NOVELSAT

XEMULATOR SATELLITE TRANSPONDER EMULATOR

For Seamless Mobile SATCOM Validation

PRODUCT SHEET

UNMATCHED FLEXIBILITY FOR SATCOM TESTING

The Xemulator delivers practical, real-world satellite link emulation for developers, integrators, and test labs—enabling thorough testing of Satcom-On-The-Move (SOTM) terminals, airborne systems, and ground-based platforms. Available in both indoor and outdoor configurations, and supporting Ku- and Ka-band operation, it simulates live satellite transponder performance—without the need to coordinate costly satellite capacity. With independent operation, hub integration, and internal signal generation, the Xemulator replicates authentic link behavior across a range of use cases and deployment environments.

VERSATILE APPLICATIONS IN THE FIELD AND LAB

Designed for the challenges of modern SATCOM development, Xemulator's adaptable platform supports static and dynamic scenarios, including direct installation on drones for LEO satellite simulation or field-testing in hangars and rugged terrain. Engineers can replicate satellite links with precise frequency control, real-world RF characteristics, and flexible gain and attenuation settings—perfect for verifying end-to-end system behavior and stress-testing under realistic conditions. From research labs to production line testing, the Xemulator accelerates workflows and validates performance before real-world deployment.

ROBUST PERFORMANCE, RUGGED DESIGN

Xemulator's compact footprint and robust build ensure reliable operation in any environment. Outdoor models are engineered to withstand harsh weather and industrial conditions, while indoor variants streamline lab integration. Featuring full L-band coverage (950–2150 MHz), Ku-band and Ka-band RF interfaces, and advanced gain control, the Xemulator supports precise link modeling—while minimizing cost and complexity. Integrated Ethernet and MIL-STD connectors provide secure data and power interfaces, supporting seamless integration into your SATCOM test environment.

HIGHLIGHTS

- Ku- and Ka-band versions
- Indoor and outdoor models
- Standalone operation or hub integration
- Realistic satellite transponder emulation for SOTM terminals, airborne platforms, and field-deployed sensors
- Drone-mountable for dynamic, on-the-move LEO simulation
- Supports RF performance testing without live satellite coordination
- Full L-band interface with programmable gain and attenuation
- Compact, rugged design for lab and field environments
- Internal signal generation and reception
- ±30° coverage angle for field deployment
- Simple setup, flexible operation, and low power consumption

XEMULATOR SATELLITE TRANSPONDER EMULATOR – SPECIFICATIONS

KA-BAND OUTDOOR VERSION

RF INTERFACES

L-band Rx:
Connector: SMA
Freq. Range: 950 – 2150 MHz

L-band Tx:
Connector: SMA
Freq. Range: 950 – 2150 MHz
Max. Output power: 0 dBm
Gain Control: 20 dB
Frequency resolution: 1 MHz

Ka-band Rx:
Interface: Feed Horn
Freq. Range: 27.5 – 30.75 GHz
Polarization: LHCP / RHCP
electrically switchable
Selectable LO:
26.55 GHz for 27.5-28.7 GHz
27.15 GHz for 28.1-29.3 GHz
27.85 GHz for 28.8-30 GHz
28.6 GHz for 29.55-30.75 GHz
Noise Figure: 10 dB
Max. Gain: 10 dB
Input P1dB: >-15 dBm
VVA Range: >15 dB

Ka-band Tx:
Interface: Feed Horn
Freq. Range: 17.7 – 20.2 GHz
Polarization: LHCP / RHCP
electrically switchable
Selectable LO:
16.75 GHz for 17.7-18.9 GHz
17.35 GHz for 18.3-19.5 GHz
20.55 GHz spectrum inversion for 19-20.2 GHz
22.15 GHz spectrum inversion for 20-21.2 GHz
Max. Gain: >12 dB
Power at Max. Gain: >0 dB
VVA Range: >20 dB

IF:
DCA: 31 dB, 1 dB step

CONNECTIVITY & POWER

Ethernet Ports: 10/100/1000 (MIL-STD)

DC Power: 12 VDC, 1.4 A, MIL-STD, or
36 VDC, 0.5 A, MIL-STD

PHYSICAL

Dimensions (L x W x H):
202 x 88.2 x 170.8 mm

Weight: 2 Kg

KU-BAND OUTDOOR VERSION

RF INTERFACES

L-band Rx:
Connector: SMA
Freq. Range: 950 – 2150 MHz

L-band Tx:
Connector: SMA
Freq. Range: 950 – 2150 MHz
Max. Output power: 0 dBm
Gain Control: 20 dB
Frequency resolution: 1 MHz

Ku-band Rx:
Interface: Feed Horn
Freq. Range: 13.75 – 14.5 GHz
Polarization: Single Linear
LO Frequency resolution: 1 MHz
Noise Figure: 8dB at maximum gain,
40dB at minimum gain
Input P1dB: <-9 dBm
VVA Range: >22 dB

Ku-band Tx:
Interface: Feed Horn
Freq. Range: 10.7 – 12.75 GHz
Polarization: Dual linear
electrically switchable
LO Frequency resolution: 1 MHz
Power: 0 to -20 dBm
Input P1dB: -9 dB
Power at Max. Gain: >-3dBmW
VVA Range: >16 dB

CONNECTIVITY & POWER

Ethernet Ports: 10/100/1000 (MIL-STD)

DC Power: 12 VDC, 1.3 A, MIL-STD

PHYSICAL

Dimensions (L x W x H):
177 x 74.9 x 160.6 mm

Weight: 1.4 Kg

For more information visit
www.novelsat.com

06-06-2025