

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  $\pm 5$  MHz, carrier change  $\pm 200$  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 ( $\theta$ ) 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 ( $\theta$ ) 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

**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 to 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



[www.viasat.com](http://www.viasat.com)

**Atlanta** 4356 Communications Drive, Norcross, GA 30093, USA, Tel: +1.678.924.2400, Fax: +1.678.924.2480

**Beijing** Lucky Tower, Block B, Suite 1110-1112, No. 3 Dong San Huan Bei Lu, Beijing 100027, China, Tel: +86.10.6461.5761, Fax: +86.10.6461.5754

**New Delhi** 601, Paharpur Business Centre, Nehru Place Greens, New Delhi 110 019, India, Tel: +91.11.620.7618 or 620.7624, Fax: +91.11.647.4718 or 647.4725

**Rome** Piazza del Popolo 18, 00187 Rome, Italy, Tel: +39-0636712432, Fax: +39-0636712400

**San Diego** 6155 El Camino Real, Carlsbad, CA 92009, USA, Tel: +1.760.476.2200, Fax: +1.760.929.3941

**Sydney** Unit 4/22 Narabang Way, BELROSE, NSW 2086, Australia, Tel: +61.2.9986.3888, Fax: +61.2.9986.3899

**Washington** 22300 Comsat Drive, Clarksburg, MD 20871, USA, Tel: +1.301.428.4500, Fax: +1.301.428.4700