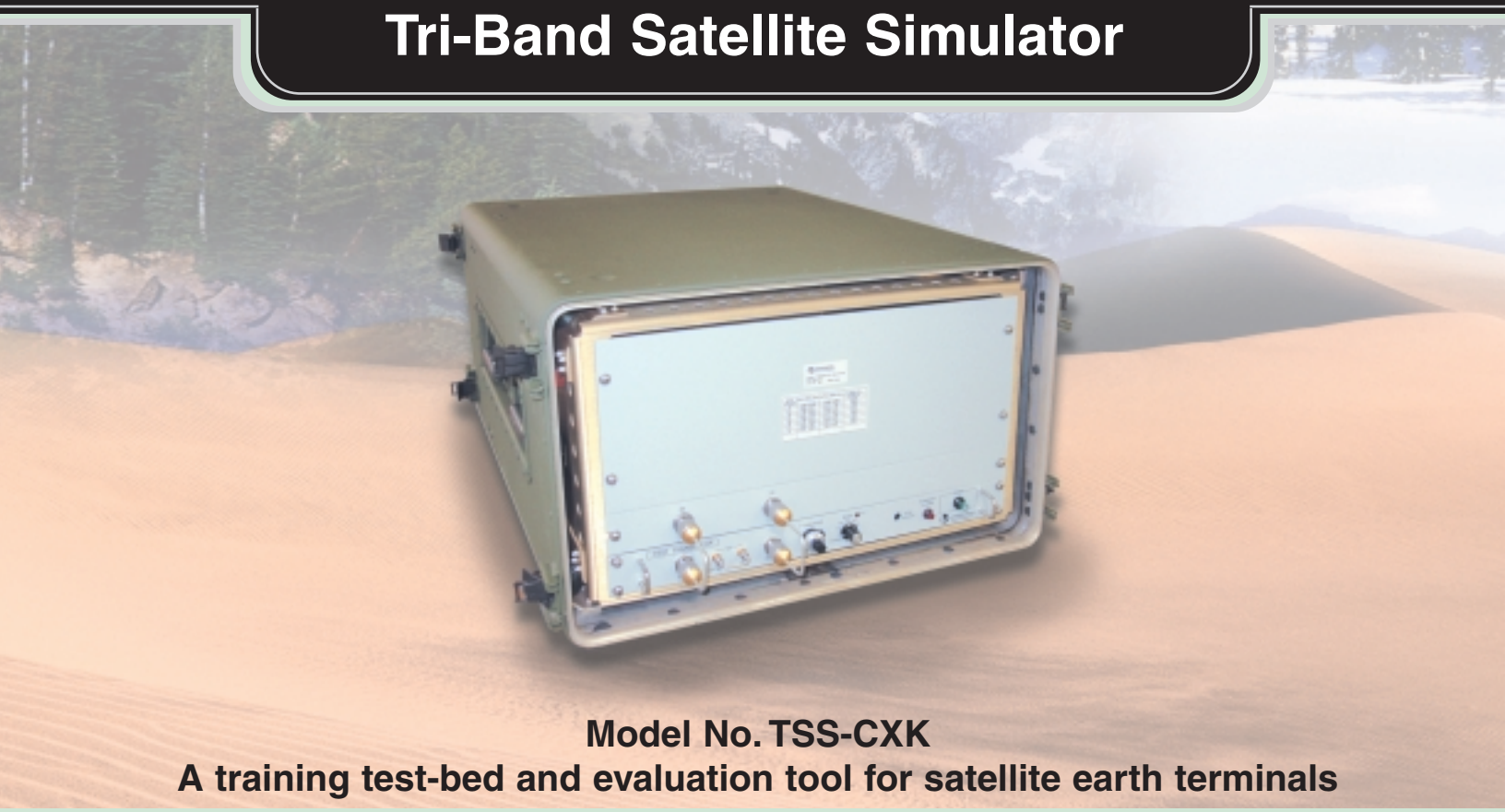
Tri-Band Satellite Simulator



Model No. TSS-CXK
A training test-bed and evaluation tool for satellite earth terminals

Designed for use as a training test-bed. The TSS-CXK Tri-band satellite simulator is used by operations personnel to set-up and operate flyaway tri-band satellite earth terminals in the field under realistic operating conditions without the need for an actual satellite. Use of the Satellite Networks simulator, in lieu of a satellite, permits signal acquisition by the earth terminal, antenna pointing, uplink power adjustment, signal reception, link closure and communications system adjustment to establish, acceptable bit error rates, with very low satellite terminal transmit power.

The Satellite Networks satellite simulator is a broad band RF-to-RF converter that translates an input uplink frequency band to an output down link frequency band, simulating the satellite up and down link. Superior transmission characteristics and low phase noise accommodates digital data that would normally be transmitted via DSCS (X-Band) or Commercial (C-Band and Ku-Band) satellites.

The TSS-CXK Satellite Simulator contains built in wideband input and output horn antennas. The nominal TSS-CXK conversion gain, including antenna gains, is adjustable from -10 dB to -40 dB. Assuming a 2.4 meter earth terminal under test, with a range in the order of 300 feet between the terminal and the TSS-CXK, a received C/KT in the order of 75 dB-Hz can be achieved with a terminal carrier power in the order of only a few milliwatts (exact levels depend on the frequency of operation, and the specific terminal parameters). Operation is simple with the simulator located approximately 300 feet from the antenna horns pointed towards the terminal.

FEATURE OVERVIEW

- Simulates DSCS (X-Band) and commercial (C-Band and Ku-Band) satellites
- Permits Earth Station set-up without actual satellite available
- Accommodates a typical range of 300 feet (other ranges available by adjustment)
- Low phase noise for digital data
- Superior transmission characteristics
- Compact with self-contained horn antennas
- Easy to operate
- Light-weight
- Ruggedized enclosures for outdoor deployment

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PERFORMANCE SPECIFICATIONS

Parameter	C-Band	X-Band	Ku-Band
Input Frequencies (GHz)	5.850 to 6.425	7.90 to 8.40	14.00 to 14.50
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

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
1 dB 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	±5x10-8/day (±1x10-9/day optional)
Group Delay	±0.5 ns/40 MHz
Input/Output Antennas	Waveguide horns with nominal gains of 10 dB

MECHANICAL

Front Panel Controls

- 9 position frequency translation select (one C, two X, 5 Ku-Band and STBY)
- 30 dB attenuation control (continuous)
- Crystal Adjust
- Power On/Off

Front Panel Indicators

- Power On/Off
- Summary Alarm

Prime Power

- 115/230 VAC ±10%, 47 to 63 Hz
- 100W consumption

Connections

- RF In-Type N Female
- RF Out-Type N Female
- LO Monitor (U Joint)
- External Reference-BNC (Optional)

Dimensions, Weight

- 19"H x 32"D x 27"W 78 lbs.

Operating Temperature

- 0 to 50°C

Note: Specifications subject to change without notice

Weather Resistant Model No. TSS-CXK-WR is Available

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