

Compact Ka-band terminal with benefits of onboard processing

Hubless terminal-to-terminal communications

Fully compliant with Eutelsat HOT BIRD™ SKYPLEX transponders



SKYPLEX, from Eutelsat, is the world's first multimedia satellite network to feature on-board satellite multiplexing of digital television, radio, and data. SKYPLEX avoids long backhauls to a central location and enables easy contribution from smaller or regional content providers. The system collects uplink signals from many sources, in many locations, packages them on-board the satellite and delivers them to receivers on the ground. The service is offered on Eutelsat Ka-band HOT BIRD™ satellites.

The SKYPLEX Ka-band terminal is a compact unit just 31 cm wide and 4.5 cm high. This two-way, bandwidth-on-demand broadband VSAT gives you the system capacity and throughput to handle the accelerating demand for multimedia services. The terminal can receive a downlink stream of up to 36 Mbps user data rate, assembled by the HOT BIRD™ satellite from as many as eighteen uplink carriers, selected from a combination of 6 Mbps and 2 Mbps carriers. SKYPLEX can be operated in either continuous (SCPC) or burst (TDMA) mode depending on your traffic pattern.

SKYPLEX At-a-glance

On-board satellite multiplexing of digital television, radio, and data

Handles as many as eighteen uplink carriers

Compact form factor: 31 cm x 4.5 cm

Operates in either continuous (SCPC) or burst (TDMA) mode depending on traffic pattern

Features a standard 10/100BaseT Ethernet interface and a fully Integrated IP router

The terminal features a standard 10/100 BaseT Ethernet interface making it easy to integrate into your existing LAN. Each SKYPLEX terminal includes an integrated IP router. Dynamic Bandwidth-On-Demand (BoD) provides access to network resources based on user subscription and actual traffic flow rates.

The SKYPLEX terminal is provided by ViaSat, Inc. With our experience in building thousands of commercial satellite earth stations, as well as critical communication systems for the U.S. Department of Defense, you can be sure of the high-performance and reliability of our products.

SKYPLEX DATA TERMINAL SPECIFICATIONS

UPLINK

Modulation: QPSK

Transmit IF Frequency Range: 2150-2300 MHz

Hopping bandwidth: 150 MHz

Transmit frequency resolution: < 10 Hz

Transmit frequency accuracy:

Tracked by system via electronic frequency control on master oscillator

Nominal Transmit IF signal level: 0 to -40 dBm

Transmit IF connector (on box): Type-F, Female

Transmit IF impedance: 75 ohm

Transmit return loss: >11 dB

Carrier on/off isolation (unmodulated carrier measured in 4 kHz band):

60dB minimum (applies when terminal is programmed to be disabled)

Modulator spectrum output: Raised-Cosine with 35% roll-off

Tx IFL DC voltage: +32 VDC @ 1.5A

ODU M&C channel: None

DOWNLINK

Modulation Type, spectral shaping, descrambling and FEC decoding:

ETSI EN 300 421 compliant with inner convolutional code rates only 1/2, 2/3 or 3/4

Receive Symbol Rate: 27.5 Mbaud

RF Input Frequency Range: 1350-1500 MHz

Input Power: Desired Carrier: -60 to -30 dBm

Aggregate Power: < -5 dBm

Input Impedance: 75 ohms

Input return loss: -10 dB min

Carrier Acquisition Range: Initial ± 5 MHz, carrier change ± 200 kHz

IFL CABLES

IFL type: Dual cable, one transmit, one receive

Connectors: Type-F male on cable ends

IFL length and cable type:

10 to 30 meters using RG-6/U cable

30 to 60 meters using RG-11/U cable

Transmit IFL signals: Transceiver power; Transmit IF

Transmit IF: 2150 - 2300 MHz

IDU and transceiver port impedance: 75 ohm

10 MHz reference level: 0 to 5 dBm at IDU output

Transceiver voltage: 24-36 VDC; Shield grounded; Center conductor positive

Transceiver power consumption: Less than 50 Watts

Receive IFL signals: Receive IFL Signals: 10 MHz reference, Receive IF

Receive IF frequency: 1350-1500 MHz

OUTDOOR UNIT

Ka-band Transmit

Transmit frequency band: 29.5 to 29.65 GHz

Antenna diameter: < 1 meter

Antenna side lobe gain: Less than 29 -25 log (θ) dBi for $2.5 < \theta < 7$ degrees

Transmit polarization:

Horizontal (Pol. X) or Vertical (Pol. Y), manually selectable

Polarization isolation: Greater than 25 dB

EIRP at 1 dB gain compression: Greater than 50 dBW

BUC power at 1 dB compression: Greater than 33 dBm

Block upconverter gain: Greater than 48 dB

On-axis spurious radiation

Carrier on: Less than 4 dBW EIRP in any 100 kHz band outside nominated bandwidth

Carrier off: Less than -21 dBW in any 100 kHz band outside nominated bandwidth

Ka-band Receive

Receive frequency band: 19.700 to 19.850 GHz

LNB Noise Figure: < 2 dB

LNB Gain: Greater than 45 dB

Antenna diameter: < 1 meter

Antenna side lobe gain: Less than 29 -25 log (θ) dBi

Receive polarization: Horizontal (Pol. X) or Vertical (Pol. Y)

Polarization Isolation: Greater than 25 dB

OUTDOOR UNIT

Mechanical/Environmental/Regulatory

Weight (BUC & LNB combined): < 7 lbs.

Antenna Mount: Kingpost Ground Mount or Non-Penetrating Roof Mount

Antenna Adjust Range

Elevation: 10-90 degrees continuous

Azimuth: 360 degrees continuous

Wind Loading: 50 mph (operational) 125 mph (survivable)

Temperature, Operating: -40° to +55° C

Temperature, Storage: -55° to +85° C

Humidity, Operating: 0-100%, Condensing

Altitude: Up to 15,000 feet

MTBF: >90,000

R&TTE Directive 1999/5/EC (CE)(comprised of the following three components):

Europe - Radio Equipment and Telecommunications Terminal Equipment and the Mutual Recognition of their Conformity

EN 60950 (R&TTE article 3.1a): Europe (CE) - Safety of Information Technology Equipment

EN 301 489-12 (R&TTE article 3.1b): Europe (CE) - EMC, VSAT, satellite earth stations operating between the 4 GHz and 30 GHz frequency range

EN 301 459 (R&TTE article 3.2): Europe (CE) - Spectrum, VSAT, satellite earth stations transmitting in the 29.5 to 30 GHz frequency range

INDOOR UNIT

Mechanical/Environmental/Regulatory

Mechanical Dimensions: 4.5 cm high (1U), 31 cm wide, 25 cm Deep

Weight: < 5 lbs

Ethernet Interface: 10/100 BaseT (RJ-45)

Power: 100 to 240 VAC 50/60 Hz auto-sensing, auto-ranging

Temperature, Operating: 0° C to 40° C

Temperature, Storage (non-operating): -20° C to 70° C

Humidity, Operating: 95% Relative Humidity (non-condensing) @ 0° C to 40° C

Vibration, Operating: Random Vibration 5-100 Hz, 10 minutes per axis, 0.5 grms

MTBF: > 40,000 hours

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