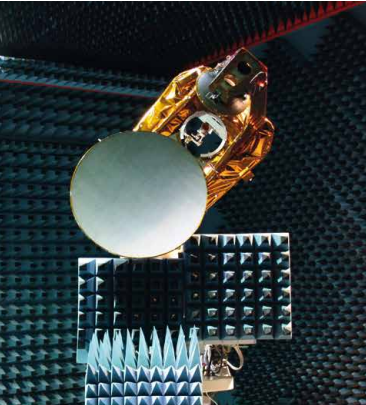
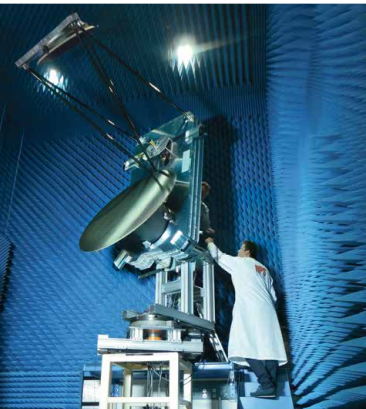
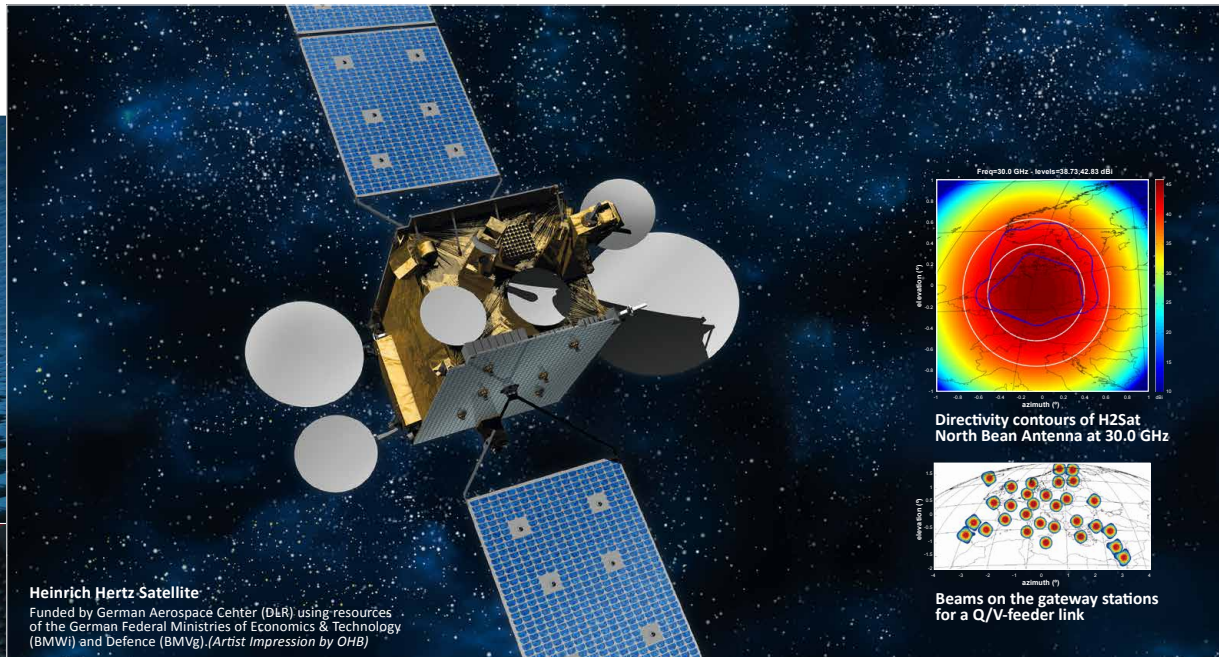


Ka-Band & Q/V-Band Antennas for Satcom and Science Applications

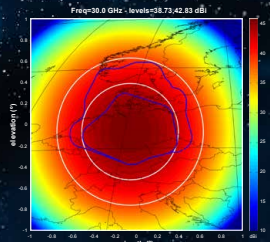
Q/V-band feeder link antenna for top deck



Ka- & Q/V-band top deck multibeam antenna



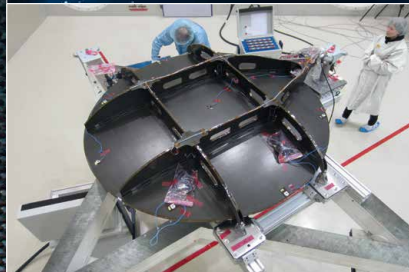
Heinrich Hertz Satellite
Funded by German Aerospace Center (DLR) using resources of the German Federal Ministries of Economics & Technology (BMWi) and Defence (BMVg). (Artist Impression by OHB)



Directivity contours of H2Sat North Beam Antenna at 30.0 GHz



Beams on the gateway stations for a Q/V-feeder link



1.6 m side deployable reflector for Ka- & Q/V-band

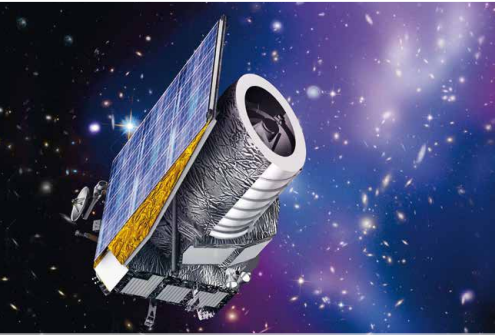


Feeder link Q/V-band feeds

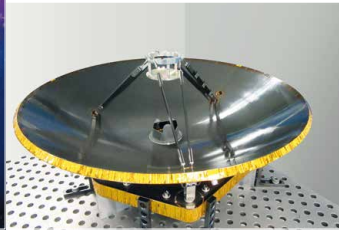
HPS is a German “turnkey supplier” for antenna subsystems, including design, analysis, manufacturing, testing and final delivery to the customer. Typical examples of antenna specifications are:

EARTH DECK ANTENNAS		SIDE DEPLOYABLE ANTENNAS	
Downlink: - Tx: 18.8 – 20.2 GHz, Rx: 28.5 – 30.0 GHz - Tested up to 49.8 GHz - Up to 19 beam - User link for multibeam scenario - Main refl. diameter: 70 cm - Sub-refl. diameter: 25 cm - First eigenfrequ. > 110 Hz - Mass: 7 kg (incl. feed cluster).	Feeder Link: - Rx: 47.2 – 50.2 GHz, Tx: 37.5 – 40.5 GHz - European coverage - 8 gateways for nominal ops - 2 gateways as diversity sites - Scan losses < 0.5 dB - Main refl. diameter: 1.2 m - Sub-refl. diameter: 0.8 m - First eigenfrequ. > 60 Hz.	1.0 m Class: - Rx: 28.5 – 30.0 GHz, Tx: 18.8 – 20.2 GHz - 2 service areas over Germany - Single offset configuration - In-orbit beam pointing error < 0.006°, in-orbit TED < 0.017 mm RMS - First eigenfrequ. > 140 Hz - Launch on-board Heinrich Hertz Satellite.	1.6 m Class: - Rx: 28.5 – 30.0 GHz, Tx: 18.8 – 20.2 GHz - 4 x interface to HDRM - Single offset configuration - In-orbit beam pointing error < 0.02°, in-orbit TED < 0.03 mm RMS - First eigenfrequ. > 130 Hz - Scalable up to 2.5 m.

Antenna Technologies



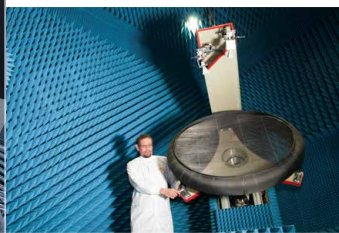
HIGH GAIN DOWNLINK ANTENNAS



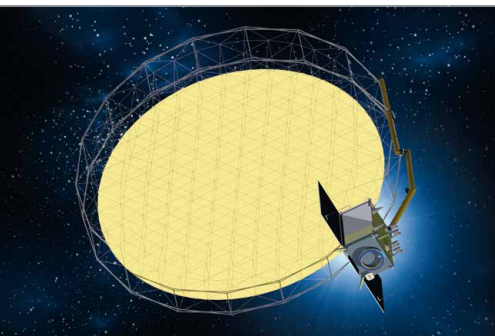
- Ka-Band for scientific application
- High in-orbit stability
- Diameter: 0.7 m
- Low mass due to CFRP design
- Launch onboard EUCLID



DUAL GRIDDED ANTENNAS



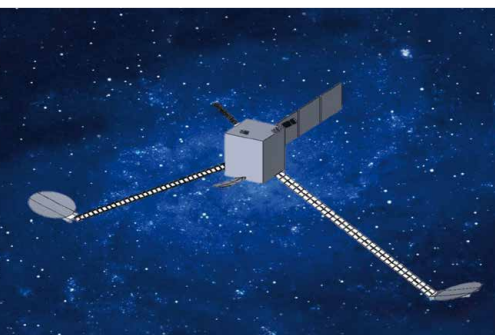
- Ku- / Ka-Band
- Linear polarisation
- CFRP- rod based patented concept
- Diameter: 1.2 m
- Mass: 4.3 kg
- First eigenfrequency: > 100 Hz
- Shaped & unshaped configurations



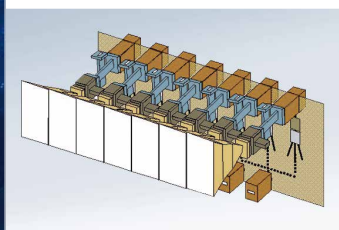
LARGE DEPLOYABLE ANTENNAS



- LEO application for Earth Observation
- GEO application for Telecommunication
- S-Band, C-Band up to Ka-Band
- Diameters between 6 m and 20 m
- Mass of 6 m reflector assembly plus boom: 95 kg
- Own mesh development



SAR RADAR ANTENNAS



- LEO-orbit
- Interferometric SAR system
- 2x Rx-antennas on deployable booms
- 2x Tx-antennas
- 35.0 - 75.0 GHz
- 3 hybrid multimatrix power amplifier networks
- Dual linear polarization



GROUND PORTABLE ANTENNAS



- Direct satellite link
- Civil and military applications
- Packable to a back pack
- Quick deployment time
- Mass: 7 kg
- Diameter: 1.2 m
- Tx: 13.7 GHz – 14.5 GHz
- Rx: 10.7 GHz – 12.8 GHz