

# Narda Satellite Networks

## SATELLITE SIMULATORS TRI-BAND, QUAD-BAND AND KA-BAND



With the Wideband Global SATCOM (WGS) becoming operational, L-3 Narda Satellite Networks has expanded its Satellite Simulator product line beyond Tri-band, now including both Quad-band and Ka-band capabilities.

Designed for use as a training test-bed, L-3 Narda Satellite Networks satellite simulators can be used by operations personnel to setup and operate satellite earth terminals in the field under realistic operating conditions without the need for an actual satellite.

Use of the L-3 Narda Satellite Networks simulators in lieu of a satellite permits signal acquisition by the earth terminal, antenna pointing, uplink power adjustment, signal reception, link closure and communications systems adjustment to establish acceptable bit error rates with very low satellite terminal transmit power.

### **Key Features**

- Simulates C-, X-, Ku-, Ka-Bands simultaneously
- Permits earth station set-up without actual satellite available
- Ruggedized/ weatherproof enclosures for outdoor deployment
- Typical operation range is 50-1000 ft (actual range is determined by antenna size and power)
- Low-phase noise for digital data
- Wireless remote control (available with Quad-Band Simulator)
- Lightweight
- Easy to operate



## SATELLITE SIMULATORS

### TRI-BAND, QUAD-BAND AND KA-BAND

#### KA-BAND

##### INPUT CONTROL AND POWER

Power Requirements 12 VDC or Battery Pack Option

##### RF INPUT SIGNALS

Ka-Band 30.0 to 31.00 GHz @ nominal -25 to +0 dBm

*Power levels are dependent on dish size, distance to simulator, and transmitter power*

##### TRANSFER CHARACTERISTICS -- ALL BANDS

Phase Noise 10 dB (typical) better than IESS 308/309

Midband Gain -20 dB loss - attenuation setting including antenna gain

Gain Ripple Full Band ±1.5 dB max

Gain Ripple per 80 MHz ±0.75 dB max

Phase Linearity per 5 MHz ±10 deg max

Frequency Translation Accuracy ± 1ppm

In-band Signal Related Spurious -45 dBc

Leakage Signals -45 dBm max

Image Rejection >30 dB

1 dB Compression Point 0 dBm at 0 dB attenuation

Input and Output Antennas Linear polarized (nominal 5 dBi gain)

Input IP3 >+20 dBm min

Group Delay ±0.5 ns/40 MHz

##### PHYSICAL SPECIFICATIONS

Mechanical Dimensions Approx. size 6" x 3.5" x 1.5" w/o battery option, or C-, X-, and Ku-Bands, call factory for Ka-Band

Weight < 5 lbs

Operating Temperature 0° to 50° C

#### TRI-BAND

##### RF SIGNALS

	C-BAND	X-BAND	KU-BAND
RF Input Frequencies (GHz)	5.850 to 6.425	7.90 to 8.40	14.00 to 14.50
RF Output Frequencies (GHz)	3.625 to 4.200	7.25 to 7.75	10.95 to 11.20 11.45 to 11.70 11.70 to 12.20 12.25 to 12.75

##### TRANSFER CHARACTERISTICS -- ALL BANDS

Type Non-Inverting

Gain -10 dB

Attenuation Control 30 dB (60 dB optional)

Gain Ripple ±0.25 dB/40 MHz  
±1.0 dB/600 MHz

1dB Compression Point (Output) -10 dBm (@ 0 dB attenuation)

Gain Stability 0.25 dB/day (25°C)

Impedance 50 ohms

VSWR In/Out 2.0:1 max

Spurious and Harmonic Rejection 50 dB min in-hand

Phase Noise 10 dB (typical) better than IESS 308/309

Frequency Stability ±5 x 10-8/day (±1 x 10-9/day optional)

Group Delay ±0.5 ns/40 MHz

Input/Output Antennas Waveguide horns with nominal gains of 10 dB

##### PHYSICAL SPECIFICATIONS

Dimensions 19" H x 32" D x 27" W

Weight 78 lb

#### QUAD-BAND

##### INPUT CONTROL AND POWER

AC Power 115 to 230 VAC @ 5 watts nominal

DC Power 12 to 24 Volts DC

##### RF INPUT SIGNALS

C-Band 5.85 to 6.425 GHz @ nominal -15 dBm

X-Band 7.9 to 8.4 GHz @ nominal -15 dBm

Ku-Band 14.0 to 14.5 GHz @ nominal -15 dBm

Ka-Band 30.0 to 31.0 GHz @ nominal -15 dBm

*Input levels are dependent on dish size, distance to simulator, and transmitter power*

##### TRANSFER CHARACTERISTICS -- ALL BANDS

Phase Noise 10 dB (typical) better than IES 308/309

Midband Gain 30 dB loss + attenuation setting (measured @ input/output antenna interfaces)

Gain Adjustment 35 dB continuously variable

Gain Ripple Full Band ±1.5 dB max

Gain Ripple per 80 MHz ±0.75 dB max

Phase Linearity per 5 MHz ± 10 deg max

Frequency Translation Accuracy ±5kHz nominal, +/-10kHz for Ka-Band

In-band Signal Related Spurious -50 dBc nominal

L0 Leakage -90 dBm max

Image Rejection >50 dB

VSWR In and Out 2.0:1

Input and Output Antennas With nominal gains of 6 dB

1 dB Compression Point 0 dBm at 0 dB attenuation

Group Delay +/- 5 ns/40 MHz

##### PHYSICAL SPECIFICATIONS

Mechanical Dimensions 6" H x 14" D x 12" W

Weight <35 lbs

Front Panel Controls 30 dB attenuation (continuous) per band

Front Panel Indicators Lock alarms

Remote Switch Control Band select (50 ft cable)



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SATCOM Group



**communications**  
Narda Satellite Networks

**L-3.** Headquartered in New York City, L-3 Communications is a prime contractor in aircraft modernization and maintenance, C<sup>3</sup>ISR (Command, Control, Communications, Intelligence, Surveillance and Reconnaissance) systems and government services. L-3 is also a leading provider of high technology products, subsystems and systems.

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