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X/Ka band 13m ANTENNA SYSTEM

PRODUCT OVERVIEW

The antenna system described here is a dual-band turning head antenna. The antenna system contains a main reflector of 13m diameter and a sub-reflector. The system consists in an azimuth over elevation mechanism.

The antenna optical design is a ring focus, developed to achieve the maximum efficiency, reliability, and structure stability of antenna system.

The main reflector is composed by aluminum precision formed panels, used to maintain light weight for the entire structure while guaranteeing high reliability of RF performances. The surface accuracy presents a low RMS value (better than of 0.25 mm), that is mandatory for mission critical applications.

The feed system is a dual band coaxial optimized for the X and Ka frequency bands. The antenna design is also available with other frequencies as Ku-/Ka-, C-/Ku and X-bands.

The antenna system is equipped with its own multi functions Antenna Control Unit and Monitor & Control System

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Antenna	X/Ka band 13m Antenna System	
	Rx	Tx
Antenna Diameter	13 m	
Antenna Type	Ring Focus	
Surface Accuracy	RMS ≤ 0.25 mm Main reflector; ≤ 0.15 mm Sub reflector	
Frequency (GHz)*	X band: 7.25 – 7.75 Ka band: 20.2 – 21.2	X band: 7.9 – 8.4 Ka band: 30 – 31
Gain (dBi) at Feed Interface	X band: ≥ 59.1 Ka band: ≥ 68.0	X band: ≥ 59.9 Ka band: ≥ 71.5
Feed	X/Ka-dualband Feed System: X-Rx: LHCP & RHCP - X-Tx: LHCP & RHCP Ka-Rx: LHCP & RHCP - Ka-Tx: LHCP & RHCP Ka-TRK: LHCP & RHCP	
VSWR	≤ 1.3:1	
G/T @ 20° El, clear sky (X band)	≥ 35.4 dB/K	
G/T @ 20° El, clear sky (Ka band)	≥ 42 dB/K	
EIRP X band (Single Carrier)	≥ 89 dBW	
EIRP Ka band (Single Carrier)	≥ 94.4 dBW	
Feed interface	WR112 WR42	WR112 WR34
Feed Insertion Loss	X band: ≤ 0.6 dB Ka band: ≤ 0.6 dB	X band: ≤ 0.6 dB Ka band: ≤ 0.6 dB
Axial Ratio on axis	≤ 0.55 dB	≤ 0.55 dB
Isolation (dB)	X band: Tx/Tx or Rx/Rx ≥ 18 Ka-Band: Tx/Tx or Rx/Rx ≥ 18 X band: Tx/Rx ≥ 120 Ka band: Tx/Rx ≥ 120	
Radiation Pattern	Compliant to ITU-R S.465-6 / ITU-R S.580-6	
Mechanical		
Mount Type	Elevation over Azimuth	
Antenna Travel	Azimuth: ±95°	Elevation: -1° to 90°
Drive Mode	Motorized with brushless motors	
Speed	AZ: 1°/s max.	EL: 1°/s max.
Acceleration	AZ: 1°/s² max.	EL: 1°/s² max.
Environmental		
Wind Speed	72 km/h operational, 97 km/h gusting 200 km/h survival (stow position)	
Ambient Temperature	-30° C to +50° C (operational) -40° C to + 60°C (survival)	
Relative humidity	0 to 100% with condensation	
Rain fall	100 mm/h continuous	
Solar Radiation	1200 W/m²	
Atmospheric Condition	Salt, pollutants, and corrosive contaminants as conditions found in coastal and industrial area	

*Available for different frequencies f.e. Ku-/Ka-, C-/Ku- and X-bands

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