

2.4M Ka-Band O3b Terminal

Remote Auto Acquire / Auto Tracking



Description

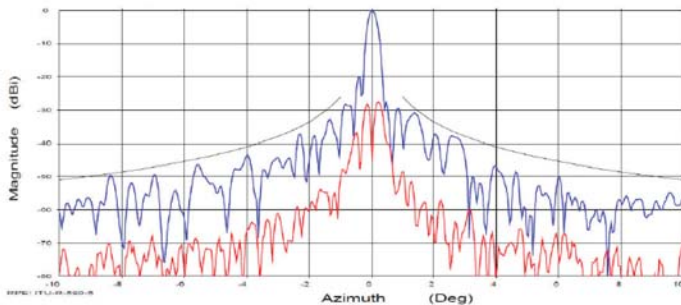
The new General Dynamics SATCOM Technologies auto acquire / auto tracking Ka-Band series antennas are designed for O3b installations. The 2.4m antenna has been designed to provide reliable, trouble free service in a variety of environments. Each terminal is comprised of a pair of tracking antennas under the control of a single dedicated antenna control unit (ACU). The O3b service is provided and maintained by the antenna pair acquiring and tracking alternate satellites in the O3b constellation. The tracking function is done by having one antenna acquire and follow a rising O3b satellite in MEO orbit with a pointing accuracy of better than <0.1 degrees while the second antenna is parked in a home position awaiting the next rising satellite. Terminals have been designed to support a range of Ka-band SSPB's ranging in output powers from 10 watts to 40 watts.

The mechanical design has been optimized for longevity to offer many years of service and packaging to reduce shipping costs. Material selections for the reflector significantly reduce the risk for shipping damage when compared to metal reflector solutions. Factory pre-assembly of critical components eliminates the requirement for complex assembly procedures in the field.

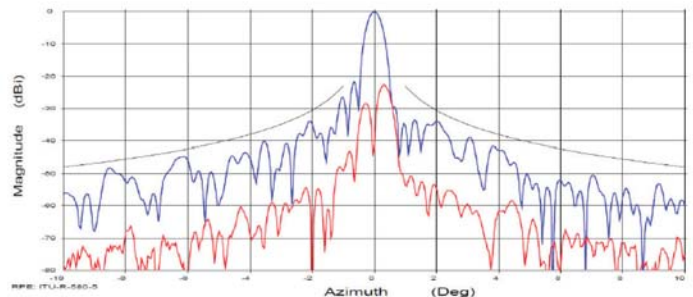


Key Features

- Automated acquire and precise tracking accuracy for terminals requiring higher uplink EIRP margins
- Reliable all-weather performance
- Increased antenna strength to support a variety of SSPB options ranging from 10 to 40 watts
- Integrated positioner pedestal and antenna control unit
- Field friendly installation without requirement for specialized tools
- Optimized, 4-piece reflector design for maximum shipping efficiencies
- Compliant with major international regulatory requirements (ITU-R S.580, FCC 47 CFR 25.209 sidelobe specifications)



*Ka-Band Azimuth +/- 10 deg measured (Tx)
Band pattern coverage*

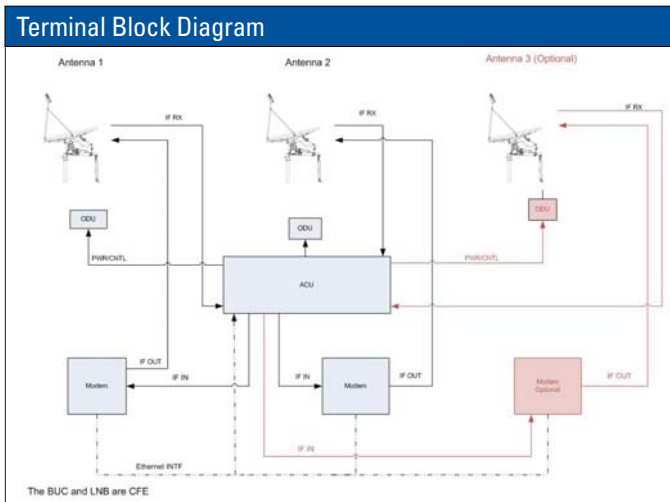


*Ka-Band Azimuth +/- 10 deg measured (Rx)
Band pattern coverage*

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Electrical Performance		
Antenna Size		2.4M (4-piece)
Operating Frequency (GHz)	Receive Transmit	17.960 - 19.163 GHz 27.760 - 28.963 GHz
Midband Gain (+/- .2 dB)	Receive Transmit	51.2 dBi 55.0 dBi
HPBW Nominal Mid-Band to -3 dB points (degrees)	Receive Transmit	0.47 deg 0.30 deg
Antenna Noise G/T (dB/K) at 19.2 GHz & 15 deg elevation		29.0 dB/K (calculated using a 120K LNB)
Uplink EIRP (dBW) with Multiple SSPB/HPA Options:	5 watt SSPB 10 watt SSPB 20 watt SSPB 40 watt SSPB	--- 65.0 dBW 68.0 dBW 71.0 dBW
Sidelobe Envelope Co-pol (Azimuth)		
Polarization (co-pol)		RHCP/LHCP (Field Selectable)
Feed Interface	Receive Transmit	WR-42 WR-28
Cross Pol Isolation Tx-Rx Port to Port Isolation		>19 dB on axis >80 dB
VSWR (Tx & Rx Bands)		1.4:1 Max ($\Gamma < -15.56$ dB)

Mechanical	
Reflector Material	Glass Fiber Reinforced Polyester SMC. Highly resistant to corrosion, fungus and UV radiation
Antenna Optics	Easy-to-assemble, Offset Fed Prime Focus Design with 0.8 F/D optics
Two Axis Pedestal	Modified polar mount tracking +/- 80 deg azimuth and +/- 10 deg elevation
Tracking Accuracy & Rate	Better than +/- 0.08 deg (within 0.5 dB beam peak) and 1 to 2 deg / second
Antenna Return to Home Time	< 3 minutes (This is the time for tracking antenna to "home" for next acquisition)



Environmental Performance		
Wind Loading	Operational Survival	56 km/hr gusting to 72 km/hr 161 km/hr with antenna in stowed position
Temperature	Operational Survival	-20° to 50° C / up to 100% RH -40° to 85° C (storage) / up to 100% RH
Atmospheric Conditions		Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas
Solar Radiation		360 BTU/h/ft ²
Lightning / ESD		Survive 5kV close by lightning strike/ ESD protected to 15 kV

*ESD and Lightning performance requires proper grounding and surge devices not supplied with the system

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