Model 60 and Model 100

Multi-format Communications Signal Simulator

Data Sheet

Test components and systems with life-like signals

For temperatures 15° to 30°C and internal system clock of 125 MHz.
Specifications in *italics* are supplemental.

Frequency

Range: Model 60: 800 – 1000 MHz, 1.4 – 1.6 GHz, 1.6 – 1.8 GHz, 1.8 – 2.0 GHz;
Model 100: same as Model 60 plus 2.1 – 2.3 GHz and 2.3 – 2.5 GHz

Resolution: 1 Hz; set by upconverter LO

RF Output

Power Level: 0 dBm (external amplifiers available) to –70 dBm total signal power

Resolution: 0.1 dB (signal generation mode); 1.0 dB (output control mode)

Flatness: *±1.5 dB across modulation bandwidth*

Accuracy: *±0.05 dB after calibration with power meter*

Spectral Purity

Spurious: RF spurious (relative to a single carrier*)
–65 dBc within a 4 MHz bandwidth at the center frequency
–50 dBc elsewhere

Multi-tone Stimulus

Number: 1 to 1000 tones within 25 MHz bandwidth

Spacing: 238 Hz to 10 MHz

Resolution: 238 Hz using 1 phase set, 12.2 kHz using 50 phase sets

IM Distortion: –65 dBc average distortion relative to individual tone power (measured at 0-dBm total signal power for 16 tones spaced 100 kHz with a 50-pattern random-phase stimulus)

Magnitude Distribution: Constant, linear, custom

Phase Distribution: Constant, random (1 to 100 sets), custom

* Carrier at full power, with the AWS center frequency at the default 37.5 MHz

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Active Channel Stimulus

Signals: PHS, NADC, PDC, GSM, DECT, CT2, TETRA custom (user selectable parameters)

Modulations: BPSK, QPSK, π/4 DQPSK, MSK, FSK, custom

Filter shapes: Nyquist (α factor: 0 to 1), Square Root Nyquist (α factor: 0 to 1), Gaussian (cut-off frequency: 0 to 10 times bit rate), none

adjacent channel power for PHS RCR-28:

	upper	*lower*
adjacent	*-65 dBc*	*-65 dBc*
first alternate	*-65 dBc*	*-65 dBc*

Data Sequence: User selectable between 4 different PRBS, Alternate 1/0, All 1's, All 0's, AAA's, 555's, custom. Maximum sequence length depends on bit rate

Bit Rate: 1 to 10,000 kb/s

Signal Length: 4 ms (repeating)

Error Vector Magnitude: *Less than 1.0%*

Noise Power Ratio Stimulus

Signals: Broadband noise with or without notches

Bandwith: 10 kHz to greater than 25 MHz

Spectral Line Spacing: 238 Hz to 7.6 kHz; custom

Magnitude Distribution: Constant (white), linear, custom

Phase Distribution: Random, parabolic, constant, custom

Noise Level: 0 dBm maximum average power in noise bandwidth

Number of Notches: 0 to 10

Notch Width: 480 Hz to 25 MHz

Notch depth: 0 to 80 dB

CDMA Stimulus

Number of Walsh Codes: Up to 64 codes (code 0 through code 63); each code has independent Enable/Disable function and independent amplitude control

Code Distribution: Pilot channel Walsh code 0; sync channel Walsh code 32; paging channels Walsh codes 1-7; traffic channels Walsh codes 8-63

Code Amplitude: 40 dB relative to average signal power (set in MCSS Control area) and subject to MCSS maximum output power specifications

Short Code Length: 4K bits (truncated)

Channel Data: Random (traffic and paging channels only)

Dynamic Signal Environment Stimulus

Number of Channels: 1 to 128 simultaneous within 25 MHz bandwidth (depending on signal context size)

Signal Formats: All Active Channel Stimulus standard and custom formats, Noise Power Ratio signals, CDMA signals

Channel Spacing: 5 kHz to 5 MHz

Channel States: Up to 20 with reduced signal context size

Channel Configuration: Any combination of channels on, off or modulated; modulated channels may have same or different modulations and same or different data sequences

Magnitude Distribution: Constant, linear, random, custom (channels may have same or different amplitudes and any channel may have same or different amplitude from state to state)

Phase Distribution: Constant, parabolic, random, custom

PHS Carrier-Sense Stimulus

Channels: 1 to 100 within 25 MHz bandwidth

Modulations: All active channel standard and custom formats, user defined formats using externally generated files; PHS modulations parameter's are default

Channel Spacing: 300 kHz default, 25 kHz to 3 MHz variable

Channel States: Up to 8 through special function with reduced signal lengths; 2 states default

Configuration: Any combination of channels on, off, or modulated; modulated channels may have 1 of 4 PRBS patterns

Magnitude Distribution: Constant, linear, custom

Phase Distribution: Constant, parabolic (minimum peak-to-average ratio), random, custom

General

Size:	26” H (661 mm) x 16.75” W (426 mm) x 24.5” D (623 mm) (without monitor or keyboard)
Weight:	120 lbs
Power:	1500 VA max

For more information see the MCSS Model 60 and Model 100 Brochure.

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Printed in U.S.A. 8/00
5964-1603E

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