requtech

Tropoline240

2.4m Troposcatter auto-point ‘Flyaway’ antenna system

The Tropoline240 auto-point troposcatter terminal is designed as a robust, light-weight and easy to use Flyaway for C-band communication over long distances.

KEY FEATURES

- 2.4m Segmented Carbon Fiber Reflector
- Fully integrated motorized antenna
- Antenna Control Unit (ACU) including Orientation Sensors
- High Performance feed for C-band Troposcatter applications 4.4 – 5.0 GHz
- Pointing accuracy ±0.2 degrees
- Military Grade Light Weight Aluminium Pneumatic Mast with hand pump extendable to 3m
- Two operators can mount the antenna typically in 50 minutes

GENERAL DESCRIPTION

This 2.4m fully automated motorized troposcatter and line-of-sight (LOS) flyaway terminal is made of state-of-the-art composite segmented light weight reflector and military grade pneumatic mast with a quadpod base for high stability. The system comes complete with hand pump for easy deployment of the mast and extension to 3m to clear obstacles. The center-fed architecture reduces antenna signal blockage leading to increased antenna efficiency. Its highly robust design allows it to operate safely in steady winds of 80kph and gusts of 108kph when properly deployed and guyed.

The antenna and RF components are packaged in rugged cases, the mast and its accessories are packaged in military grade bags.

ANTENNA CONTROL UNIT

The Antenna Control Unit (ACU) includes all sensors for positioning, orientation, monitoring and control.

MAST AND POSITIONER

The pneumatic telescopic mast and elevation over azimuth positioner are designed for robustness and reliable operation in all weather conditions in all environments and comply with MIL STD 810G as described below.

MULTI BAND ANTENNA SYSTEM

The center-fed antenna system is comprised of a light weight axisymmetric composite reflector, manufactured with high tolerances to provide excellent sidelobe and cross-polarisation performance.

INTEGRATION POSSIBILITIES

Requtech is able to provide a complete turnkey system by integrating modem, SSPA and LNB.

Currently designed to work (and optionally supplied) with the Datum M7 modem though other modems can be accommodated.

SSPAs up to 2kW can be either installed on the ground or on a shelf mounted on the quadpod base, whichever best suits the application.

LNBs can be optionally provided.

TECHNICAL DETAILS

Frequency	4.4 GHz to 5.0 GHz
Diameter	2.4 meters
Antenna Efficiency	> 60%
VSWR	≤ 1.3 : 1
RF Power handling	2 kW CW (Amp. not part of product)
Antenna Gain	40 dB minimum @ 5GHz
Compliance	ITU-R F.699 radiation pattern recommendation CE 2014/30/UE
Elevation Range	-5 to +45 degrees
Azimuth Range	±90 degrees, at full mast extension in light wind ±30 degrees, with guys and flex-WG mounted
Polarization skew	±100 degrees, motorized
Pointing Accuracy	±0.2 degrees (Azimuth and Elevation)
Monitor/Control	Via GUI and SNMP
Input Power	24/48 VDC
Mast Height	1.5 m retracted 3m extended
Packing Cases	RF and reflector: 5 robust IP65 packing cases (max. weight 70 kg/case) Mast: 5 military grade bags

Environmental details

Operational Temperature	-20°C to +50°C
Wind	
- Operational	Up to 50 mph (80 km/h), gusting to 67 mph (108 km/h) when properly guyed down
- During deploym.	25 mph (40 km/h) with gusts up to 34 mph (54 km/h)
- Survival	87 mph (140 km/h), guyed down and mast retracted

MIL STD 810G and MIL STD 461F: designed to meet compliance

	Description	Mast and Quadpod Base	Antenna System
MILSTD810F			
500.5:	Low-pressure altitude	Procedure I: Storage/Air Transport 57.2kPa for 1hr	*Antenna*: Carbon fibre composite laid up in pseudo autoclave environment *EL/AZ motorisation*: Designed to meet
501.5:	High temperature	Procedure II: Operation. Conditions as per NATO STANAG 2895 (71°C) for three cycles	Designed to meet
502.5:	Low temperature	Procedure II: Operation. -55°C for 4 hours. Severe Cold (C3)	Designed to meet
503.5:	Temperature shock	Procedure I: Shock from constant extreme temperatures Fig. 503.4-1 (-40°C / +60°C)	Designed to meet
505.4:	Solar Radiation	N/A	Designed to meet
506.5:	Rain	Procedure II: Watertightness	Designed to meet
507.4:	Humidity	65°C 95%rh / 38°C 85%rh, 10 cycles	100% rh
508.4:	Fungus Growth	All paint and finishes designed to meet	All paint and finishes designed to meet
509.4:	Salt Fog	Exposed to atomised salt solution (5% by weight in deionised water) at 35°C for 24hours, then in a climatic chamber at 23°, 50%rh for 24 hours. 48hr cycle repeated for total test duration 96 hours	Designed to meet
510.4:	Blowing Sand	Procedure II: Tested at 55°C for 3 hours at 5-6%rh with Silica Sand (as per 2.3.2.5b) at 2.2 g/m3 concentration at 18m/s	Designed to meet
510.5:	Dust	Procedure I: Air velocity 8.9m/s at 23°C for 6 hours, then 55°C for 6 hours	Designed to meet
512.5:	Immersion	Procedure IIb Deep Fording ((2) 1.5m) : 30 minute with items packed into transit cases	Designed to meet – certified to IP65
514.5:	Vibration Cat 4. Truck/Trailer/ Tracked-Restrained Cargo	Truck Vibration: 4hrs random vibration in each axis, profile in accordance with MIL STD 810F Fig. 514.5 C1	Designed to meet
		Trailer Vibration: 500 minutes random vibration in each axis, profile in accordance with MIL STF 810F Fig. 514.5 C2	Designed to meet
		Tracked Vehicle Vibration: 500 minutes random on random vibration in each axis, profile in accordance with DEF STAN 00-35 (Part5)/3 Chapter 6-01, Fig. 8	Designed to meet
516.6:	Shock: Procedure I: Functional Shock	Designed to meet	Designed to meet
	Shock: Procedure IV: Transit Drop	Designed to meet	Designed to meet
Wind		Designed to meet	Designed to meet
MILSTD461F			
	Emission	Not applicable	Designed to meet
	Susceptibility	Not applicable	Designed to meet

Requtech develops state-of-the-art fully integrated systems and microwave components for radar and communications. Our goal is to deliver reliable and robust systems and work with our customers to find the most suitable solutions for each application.

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