

Land-based antenna

The Dartcom 1.5m antenna is a prime focus aluminium parabolic dish with an F/D ratio of 0.36 and a gain of 26.0dBi. This enables a G/T of better than 4.5dBK at 5° to be achieved. The 1.5m antenna system allows continuous tracking of satellites with no cone of silence (loss of data) and a bit error rate of better than 1:10⁶ from 2° elevation.

The Dartcom 1.2m antenna is a prime focus aluminium parabolic dish with an F/D ratio of 0.38 and a gain of 24.6dBi. This enables a G/T of better than 3.0dBK at 5° to be achieved. The 1.2m antenna system allows continuous tracking of satellites with no cone of silence (loss of data) and a bit error rate of better than 1:10⁶ from 3.5° elevation.

With both options an integrated feed, LNA and downconverter is mounted at the focal point of the antenna in a hermetically sealed unit. Azimuth and elevation control of the rotator is achieved via an RS232–RS422 link to the host PC.

The reflector is finished in light grey paint to PML specification RS20. The antenna is fixed to the rotator using a counter-weighted aluminium frame assembly. The rotator is a compact unit with a separate housing for the power supply and control electronics.

The antenna assembly is mounted on a steel pedestal (galvanised with the 1.2m antenna option). The 1.5m antenna is mounted inside a two-part (plus base) glass-fibre radome with bottom or side inspection hatches.



Dartcom 1.5m parabolic dish antenna and rotator inside glass-fibre radome.

Feed:	
Beamwidth	3dB at 80°, 10dB at 150°
Gain	+4.5dBi
Polarisation	Right-hand circular
Filter/LNA:	
Insertion loss	0.4dB (maximum)
Filter bandwidth	200MHz (maximum)
Noise figure	0.8dB (maximum)
Gain	+35dB (minimum)
LNA bandwidth	100MHz (minimum)
Bandpass filter:	
Insertion loss	1.5dB (maximum)
Bandwidth	1690MHz to 1710MHz
Downconverter:	
RF-IF gain	40dB (nominal)
Input range	1690MHz to 1710MHz
IF output	125MHz to 145MHz

	1.5m antenna and radome
Bit error rate	1:10 ⁶ (from 2° elevation)
Azimuth range	0° to 359.9° (minimum)
Elevation range	0° to 180.0° (minimum)
Azimuth rate	10.0°/second (±10%)
Elevation rate	10.0°/second (±10%)
Mechanical tolerance	< ±0.5° azimuth and elevation
Tracking accuracy	< ±0.5°
Survival temperature	-20°C to +60°C
Survival wind speed	200km/h

Receiver rack

The receiver rack can be supplied with up to two state-of-the-art digital multi-mode receivers to provide support for HRPT, CHRPT, SeaWiFS, AHRPT and LRIT. The optional dual L/S-band LNB also allows DMSP reception. With an additional antenna and software simultaneous reception is also possible from two types of service (HRPT/CHRPT/SeaWiFS and LRIT, for example).

The rack can be upgraded in the future to support LRD data from NPOESS satellites (when available).

Features

- 19" 4U high Eurocard rack.
- Plug-in modules for easy maintenance and upgrades.
- Desk or rack mount.
- 12Mbit/s USB connection for satellite data and rack control.
- RS232 for GPS data and RS232/422/48 for rotator control, or optionally via USB if serial ports are not available.

Modules

The receiver rack contains the following plug-in modules:

- Multi-mode receivers and LNB power supplies module containing up to two digital multi-mode receivers (one as standard).
- HRPT/CHRPT/SeaWiFS USB interface module.
- AHRPT/LRD USB interface module.
- Optional DMSP USB interface module.
- Optional LRIT USB interface module.
- USB hub and serial communications module containing a 7-port USB hub, four USB serial adaptors and an RS232/422/485 rotator interface.
- GPS receiver module.
- Switch mode rack power supply module.



Specifications of receiver rack:

Demodulation	QPSK, BPSK, PSK, up to 3.5MSPS
Decoding	Viterbi
IF conversion	Direct 70MHz, up to 50MSPS, 10-bit resolution
Operating temperature	0°C to +50°C
Storage temperature	0°C to +70°C
Humidity	30% to 70% non-condensing
EMC	BS EN 6100-6-4:2001
Electrical safety	LVD 73/23/EEC as amended by 93/68/EEC
Dimensions (W×H×D)	450×180×455mm (including connector projections)
Weight	14.5kg (approximate)
Power requirements	110–240V AC @ 50–400Hz
Power consumption	60VA