



HITEC-LM-090-X

9 meter limited-motion X-band Satellite Ground Antenna System

KEY FEATURES

Limited motion antenna allowing for high performance operation in X-band frequencies

Generously spaced center hub for housing equipment

Large working platform for improved accessibility and maintainability

Available as standalone system with all antenna components integrated in its structure

The LM-090-X provides our client base with a robust, reliable and extremely flexible solution which can be easily adapted to specific environmental and performance requirements. The LM-090-X can accommodate different feed systems and can operate at different frequencies, depending on the application.

The reflector, 9 meters in diameter, has dual shaped Cassegrain configuration for high efficiency, and is constructed of precision bonded aluminum panels, offering state-of-the-art transmission capabilities. The backup structure consists of aluminum framework trusses, reinforced by a structural plenum. This configuration ensures optimum rigidity and surface accuracy under self-weight and environmental effects and can accommodate the optional de-icing system.

REFERENCES

Client:
Confidential

Use & deployment:
Confidential

The LM-090-X is available as low-PIM design. As for our LM-060-Ka antenna model, the antenna hub is generously spaced allowing for equipment installation right next to the feed.



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ANTENNA SYSTEM CHARACTERISTICS: HITEC-LM-090-X

SYSTEM PERFORMANCE

Tracking	Program Track Step Track (*) Monopulse (autotrack) (*)
Frequency bands	Designed for X-band (military or civil) Adaptable to Ku-band (10.7 to 18.4 GHz)
Antenna gain (ref. feed horn)	> 55.5 dBi @ 7.25 GHz approx. $20 \cdot \log_{10}(f[\text{GHz}]) + 38.3$
Antenna Noise Temperature (ref. feed horn) @ 7.5 GHz	35.0 K @ 5° Elevation 20.0 K @ 10° Elevation 10.0 K @ 30° Elevation
Radiation pattern	Complies with ITU-R S.456, S.580 and S.732
Accuracy	Tracking, no wind: N/A (*) Pointing, no wind: 0.020° Tracking, at 70 km/h and 100 km/h gusting: N/A (*) Pointing, at 70 km/h and 100 km/h gusting: 0.035°

ANTENNA OPTICS

Configuration	Cassegrain optics
Reflector diameter	Designed for 9.0 m
Reflector surface accuracy	< 0.4 mm RMS
Polarization	Tx: N/A (*) Rx: N/A (*)
VSWR	N/A (*)

FEED SYSTEM

Various feed systems can be installed following detailed customer specifications.

HUB CHARACTERISTICS

Available space for housing RF equipment	~ 1.7 m x 1.5 m x 0.95 m
Environment	Closed sealed space Temperature controlled (*)

AXIS DESIGN

- Limited motion elevation over azimuth mount
- Dual backlash compensated drives on azimuth
- High precision roller screw jack on elevation
- Controlled polarization axis (*)

ELEVATION

Operational travel range	-1 to 91 deg
Maximum rate	0.25 deg/sec High-speed option: 0.5 deg/sec

AZIMUTH

Operational travel range	180 deg
Maximum rate	0.5 deg/sec High speed option: 1 deg/s

POLARIZATION

Range	N/A (*)
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ENVIRONMENTAL CONDITIONS

Drive limit	100 km/h
Wind operational limit	Mean 70 km/h Peak 100 km/h
Survival wind	150 km/h
Temperature	Operational -20°C to 40°C Survival -35°C to 60°C
Rain	Max. > 100 mm/h
Power supply	3x400 V short-break (**) 3x400 V no-break (**)
Corrosion	Region: Coastal and polar

OPTIONS

HVAC
De-icing system
Feed blower
Hand-cranking
Logging system
19" racks
HPA supports
Motion warnings
Aircraft warning lights
Dehydrator

(*) Optional, depending on customer selected configuration

(**) Consumption depending on customer selected configuration

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