported All

Use this softkey to display details of the self tests. Refer to the calibration guide for more information.

This is intended for use by service personnel.

W

Waveform Catalog Types

Supported All

This softkey accesses a menu from which you can select an ARB waveform file type.

Waveform Runtime Scaling

Supported E8267C with Option 002/602

This softkey enables you to set the scaling value to be applied to the waveform while it is playing. Scaling can be used to get the best dynamic range without overflowing the I and Q digital to analog converters.

This scaling function does not change the data in the waveform file.

Preset 70.00%

Range 1.00–100.00%

Waveform Segments

Supported E8267C with Option 002/602

This softkey accesses a menu and table editor from which you can store and load waveform segments to or from the non-volatile waveform memory (NVWFM) and perform various waveform utilities such as markers, scaling, and clipping.

Waveform Sequences

Supported E8267C with Option 002/602

This softkey accesses a menu and table editor from which you can build waveform sequences, edit existing sequences, and/or delete sequences.

The **Edit Selected Waveform Sequence** and **Show Waveform Sequence Contents** softkeys are active only when a sequence is highlighted.

Waveform Statistics

Supported E8267C with Option 002/602

Use this softkey to access a menu for viewing the available statistics for the selected waveform.

To activate the softkey, make sure that the selected dual arbitrary waveform (Dual Arb) generator option (such as, AWGN, Multitone, Digital Modulation, and so on) is turned on.

Waveform Utilities

Supported E8267C with Option 002/602

This softkey accesses a menu of operations that can be applied to the selected waveform segment. Waveform utilities include: markers, scaling, and clipping.

To activate this softkey, the waveform segment must be selected from volatile arbitrary waveform (WFM) generator memory and the **Load Store** softkey must be set to Store.

WFM1

Supported All with Option 002/602

Press this softkey to specify that only ARB waveform files be listed in the catalog of files.

Catalog type selection is not affected by a preset or by a power cycle.

White Pixels Screen Test

Supported All

This softkey enables you to set all of the pixels on the display to white. Press the **Local** hardkey to return the display to normal operation.

This key is provided for factory use in testing the display.

Window

Supported E8267C with Option 002/602

Use this softkey to access a menu for applying a windowing function to the selected filter. The default is to use no windowing which optimizes the passband response (EVM). Several windowing selections are provided in this menu which can be applied to smooth the filter's transition to zero. Windowing improves out of band performance (ACP) but simultaneously degrades EVM.

The selected window type is displayed under the **Window** softkey.

Preset None

Key Reference

W