

X/Ka Band 9 m ANTENNA SYSTEM



PRODUCT OVERVIEW

The antenna system described here is a dual-band turning head antenna. The antenna consists of a main reflector with a diameter of 9 meters and a sub-reflector. The pointing mechanism is azimuth over elevation.

The antenna's optical properties are based on a ring focus design, developed to achieve the maximum efficiency, reliability, and structural stability.

The main reflector consists of a single row of precision-formed aluminum panels (RMS values better than 0.25 mm), which are used to maintain the light weight of the entire structure while ensuring high reliability of RF performance.

The RF feed is a dual-band coaxial system optimized for X and Ka band.

The antenna offers full compliance to STANAG AComP-5648 and is equipped with its own multi-function Antenna Control Unit and Monitor & Control System.



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Antenna	X/Ka Band 9 m Low-PIM Antenna System	
	Rx	Tx
Antenna Diameter	9 m	
Antenna Type	Ring Focus	
Surface Accuracy	RMS ≤ 0.25 mm Main Reflector RMS ≤ 0.15 mm Sub-Reflector	
Frequency (GHz)	X Band: 7.25 – 7.75 Ka Band: 20.2 – 21.2 Ka Monopulse Capabilities	X Band: 7.9 – 8.4 Ka Band: 30 – 31
Gain	X Band: ≥ 56.8 Ka Band: 65.6	X Band: ≥ 57.7 Ka Band: 68.6
Feed	X/Ka Dual-Band Low-PIM Feed System: X-Rx: LHCP & RHCP – X-Tx: LHCP & RHCP Ka-Rx: LHCP & RHCP – X-Tx: LHCP & RHCP Ka-TRK: LHCP & RHCP	
VSWR	≤ 1.3:1	
G/T @ 20° El, Clear Sky (S Band)	Better than 35.1 dB/K	
G/T @ 20° El, Clear Sky (Ka Band)	Better than 42.6 dB/K	
EIRP @ X Band (Single Carrier)	Better than 89.1 dBW	
EIRP @ Ka Band (Single Carrier)	Better than 94.6 dBW	
PIM	Compliant to STANAG AComp-5648 at 3 dB Output Backoff	
Tx Power Handling	2000 W per Port in X Band 500 W per Port in Ka Band	
Feed Interface	WR-112 WR-42	WR-112 WR-34
Feed Insertion Loss	Better than 0.6 dB for all Bandwidths	
Axial Ratio on Axis	≤ 0.5 dB	≤ 0.5 dB
Isolation (dB)	X/Ka Band: Tx/Tx or Rx/Rx ≥ 20 X Band: Tx/Rx ≥ 120 Ka Band: Tx/Rx ≥ 120	
Radiation Pattern	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°/s ² max.	EL: 1°/s ² max.
Environmental		
Wind Speed	72 km/h Operational, 97 km/h Gusting 200 km/h Survival (Stow Position)	
Ambient Temperature	-30 to +50°C (Operational) -40°C to +60°C (Survival)	
Relative Humidity	0 to 100% with Condensation	
Rain Fall	100 mm/hour Continuous	
Solar Radiation	1031 Kcal/h/sqm	



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