



HITEC-LM-060-Ka

6 meter limited-motion Ka-band
Satellite Ground Antenna System

KEY FEATURES

High accuracy under adverse environmental conditions for high performance operation in Ka-band frequencies

Large working platform and ladder combined with supersized center-hub for housing RF equipment and improved accessibility

Standalone system with all antenna components (e.g. power electronics) integrated in its structure

Multiple options:

- HVAC
- Active component cooling
- De-icing system
- Hand-cranking
- Logging system etc.

The LM-060-Ka is a low maintenance and future proof antenna system designed for robust, reliable and high performance operation for geostationary Ka-band applications. The LM-060-Ka can accommodate different feed systems and can operate at different frequencies, depending on the application.

The reflector, 6.8 m in diameter in a dual shaped Cassegrain configuration for high efficiency, is constructed of precision bonded aluminum panels and can be adapted to diameters from 6.0 to 7.5 m. 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.

The antenna hub has generous interior dimensions (W x H x D: 1745 mm x 1545 mm x 975 mm) and allows placing three 19" racks next to each other and installing all converters and amplifiers right next to the feed. Easy access to the equipment is ensured by a large opening covered by roller shutters.

The LM-060-Ka is equipped with the HITEC Luxembourg Antenna Control Unit HACU-1000, providing program track functionality as a baseline. Depending on customer requirements and the installed RF equipment, a step-track or monopulse capable version of the HITEC Luxembourg ACU can be installed.



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ANTENNA SYSTEM CHARACTERISTICS: HITEC-LM-060-Kc

SYSTEM PERFORMANCE

Tracking:	Program Track Step Track (*) Monopulse (autotrack) (*)
Frequency bands:	Designed for Ka-band (18.8 - 31.3 GHz) Adaptable to Ku-band (10.7 - 18.4 GHz)
Antenna gain (ref. feed horn):	> 65.1 dBi @ 27 GHz approx. $20 \cdot \log_{10}(f[\text{GHz}]) + 36.48$
Antenna noise temperature (ref. feed horn):	148.0 K @ 5° Elevation 93.0 K @ 10° Elevation 44.0 K @ 30° Elevation
Radiation pattern:	Complies with ITU-R S.456, S.580, S.732
Accuracy:	Tracking, no wind: (*) Pointing, no wind: 0.012° Tracking, op. limit: (*) Pointing, op. limit: 0.022°

ANTENNA OPTICS

Configuration:	Cassegrain optics
Reflector diameter:	Designed for 6.8 m Adaptable to other diameters from 6.0 m to 7.5 m
Reflector surface accuracy:	< 0.3 mm RMS
3dB Beamwidth:	0.104° @ 27 GHz

FEED SYSTEM

Various feed systems can be installed following detailed customer specifications.

HUB CHARACTERISTICS

Available space for housing RF equip- ment	~ 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 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
Maximum accelera- tion:	1 deg/sec ²

AZIMUTH

Operational travel range:	180 deg
Maximum rate:	0.5 deg/sec High-speed option: 1 deg/sec
Maximum accelera- tion:	1 deg/sec ²

ENVIRONMENTAL CONDITIONS

Drive limit:	130 km/h
Wind operational limit:	Mean 90 km/h Peak 110 km/h
Survival wind:	200 km/h
Temperature:	Operational -20°C to +40°C optionally -30°C to +50°C Survival -35°C to +60°C
Rain:	Max. 100 mm/h
Power supply:	3 x 400 V
Snow (build up):	1000 kg
Corrosion:	Region: Coastal and polar

OPTIONS

HVAC
Active component cooling
De-icing system
Feed blower
Hand-cranking
Hoist
Logging system

(*) Optional, depending on customer selected configuration

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