

Key Reference

Agilent Technologies E8663B Analog Signal Generator

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Agilent Technologies

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1 Key Reference

Symbols

Points

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 |

Φ M Dev

This softkey enables you to set the deviation of the phase modulation for the currently selected modulation path. Deviation limits depend on the carrier frequency. Limiting occurs only when the modulation is on.

| | | | |
|---------------|------------------|-------------------------|-----------------------|
| Preset | 0.000 rad | | |
| Range | <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 |
| | > 3.2–9.0 GHz | 0–80 rad | 0–8 rad |

Φ M Dev Couple Off On

This softkey toggles the state for phase modulation deviation coupling.

| | |
|---------------|--|
| Off | The Φ M Path 1 and Φ M Path 2 deviation values are independent of each other. |
| On | The Φ M Path 1 and Φ M Path 2 deviation values are linked. Any change you make to the modulation value for one standard path is automatically applied to both paths. |
| Preset | Off |

Φ M Off On

This softkey toggles the operating state of the currently selected phase modulation. When phase modulation is on, the Φ M annunciator is displayed.

| | |
|---------------|---|
| Off | Use this setting to turn off the currently selected phase modulation. |
| On | Use this setting to turn on the currently selected phase modulation. |
| Preset | Off |

Φ M Path 1 2

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

| | |
|-----------------|--|
| Φ M Path 1 | This selection enables you to configure the modulation characteristics for Φ M Path 1, using the remaining softkeys in the Φ M menu. |
| Φ M Path 2 | This selection enables you to configure the modulation characteristics for Φ M Path 2, using the remaining softkeys in the Φ M menu. |

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

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

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

| | |
|---------------|-----------------|
| Preset | Φ M Path 1 |
|---------------|-----------------|

Φ M Rate

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

| | |
|---------------|-------------------|
| Preset | 400.0 Hz |
| Range | 500.0 mHz–1.0 MHz |

Φ M Source

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 Φ M 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 function only for ac-coupled external inputs.)

Φ M Start Rate

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/decrement is 1.0 Hz)

Φ M Stop Rate

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/decrement is 1.0 Hz)

Φ M Sweep Rate

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

Use this softkey to access a menu of choices that enables you to select the triggering mode for 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

Φ M Tone 1 Rate

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** 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

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

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

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

Numerics

1 kHz

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

10 kHz

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

25 Hz

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

53 Hz

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

100 Hz

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

100 kHz

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

126 Hz

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

300

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

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

650 Hz

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

800MHz Base

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.

Range *Channels:* 0–640 *Frequency:* 810.000–826.000 MHz

800MHz Mobile

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.

Range *Channels:* 0–640 *Frequency:* 940.000–956.000 MHz

1200

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

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.

Range *Channels:* 0–480 *Frequency:* 1.477–1.493 GHz

1500MHz Mobile

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.

Range *Channels:* 0–480 *Frequency:* 1.429–1.445 GHz

2400

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

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.

9600

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

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

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

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.

A

Abort

Use this softkey to stop the selected test.

Activate Secure Display

This softkey blanks the display, except for the message ***** SECURE DISPLAY ACTIVATED *****, and disables the front panel keys. The **Confirm Secure Display** softkey must be selected in order to activate the secure display mode. Once this function is activated, the power must be cycled to re-enable the display and front panel keys. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

Add Comment To Seq[n] Reg[nn]

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

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

This softkey accesses a menu from which you can select a bandwidth for the ALC loop. In Auto mode, the signal generator hardware selects a bandwidth to optimize performance with the current settings. Selecting a bandwidth overrides the Auto setting.

For waveforms with varying amplitudes and/or a high crest factor, it is recommended that the ALC loop bandwidth be set to 100 Hz. Limiting the loop bandwidth of the ALC circuit will prevent the ALC from sampling the fast rising edges of high-crest pulsed waveforms.

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.

Preset Auto

ALC Off On

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 maintain output power at a desired level by eliminating power 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 if the pulse width is narrower than 2 μ s. Refer to [“Power Search” on page 48](#) for more information on the power search function.

Pulse modulation is accomplished using a modulator that precedes the ALC detector. The ALC must therefore measure a pulsed signal, and it can do this if the pulse width exceeds 2 μ s. For narrower pulses, set the **ALC Off On** softkey to Off. Refer to the *E8663B Analog Signal Generator User's Guide* for more information on using the ALC.

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 | The output power level is not controlled. |
| On | The output power level is constantly monitored and controlled. |
| Preset | On |

All

This softkey enables you to list all signal generator file types stored in the user file system.

Alternate Sweep Off On

This softkey toggles the operating 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 |
|---------------|-----|

AM

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

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 selected, the depth is set at 100% and is not user-defined. This softkey also appears in the Dual-Sine menu and will set the AM depth for both tone one and tone two.

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

| | |
|---------------|--|
| Preset | 0.1% <i>Linear</i> 40 dB <i>Exponential</i> |
| Range | 0.0–100.0% Linear (minimum increment is 0.1%) 0–40 dB Exponential |

AM Depth Couple Off On

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

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

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

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

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 (wide band) 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

This softkey enables you to change the frequency of the 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/decrement allowed is 0.5 Hz) 0.5 Hz–1.0 MHz if a sine wave is selected as the internal waveform |

AM Source

Use this softkey to access a menu of available sources for internally generated and externally applied modulation formats. Internal modulations are always ac-coupled. When an externally-applied modulation is selected you can choose between 50 Ohm and 600 Ohm impedances using the Ext Impedance softkey.

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

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/decrement allowed is 1.0 Hz) |

AM Stop Rate

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/decrement allowed is 1.0 Hz)

AM Sweep Rate

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

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

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/decrement allowed is 0.5 Hz)

AM Tone 2 Ampl Percent of Peak

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

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/decrement allowed is 0.5 Hz)

AM Type LIN EXP

This softkey toggles the amplitude modulation scale type between linear (percent/volt) and exponential (dB/volt).

| | |
|--------|--|
| 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 |

AM Waveform

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 |
|--------|------|

Ampl

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

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

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

| | |
|-----|--|
| Off | The amplitude value displayed is equal to the current hardware output power plus the amplitude offset, if any. |
| 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

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 dBm

Range -136 to 20 dBm

Ampl Start

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

Preset -135.00 dBm

Range You can set the value anywhere in the range of the signal generator's specified output power.

Ampl Stop

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

Preset -135.00 dBm

Range You can set the value anywhere in the range of the signal generator's specified output power.

Amplitude

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 -20dBm

Range The output power range of the signal generator depends on the option configuration. Power is also a function of frequency range. For more information, refer to your signal generator's data sheet.

Amplitude Markers Off On

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

Atten Hold Off On

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

Off When this function is off, the attenuator is in a dynamic state and will automatically adjust settings in response to ALC requirements.

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

There is no attenuator switching during power adjustments. The maximum power adjustment range varies.

Preset Off

B

Binary

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

Black Pixels Screen Test

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.

Brightness

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

Bus

This softkey sets the trigger source to occur over the bus lines through the GPIB, LAN, or AUXILIARY INTERFACE (RS-232) connectors. For GPIB, use the *TRG or GET commands, and for LAN and RS-232, use the *TRG command.

C

Capture current HW configuration

Use this softkey to load the current hardware configuration, through consecutive boots, and compare it with all installed devices; discrepancies are reported. This overwrites the previous configuration.

Catalog Type

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.

Channel Band

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

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

Supported Depends on selected band

Clear Error Queue(s)

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 Text

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.

Configure Cal Array

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 List Sweep

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 Step Sweep

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

Configure Step Array

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

Configure Step Sweep

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

Press this softkey to activate the selected security level. This softkey appears after pressing the **Enter Secure Mode** softkey.

CAUTION Once the secure mode is entered, the security level can only be increased. After this function is activated, the power must be cycled to return to normal operation mode.

Confirm Change

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

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 Load From Step Data

Use this softkey to complete the loading of step data into the user flatness table or the list sweep table.

Confirm Restore Sys Defaults

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

Pressing this key re-boots the signal generator.

Copy File

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.

NOTE File names are limited to 23 characters.

D

Date Format MDY DMY

This softkey is used to set the display format for 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

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/DCΦM Cal

This softkey enables you to initiate a DCFM or a DCΦM calibration, depending upon which type of modulation is currently active. This calibration eliminates the offset in DCFM or DCΦM 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

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*

Range *Frequency:* 1.805 GHz
 Channels: 512–885
 Frequency: 1.805–1.879 GHz

DCS Mobile

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. The Device softkey must be set to MS before this softkey is available.

Preset *Channel:* 512
 Frequency: 1.710 GHz
Range *Channels:* 512–885
 Frequency: 1.710–1.784 GHz

DECT Standard

This softkey selects a frequency band for Digital European Cordless Telecommunications (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

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.

Delete All Files

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 Regs in Seq [n]

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 do not want to delete the data, press the **Return** hardkey.

Delete All Sequences

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 do not wish to delete the data, press the **Return** hardkey.

Delete File

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

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

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 do not wish to delete the row, press the **Return** hardkey.

Delete Seq[n] Reg[nn]

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 do not wish to delete the data, press the **Return** hardkey.

Delta Ref Set

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

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

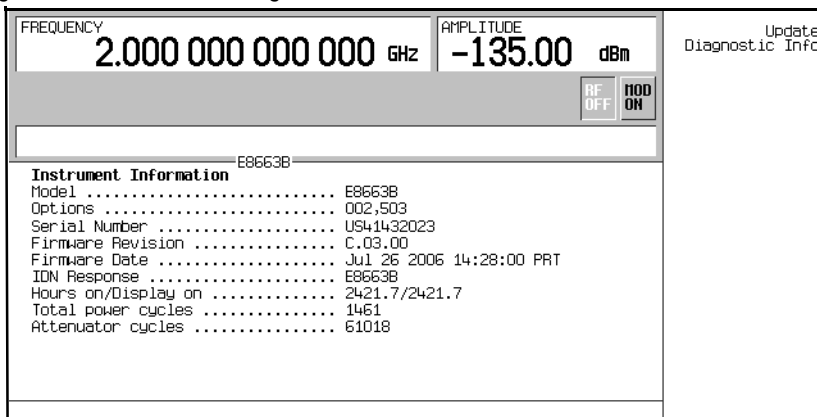
The selected mode will be displayed under the **Channel Band** softkey.

Preset **BTS**

Diagnostic Info

Use this softkey to access diagnostic information about the signal generator. Refer to the figure below for information on what is included in the display.

Figure 1-1 **Diagnostic Instrument Information**



| | |
|---------------------------------|--|
| 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. Only for instruments with electronic attenuators. |
| Baseband generator 1 | Revision number. |

Display

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.

Do Cal

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

Dual-Sine

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

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

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

E4417A

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

E4418B

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

E4419B

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

Edit Comment In Seq[n] Reg[nn]

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 Item

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.

Editing Keys

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

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

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.

| | |
|--------------|--|
| Range | <i>Channels:</i> 0–124, 975–1023 <i>Frequency:</i> 935.000–959.800 MHz, 925.200–934.800 MHz |
|--------------|--|

E-GSM Mobile

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.

| | |
|--------------|--|
| Range | <i>Channels:</i> 0–124, 975–1023 <i>Frequency:</i> 890.000–914.800 MHz, 880.200–889.800 MHz |
|--------------|--|

Enter Secure Mode

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. For more information

about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

Erase

This softkey in the Utility menu removes all user files and user information. You must press **Enter Secure Mode > Confirm** to complete the Erase operation. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

Erase All

This softkey removes all user files, table editor files, flatness correction files, and baseband generator files. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

Erase and Overwrite 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 described below. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

| | |
|--------------|---|
| 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. |

Erase and Sanitize 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 described below. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

| | |
|--------------|---|
| SRAM | All addressable locations will be overwritten with random characters. |
| HARD DISK | All addressable locations will be overwritten with a single character, its complement, and then a random character. |
| FLASH MEMORY | The flash blocks will be erased. |

Error Info

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

Ext

This softkey, depending on the current softkey menu, sets the signal generator to expect data or a trigger signal from an external source. It appears in multiple menus with some differences as described in the following subsections.

In Sweep Trigger (AM, FM, Φ M, LF, Sweep/List) and Point Trigger Menus

The external trigger signal connects to the rear-panel TRIGGER IN connector. For more information on the connector, see the *E8663B Analog Signal Generator User's Guide*.

In the Data Menu

Ext is one of the data selections available when using the real-time digital modulation format (real-time custom). The format takes the data stream and modulates it on to the carrier as with any factory-supplied data pattern. The external data signal connects to the DATA connector. The DATA connector appears on the front-panel for a standard instrument configuration, or on the rear-panel with Option 1EM. For more information on the connector, see the *E8663B Analog Signal Generator User's Guide*.

In the Trigger Source Menu

The Ext choice also enables other softkeys for configuring the external trigger.

- Ext Source, for selecting the rear-panel input connector
- Ext Polarity Neg Pos, for selecting which trigger signal state triggers the waveform
- Ext Delay Off On, for turning on or off a delay in the signal generator's response to an external trigger signal
- Ext Delay Bits (real-time custom), for setting the amount of delay

For more information on using triggering, see the *E8663B Analog Signal Generator User's Guide*.

Ext1

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

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 Detector

Use this softkey to select external ALC leveling. In this mode, a voltage applied to the ALC INPUT connector controls the signal generator's output power level.

Ext Detector Coupling Factor

Use this softkey to set the coupling factor for the external ALC leveling detector.

Ext Impedance 50 Ohm 600 Ohm

Use this softkey to set the external AM, FM, or Φ M input to either 50 Ohms or 600 Ohms. This softkey is available only after selecting an external AM, FM, or Φ M source.

Preset 50 Ohm

Ext Polarity Normal Inverted

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

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

External Ref Bandwidth

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

F

Flatness Off On

This softkey toggles the application of 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

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

This softkey toggles between the menus for frequency modulation (FM), normal phase modulation (Φ M), and wideband phase modulation (Φ M High BW). Deviation limits depend on the carrier frequency; 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 FMDev 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

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 following table lists maximum peak deviations.

| <i>Carrier Frequency</i> | <i>Maximum Peak Deviation</i> |
|--------------------------|-------------------------------|
| 250 kHz to 250 MHz | 2 MHz |
| > 250 MHz to 500 MHz | 1 MHz |
| > 500 MHz to 1 GHz | 2 MHz |
| > 1 GHz to 2 GHz | 4 MHz |
| > 2 GHz to 3.2 GHz | 8 MHz |
| > 3.2 GHz to 9GHz | 16 MHz |

The new value of FM deviation applies only to the FM path configuration you have selected. In addition, 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 the carrier frequency. |

FM Dev Couple Off On

This softkey toggles the operating state for FM deviation coupling.

| | |
|---------------|--|
| Off | The FM Path 1 and FM Path 2 deviation values are independent of each other. |
| 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

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

| | |
|------------|--|
| Off | Use this setting to turn off the frequency modulation. |
| On | Use this setting to turn on the 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 only when you have set **Mod On/Off** to On.

Preset Off

FM Path 1 2

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

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

The new value for the FM rate applies only to the FM path configuration 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

Use this softkey to access a menu from which you can select an internally-generated or externally-applied modulation input as 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

FM Start Rate

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

This softkey enables you to change the stop frequency for 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

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

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 trigger output at the TRIGGER IN connector using the **Trigger In Polarity Neg Pos** softkey on this menu.

| | |
|---------------|----------|
| Preset | Free Run |
|---------------|----------|

FM Tone 1 Rate

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 the **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

This softkey enables you to adjust the amplitude of the alternate frequency, FM tone 2, 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.

| | |
|---------------|-------------|
| Preset | 50.0% |
| Range | 0.0%–100.0% |

FM Tone 2 Rate

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.

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

FM Waveform

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

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

| | |
|---------------|------|
| Preset | Sine |
|---------------|------|

Free Run

This softkey is a continuous mode waveform trigger response selection that causes the signal generator to immediately trigger the waveform when you turn on the application. The signal generator transmits the waveform continuously. For example, after you select **Free Run** in the AM Sweep Trigger menu, turning AM on triggers the waveform, which the signal generator transmits continuously until you turn AM off.

When this is the point trigger response selection, the list or step sweep pauses at each point for the set dwell time. For more information on triggering, see the *E8663B Analog Signal Generator User's Guide*.

Freq

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 choose frequency, amplitude, or frequency and amplitude sweeps.

Freq & Ampl

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

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 Channels

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

Freq Channels Off On

This softkey sets the operating state of the frequency channel mode. When the frequency channel mode is on, the selected channel band and channel number determine the signal generator's RF output frequency.

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 using the Freq CW softkey.

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 Multiplier

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 -1000 to +1000 (excluding 0)

Freq Offset

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

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

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 Start

This softkey enables you to set the frequency start point for a step sweep.

| | |
|---------------|--|
| Preset | Highest frequency (depends on the signal generator option) |
| Range | 0.00 Hz–highest frequency (depends on the signal generator option) |

Freq Stop

This softkey enables you to set the frequency stop point for a step sweep.

| | |
|---------------|--|
| Preset | Highest frequency (depends on the signal generator option) |
| Range | 0.00 Hz–highest frequency (depends on the signal generator option) |

Frequency

This hardkey accesses a menu that enables you to change the RF output frequency and frequency configuration, control an external source module, and enable frequency markers.

| | |
|---------------|--|
| Preset | Highest frequency (depends on the signal generator option) |
| Range | 100 kHz–highest frequency (depends on the signal generator option) |

FTP Server Off On

This softkey enables or disables the file transfer protocol (FTP) service on the signal generator. FTP is used to download a file from a client or upload a file to a client. To enable the FTP service, you must toggle the softkey to On and then press the Proceed With Reconfiguration and Confirm Change softkeys. The signal generator will reboot and enable the FTP service. The FTP server state, off or on, survives a preset or instrument reboot.

| | |
|-----|---|
| Off | Disables the FTP server. |
| On | The FTP server is enabled and files can be transferred using this protocol. |

Function Generator 1

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

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

Gaussian

This softkey selects a Gaussian pre-modulation filter from the Select (filter) menu, the Load Default FIR (Finite Impulse Response) menu, or the Noise 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 to specify noise with a Gaussian distribution as the modulation waveform for the internally generated, ac-coupled signal.

Goto

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

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

Goto Middle Row

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

Goto Row

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

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

GPIB Address

This softkey enables you to change the signal generator's GPIB address. The GPIB address is set to 19 at the factory. The GPIB address setting is not affected by a preset or by a power cycle.

| | |
|---------------|------|
| Preset | 19 |
| Range | 0–30 |

GPIB Listener Mode

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

GPIB/RS-232/LAN

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

H

Help Mode Single Cont

The utility menu **Instrument Info/Help mode** softkey accesses the **Help Mode Single Cont** softkey. The help text is a short description of the signal generator's hardkeys and softkeys. There are two help modes available on the signal generator, which are described in the following list:

- | | |
|--------|---|
| Single | In single mode, when you press the Help hardkey, help text is provided for the next key press. Pressing any key afterwards 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 and the key function will be activated. (except for the Preset hardkey). The help text continuous mode function remains active until either the Help softkey is pressed again or the help mode is toggled back to single mode. |

Hostname

This softkey enables you to enter a hostname for the local area network (LAN) connection. No hostname is entered at the factory. The hostname is limited to 255 characters.

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

I

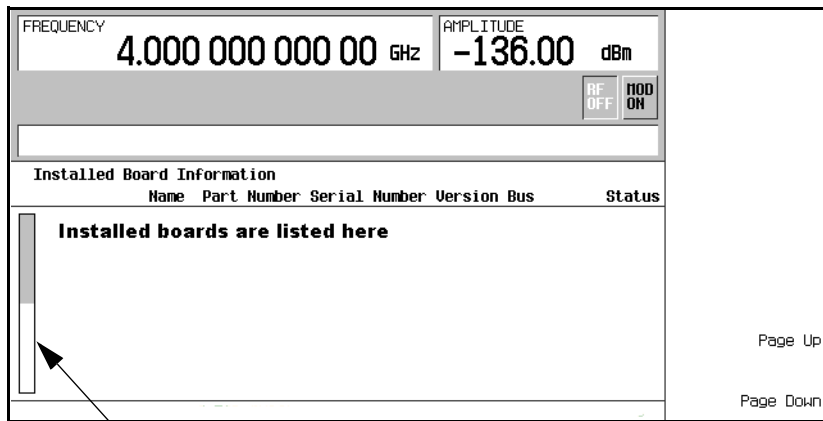
Insert Row

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

Installed Board Info

Use this softkey to display information about the installed boards in the signal generator. Refer to the following figure.

Figure 1-2



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 **PageDown** softkey to display the next page. Use the **PageUp** softkey to return to the previous page.

A status of **DETECTED** means that the installed board was automatically detected.

A status of **INSTALLED** or **FIXED** means that the installed board is available for use.

Instrument Adjustments

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

Use this softkey to display a menu of softkeys detailing signal generator functions and operations.

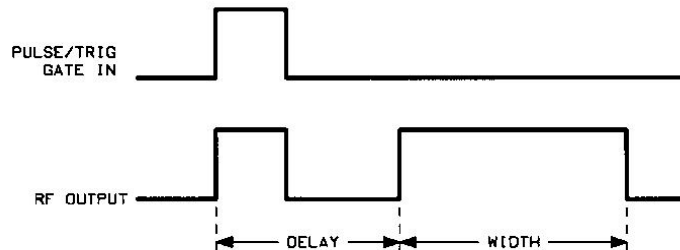
Instrument Options

Use this softkey to access a menu from which you can install license keys and manage hardware options.

Int Doublet

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 the following figure.



This modulation source requires an external trigger source.

Int Free Run

This softkey enables you to internally generate a continuously running pulse modulation with user-defined period, width and delay.

Int Gated

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 Triggered

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

Use this softkey to select internal ALC leveling.

CAUTION It is important that the signal generator, the interface module, and the device are locked to a common frequency reference. Failure to have a common frequency reference may result in a loss of data.

Internal 1

This softkey selects the first internal source to generate an AC-coupled signal as the modulation output.

Internal 2

This softkey selects the second internal source to generate an AC-coupled signal as the modulation output.

Internal 1 Monitor

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.

Preset The internal 1 monitor is selected after an instrument preset or when the on/off power-line switch is cycled.

Internal 2 Monitor

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

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

Internal Square

This softkey enables you to internally generate a square wave as the modulation waveform.

Inverse Video Off On

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.

IP Address

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.

K

Keep Previous Comment

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 Config

Use this softkey to select either manual or dynamic host configuration protocol (DHCP) as the method for designating the internet protocol (IP) address for the signal generator. The IP address mode, DHCP or manual, survives a preset or instrument reboot.

Many of the softkeys in the LAN Config menu will be visible but inactive (grayed-out) in DHCP mode. The Hostname, IP Address, Subnet Mask, and Default Gateway assignments, as shown in the softkey labels are assigned by the domain name service (DNS). The hostname may not be valid if the DNS does not map a hostname to the IP address.

| | |
|--------|--|
| Manual | The user designates and enters a signal generator IP address. |
| DHCP | Network server software assigns a temporary, dynamic, IP address for the signal generator, which can change. |

LAN Setup

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.

Leveling Mode

Use this softkey to access a menu from which you can select a leveling mode.

LF Out

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

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 V _p |

LF Out Freq

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

This softkey toggles the operating state of the source at the LF OUTPUT connector on and off.

Refer to **LF Out Source**, [page 40](#), for more information on choosing the source.

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.

Once you have toggled this state on, the signal is immediately available at the LF OUTPUT connector. The **RF On/Off** hardkey selection does not affect this state, however, the **Mod On/Off** hardkey selection does affect this state.

Preset Off

LF Out Source

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 assigned to an AM path 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 on the internal source is turned off.

Preset Internal 1 Monitor

LF Out Start Freq

This softkey enables you to change the starting frequency for the 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

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

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

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

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 Amp Of Peak

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

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

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

Use this softkey to select list as the sweep type.

In Catalog Type Menu

This softkey enables you to specify that only signal generator list sweep files be included in the catalog of files.

Load Cal Array From Step Array

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 From Selected File

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

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/Store

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

This softkey enables you to navigate between WFM1 (volatile waveform memory) and non-volatile waveform memory (NVWFM). The load softkey accesses NVWFM and the store softkey accesses WFM.

- Load** This softkey enables you to select a segment or waveform from the NVWFM catalog of files. You can then use other softkeys in the menu to delete, rename the file, or load it into WFM1.
- Store** This softkey enables you to select a segment or waveform from WFM1. You can then use other softkeys in the menu to delete, rename, or store the file in NVWFM

Loop Selected Tests

This softkey is provided for self test diagnostics. Refer to the troubleshooting chapter of the *E8663B Analog Signal Generator User's Guide* for more information.

This key is included for use by service personnel.

M

MAC

The media access control (MAC) softkey is inactive and displays the ethernet address for the signal generator. You cannot modify the MAC address.

Manual Mode Off On

This softkey toggles the operating state for manual mode in a step or list sweep. This key is active after selecting one of the softkeys: **Freq**, **Ampl**, or **Freq & Ampl**, and disabled when the **Sweep** softkey is **Off**.

- Off** Normal sweeping occurs in accordance with current sweep parameters.
- On** When manual mode is selected along with a step or list sweep, the selected manual sweep point controls the RF output. The sweep point is selected with the **Manual Point** softkey.
- Preset** Off

Manual Point

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

Memory Catalog

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

This softkey enables you to select the external power meter GPIB address for use during the user flatness calibration.

The power meter is controlled only through a GPIB cable. The power meter address is not affected by a preset or by a power cycle.

Range 0–30

Meter Channel A B

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 available only when a dual-channel external power meter is connected to the signal generator via a GPIB cable.

The power meter channel selection is not affected by a preset or by a power cycle.

Meter Timeout

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

Mod Status Info Off On

This softkey turns the Modulation Status Information listing on or off.

On When the modulation status is on, modulation information displays when you access one of the modulation menus, for example AM as shown below.

Off When the modulation status is off, information about the status of the modulation

is not displayed.

The screenshot displays the modulation status information for the signal generator. The top section shows the frequency set to 4.000 000 000 GHz and the amplitude set to -135.00 dBm. Below this, there are control buttons for ERR, RF OFF, and MOD ON. The main table lists various modulation types and their parameters. To the right of the table, there are additional settings for AM Type (EXP), AM Path (WB), AM On (Off), AM Depth (0.1%), AM Source (Internal 1), and AM Rate (400.0 Hz).

| Modulation Status Information | | | | | |
|-------------------------------|-------|-----------|-----------|---------|----------|
| Mod | State | Depth/Dev | Source | Rate | Waveform |
| AM 1 | Off | 0.1% | Internal1 | 400.0Hz | Sine |
| AM 2 | Off | 0.1% | Internal1 | 400.0Hz | Sine |
| AM WB | Off | 20.00dB/V | I Input | | |
| FM 1 | Off | 1.0000kHz | Internal1 | 400.0Hz | Sine |
| FM 2 | Off | 1.0000kHz | Internal1 | 400.0Hz | Sine |
| ΦM 1 | Off | 0.000rad | Internal1 | 400.0Hz | Sine |
| ΦM 2 | Off | 0.000rad | Internal1 | 400.0Hz | Sine |
| LFOut | Off | 0.000Vp | Internal1 | | |
| Pulse | Off | 1.00us | Internal | 2.00us | Free-Run |

Preset On

Modify License Key

Press this softkey to enter the license key for the highlighted software option. Software options may require 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.

N

Name And Store

This softkey enables you to store and rename (if necessary) the highlighted sequence.

Negative

This key enables you to select a negatively sloped ramp, or sawtooth, as the modulation waveform for the internally-generated, ac-coupled, signal.

Noise

This softkey accesses a menu from which you can select noise as the carrier modulation. You can specify noise with a gaussian distribution or noise with a uniform distribution as the modulation for the internally generated, ac-coupled signal.

The noise modulation 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. In the FM and Φ M menus noise modulation is available from the waveform menu.

Noise is generated as a peak to peak value; the RMS value is about 80.0% of the displayed value.

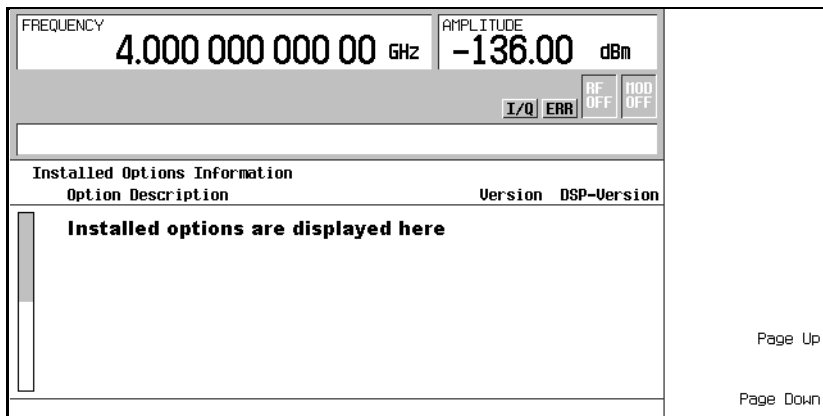
0

Off

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.

Options Info

Use this softkey to display all available options and associated hardware. Refer to the following figure.



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

Output Blanking Off On Auto

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 |

Overwrite

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 described below. You must press **Enter Secure Mode > Confirm** to activate the Overwrite security level. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

| | |
|---------------------|---|
| 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 |

P

Page Down

This softkey enables you to move down in the display one page at a time.

Page Up

This softkey enables you to move up in the display one page at a time.

Phase Ref Set

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.

PN9 Mode Preset Normal Quick

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. |

Point Trigger

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 active for list or step sweep types.

Preset Free Run

Positive

This key enables you to select a positively sloped ramp as the modulation waveform for the internally generated, ac-coupled signal.

Power Meter

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 is controlled only through a GPIB cable.

The power meter selection is not affected by a preset or by a power cycle.

Power On Last Preset

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

Use this softkey to access a menu of choices for power on and preset conditions. Refer to [“Power On Last Preset” on page 48](#), [“Preset Normal User” on page 49](#), and [“Save User Preset” on page 56](#).

Power Search

This softkey enables you to select the power search mode. The **ALC Off On** softkey must be set to Off to enable 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 two microseconds. The power search function briefly turns on the ALC and uses the ALC to take a snapshot of the power level at the signal generator’s RF output. The ALC level, as measured by the ALC circuitry, is stored in memory. This stored ALC value is used to bias the RF circuitry, thereby maintaining the RF output power level. This value is refreshed each time a power search is initiated.

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, or pulse. |
| Span | The Do Power Search softkey becomes active and enables you to perform power searches over a range of frequencies. The power search corrections are then stored and used whenever the signal generator is tuned within the selected range. |
| Preset | Manual |

Preset Language

Use this softkey to access a menu of choices for selecting the programming language that is implemented after the **Preset** key is pressed. The preset language selection is not affected by a preset or by a power cycle.

You can choose between SCPI, which is the language used by the signal generator for remote implementation of all features, or 8662A/63A-compatible languages.

Preset List

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

This softkey enables you to select a factory-defined preset or user-defined preset state for the signal generator. A user-defined preset state is saved with the **Save User Preset** softkey.

| | |
|--------|--|
| Normal | A factory-defined preset is used if Normal is selected. |
| User | A user-defined preset is used if User is selected. |

Proceed With Reconfiguration

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.

Pulse

Use this hardkey to access a menu of choices that enables you to configure the pulse modulation.

Pulse Delay

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

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 set Mod On/Off to On.

Preset Off

Pulse Period

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 us 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

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

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 set **Mod On/Off** to **On**.

Preset Internal Pulse

Pulse Width

This softkey enables you to change the pulse width for the internally generated pulse modulation source.

If the value for the pulse period is less than the pulse width value then the pulse width is changed to be 20 ns less than the 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 48](#).

Preset 1.0 μ s
Range 10.0 ns–41.99999998 s

R

Ramp

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.

Recall

This hardkey restores a previously saved instrument state. The recall hardkey also accesses a menu of softkeys that enable you to select or delete registers and sequences.

Preset N/A

Recall Ref Osc Setting

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

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 use the front panel knob and the up and down arrow keys to scroll through all saved registers for the selected sequence.

Ref Osc Coarse

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

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

This softkey toggles the automatic oscillator source selection state. The signal generator is capable of automatically selecting an external reference oscillator when an external reference is detected.

| | |
|---------------|--|
| 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 Oscillator Adjustment

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

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 are available for compatibility with the signal generator. The SCPI language implements all of the signal generator's functions.

Refer to the *E8663B Analog Signal Generator Programming Guide* for information about commands and information on programming languages.

Rename File

This softkey enables you to rename the highlighted file in the displayed catalog of files. After entering the new file name, press the **Enter** terminator softkey. If you do not want to rename the file, press the **Return** hardkey. Once you press **Enter**, the new file is stored and displayed in the catalog list.

NOTE File names are limited to 23 characters.

Re-SAVE Seq[n] Reg[nn]

This softkey enables you to save the current instrument state in the specified register within the selected 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 RS-232

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 Signal Polarities

This softkey is used to restore the signal generator's default signal polarities.

Restore Factory Defaults

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

This softkey is used to restore the signal generator's system defaults.

RF During Power Search

This softkey enables you to select between **Normal** and **Minimum** power search modes. The minimum mode is used to protect devices that are sensitive to high power levels or high power fluctuations.

In normal mode, the attenuator is not used during a power search. In minimum mode the attenuator will switch to its maximum level during a power search. Power search operations can occur frequently and, if the minimum mode is used, can decrease attenuator life.

NOTE Continual or excessive use of the power search protection function can decrease attenuator life.

| | |
|--------|--|
| 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

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.

| | |
|---------------|--|
| 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> |

RS-232 Baud Rate

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

This softkey selects the operating state of the RS-232 echo function.

| | |
|------------|---|
| On | Characters sent to the signal generator are echoed to the controller display. |
| 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

Use this softkey to access a menu of choices enabling you to configure communication protocol over the RS-232 interface.

RS-232 Timeout

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

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 chapter of the *E8663B Analog Signal Generator Service Guide*.

This key is included for use by service personnel for troubleshooting or by the user as part of an operation verification.

Run Highlighted Tests

This softkey is provided for self-test diagnostics. If any tests fail then refer to the Troubleshooting chapter of the *E8663B Analog Signal Generator Service Guide*.

This key is included for use by service personnel.

Run Selected Tests

This softkey is provided for self-test diagnostics. If any tests fail then refer to the Troubleshooting chapter of the *E8663B Analog Signal Generator Service Guide*.

This key is included for use by service personnel.

S

Sanitize

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 Sanitize security level. Memory is overwritten with a sequence of data as described below. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

| | |
|--------------|---|
| SRAM | All addressable locations will be overwritten with random characters. |
| HARD DISK | All addressable locations will be overwritten with a single character, its complement, and then a random character. |
| FLASH MEMORY | The flash blocks will be erased. |

Save

Use this hardkey to save an instrument state. This hardkey accesses a menu from which you can save and delete registers (instrument states) and sequences (groups of registers). The menu displays the registers in use and any comments associated with the registers from the most recently accessed sequence. The menu is updated whenever you make any changes to the registers or to the comments.

The save function does not actually save waveform or modulation data, or table entries such as list sweep data. You must store these data files to the signal generator's memory catalog.

The save function saves references to data files along with instrument settings associated with the file. If the data you are working with is not stored to a file, the save function will not write the modified data to the file. Store the modified data file then execute the save function. The file name and instrument settings will be saved.

NOTE The Save function does not save waveform or modulation data, or table entries such as list sweep data. It only saves a reference to the file stored in memory.

The signal generator can save up to 10 sequences with 100 registers available for each sequence. Refer to the *E8663B Analog Signal Generator User's Guide* for more information on save and recall states.

Save Reg

Use this softkey to save the current instrument settings and setups. Use the signal generator's memory catalog to save list sweep data.

SAVE Seq[n] Reg[nn]

This softkey enables you to save the current instrument state and setup to a register within a selected sequence. Waveform or modulation data or table entries such as list sweep data are not saved with this softkey, only a reference to the file name is saved. Refer to [“Save” on page 55](#) for more information.

NOTE The Save function does not save waveform or modulation data, or table entries such as list sweep data. It only saves a reference to the file stored in memory.

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 User Preset

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 49](#) 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

This selection in the **Pulse Source** menu internally generates a 27 kHz square wave, which is required for sweep setups using a scalar network analyzer and DC detector. To activate the pulse signal, you

must set **Pulse Off On** to On. This pulse signal can also be activated using the **Scalar Pulse Off On** softkey, which is accessed from the **Sweep/List** front-panel key.

Scalar Pulse Off On

This softkey sets the state of the scalar pulse signal. When turned on, the signal generator internally generates a 27 kHz square wave, which is required for sweep setups using a scalar network analyzer and DC detector. The **Pulse** annunciator also appears on the display, indicating that a pulse modulation is activated. This pulse signal can also be activated using softkeys accessed through the **Pulse** front-panel key (see **Scalar**, page 56).

SCPI

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:

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

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 signal generator's display.

Screen Saver Off On

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

This softkey accesses a menu of security functions that enable you to protect and remove classified proprietary information stored or displayed in the instrument. For more information about these security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

Security Level

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 selected cleaning operations. Selecting **None** will preset the signal generator to the factory state. For other cleaning operation descriptions, see **Erase**, **Overwrite**, and **Sanitize**. You must press **Enter Secure Mode** > **Confirm** to activate the selected security level. For more information about security functions, refer to the *E8663B Analog Signal Generator User's Guide*.

Preset None

Range N/A

Select/Deselect All

This softkey is provided for self-test diagnostics. Refer to the Troubleshooting chapter of the *E8663B Analog Signal Generator Service Guide*.

NOTE This key is intended for use by service personnel.

Select/Deselect Test

This softkey is provided for self-test diagnostics. Refer to the Troubleshooting chapter of the *E8663B Analog Signal Generator Service Guide*.

NOTE This key is intended for use by service personnel.

Select Reg

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:

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

This softkey enables you to select a sequence for all softkeys which specify a sequence in this menu. 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

Self Test

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 chapter of the *E8663B Analog Signal Generator Service Guide*.

NOTE This key is intended for use by service personnel for troubleshooting or by the user as part of an operation verification.

Seq

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

Set ALC Level

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

This softkey enables you to set the attenuation level when the attenuator hold is active. The attenuation is set in a progression of 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

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 Time

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.

Sine

This softkey appears in two different locations, 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 Sweep

Use this softkey to set up the signal generator to perform a single sweep operation. The signal generator will begin the sweep as soon as the sweep trigger is received. When single sweep is selected, the signal generator sets the power and the frequency on the first or starting point of the sweep. If the sweep trigger was set to **Free Run**, a sweep is initiated immediately. In the Sweep/List menu this softkey is active when Freq, Ampl or Freq & Amp are the sweep types and disabled when Sweep is set to Off.

The ARMED annunciator appears in the display, unless the sweep trigger is set to **Free Run**

Sockets SCPI Off On

This softkey turns the socket port based SCPI service on or off. A socket port is an endpoint in a connection and is a method, using function calls (SCPI commands), of communicating over a network. The PSG provides two socket ports:

- 5023 for user input over a telnet connection
- 5025 for automated communications

To enable or disable the service, press this softkey and then press **Proceed With Reconfiguration > Confirm Change**. The signal generator reboots to complete the process. The sockets SCPI service state, off or on, survives a preset or system reboot.

Software Options

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 three items:

- 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

Span Type User Full

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**.

Square

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

This softkey sets the start frequency for a span power search over a user specified range.

Step Dwell

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

This softkey enables you to set the ratio between the increment value of the step keys and the front panel knob. For example, make frequency the active function and then set the increment value for frequency to 1.0 MHz and the step/knob ratio to 10/1. The up and down arrow keys will change the frequency in 1.0 MHz steps and the front panel knob will change the frequency by 100kHz (1/10th of increment value).

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 an active function 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

This softkey sets the stop frequency for a span power search over a user-specified range.

Preset N/A

Range N/A

Store Ref Osc Setting

This softkey enables you to store the current coarse and fine reference oscillator adjustment settings. Refer to the calibration guide for more information.

NOTE This adjustment is intended for use by service personnel.

Store To File

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.

NOTE File names are limited to 23 characters.

Subnet Mask

This softkey is used to configure the LAN subnet mask. Your IT service department can define a subnet mask for the signal generator.

Summing Ratio (SRC1/SRC2) x.xx dB

This softkey enables you to set the power level difference (ratio) between the source one and the source two signals when the two signals are summed. A positive ratio value reduces the amplitude for source two, while a negative ratio value reduces the amplitude for source one.

The range for the summing ratio depends on the modulator attenuator setting for the signal generator that is summing the signals. The minimum range is achieved when the modulator attenuator setting is zero, and the maximum range is reached when the maximum attenuator value is used. The range can be calculated using the formula: $\pm \text{Range} = 50 \text{ dB} + \text{Modulator Attenuation}$.

Preset 0.00 dB

Range *Min:* ± 50 dB *Max:* ± 90 dB

Sweep

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 Direction Down Up

The softkey enables you to change the direction of a list or step sweep.

Down Sweeps 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

Use this hardkey to access a menu of softkeys that enable you to configure step and list sweeps.

Sweep Repeat Single Cont

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 Retrace Off On

This softkey enables or disables a sweep retrace. When set to On, the signal generator, upon completion of a sweep, will reset the sweep to the first sweep point. When set to Off, the signal generator, upon completion of a sweep, will not retrace the sweep but remain on the last sweep point.

On At completion of the sweep, the sweep retraces and stops at the first sweep point.

Off The sweep does not retrace but remains on the last sweep point.

Preset On

Sweep Trigger

Use this softkey to access a menu from which you can select a triggering mode for a full sweep. You can select from the following choices: Free Run, Bus (software triggering), Trigger Key (used with the front-panel trigger hardkey), or Ext (for using a TTL-level signal supplied to the TRIGGER IN connector).

| | |
|---------------|---|
| Free Run | The source will continue sweeping without waiting for a trigger signal. For the point trigger, the sweep pauses for the dwell time. |
| Trigger Key | The source will sweep after the front-panel Trigger hardkey is pressed. |
| Bus | The GPIB or LAN interface is used to trigger the source for a sweep. |
| Ext | An external trigger, applied to the TRIGGER IN connector, triggers an event. For pattern or frame triggering, the trigger is applied to the PATTERN TRIG IN connector. You can configure the signal generator to respond to a positive (rising edge) or negative (falling edge) TTL signal at the TRIGGER IN or PATTERN TRIG IN connector using the Trigger In Polarity Neg Pos softkey. |
| Preset | Free Run |

Sweep Type

This softkey accesses a menu that enables you to select between the following sweep types:

| | |
|------|---|
| 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. |

Sweep Type List Step

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

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.

The signal generator can be configured to respond to either a positive or negative edge polarity at the TRIGGER IN or PATTERN TRIG IN connector.

In the LF Out menu this softkey is available after selecting the internal source to operate as a function generator. The signal polarity at the TRIGGER OUT connector can be set to either a positive or negative edge.

Sync Out Offset

Supported This softkey is inactive at this time

T

TETRA Bands

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

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

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

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

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

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

This softkey selects Mobile 410–420 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset

Channel: 800

Frequency: 410.000 MHz

Range

Channels: 800–1200

Frequency: 410.000–420.000 MHz

TETRA Mobile 450/460

This softkey selects Mobile 450–460 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset

Channel: 2400

Frequency: 450.000 MHz

Range

Channels: 2400–2800

Frequency: 450.000–460.000 MHz

TETRA Mobile 870/876

This softkey selects Mobile 870–876 as the frequency band for TETRA. The output frequency depends on both frequency band and channel selections.

Preset

Channel: 600

Frequency: 870.000 MHz

Range

Channels: 600–840

Frequency: 870.000–876.000 MHz

Time/Date

This softkey opens a menu from which you can set the time and date functions of the clock display.

Time/Date Off On

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 |

Triangle

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 In Polarity Neg Pos

This softkey toggles the polarity of the TTL trigger signal at the TRIGGER IN connector and is active when the sweep trigger is set to Ext.

| | |
|-----|--|
| Pos | The swept-sine sweep will start on the rising edge of the 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 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

This softkey selects the front-panel **Trigger** hardkey as the trigger source. After making this selection, press the **Trigger** hardkey to trigger a waveform. For more information on triggering, see the *E8663B Analog Signal Generator User's Guide*.

Trigger Out Polarity Neg Pos

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

Turn Off Markers

This softkey turns off all active markers in the marker table editor.

U

Update Diagnostic Info

This softkey refreshes the [Diagnostic Info](#) display (described on [page 21](#)).

Update in Remote Off On

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

This softkey enables you specify noise with a uniform distribution as the modulation waveform.

User Flatness

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.

Utility

Use this softkey to access a menu of selections enabling you to configure and view signal generator settings and hardware, view and erase error messages, and access the memory catalog menu.

V

View Details

This softkey enables you to view detailed information about the highlighted test. Refer to the Troubleshooting chapter in the *E8663B Analog Signal Generator Service Guide* for more information.

This is intended for use by service personnel.

View Next Error Message

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

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

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.

VXI-11 SCPI

This softkey enables or disables the VXI-11 SCPI (Standard Commands for Programmable Instruments) protocol for communication with the signal generator. To enable the VXI-11 SCPI protocol you must turn the capability on and then press the Proceed With Reconfiguration and Confirm Change softkeys. The signal generator will reboot and enable the VSI-11 SCPI protocol.

This softkey allows the use of the VXI-11 standard for instrument communication over the LAN (Local Area Network) interface.

Off The VXI-11 SCPI protocol is not enabled.

On The VXI-11 SCPI protocol is enabled and files can be transferred using this protocol.

The VXI-11 SCPI protocol state (off or on) survives a preset or system reboot.

W

Web Server Off On

This softkey enables or disables the signal generator's web server capabilities. The web server state, off or on, survives a preset or system reboot.

Off The web server is not enabled.

On The web server is enabled and the signal generator can be accessed using this protocol. Press the Proceed With Reconfiguration and Confirm Change softkeys to complete the process. The signal generator will reboot and enable the web server.

White Pixels Screen Test

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.