HITEC-FM-036-C

3.6 meter full-motion C-band Satellite Ground Antenna System

KEY FEATURES

Outstanding reliability with respect to hardware and software

High precision operation in adverse environmental conditions

Adaptable to a range of different reflector diameters and operational frequencies

REFERENCES

Client:
European Space Agency (ESA)

Location:
Redu Space Station, Belgium

Use & deployment:
IOT Phase
Galileo Program

3.6-METER FULL MOTION C-BAND IOT ANTENNA SYSTEM

The FM-036-C is one of our newest and most innovative antenna systems. The system includes the newly developed HITEC Luxembourg Antenna Control Unit HACU 1000 and the newly designed Antenna Front Panel (AFP) system.

The small 3.6m diameter antenna system is conceived to be easy to maintain and to offer reliable signal transmission. The reflector has shaped Cassegrain optics for high efficiency and is constructed of bonded aluminum panels. Due to its rigid structure, the antenna can be equipped with reflectors up to 4.5 m in diameter and operate in frequencies up to Ku-band.

Like all our antenna systems, the FM-036-C persuades with outstanding operational capabilities at high wind loads and large operational temperature ranges. The system is currently in use at Redu Space Station in Belgium which is owned by the ESA and operated by Redu Space Services for the In-Orbit Testing (IOT) and Validation of the Galileo satellite fleet.

HITEC LUXEMBOURG

QUALITY ASSURED FIRM ISO 9001

Version 08/2012

ANTENNA SYSTEM CHARACTERISTICS: HITEC-FM-036-C

SYSTEM PERFORMANCE

Tracking	Program Track
Frequency bands	Designed for C-band (Tx 5000 MHz - 5010 MHz; Rx 2200 MHz - 2300 MHz) Adaptable to frequency bands from S- to Ku-band (2 - 18 GHz)
Antenna gain (ref. feed horn)	44.1 dBi @ 5005 MHz
Radiation pattern	Complies with ITU-R S.465-5
Pointing accuracy	No wind: 0.015° At 45 km/h and 60 km/h gusting: 0.025°

ANTENNA OPTICS

Configuration	Cassegrain optics
Reflector diameter	3.6 m
Reflector surface accuracy	< 0.3 mm RMS (over full elevation range)
Polarization	Tx: Circular Polarization Rx: Circular Polarization
3dB Beamwidth	1.0° @ 5000 MHz
Axial Ratio (within 3σ Tracking Error)	≤ 1.0 dB
VSWR	≤ 1.3:1

HUB CHARACTERISTICS

Available space for housing RF equipment	~ 0.45 m x 0.22 m x 0.55 m
Environment	Closed sealed space Temperature controlled

AXIS DESIGN

Full motion elevation over azimuth mount, double backlash compensated drives

ELEVATION

Operational travel range	-5 to 95 deg
Maximum rate	3 deg/sec
Maximum acceleration	3 deg/sec^2

AZIMUTH

Operational travel range	± 300 deg
Maximum rate	3 deg/sec
Maximum acceleration	3 deg/sec^2

ENVIRONMENTAL CONDITIONS

Drive limit	110 km/h
Wind operational limit	Mean 60 km/h Peak 80 km/h
Survival wind	200 km/h (in stow position)
Temperature	Operational -20°C to +40°C Survival -30°C to +50°C
Power supply	3x400 V
Snow & Ice	240 kg
Corrosion	Region: Coastal and Polar

CONTACT

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