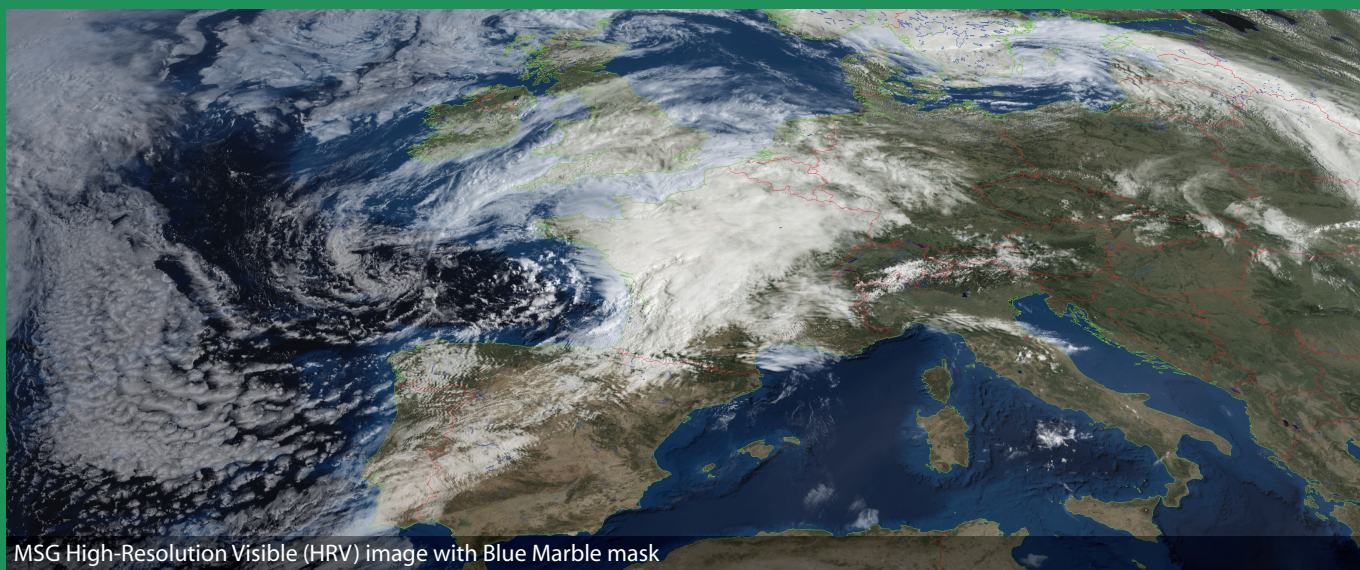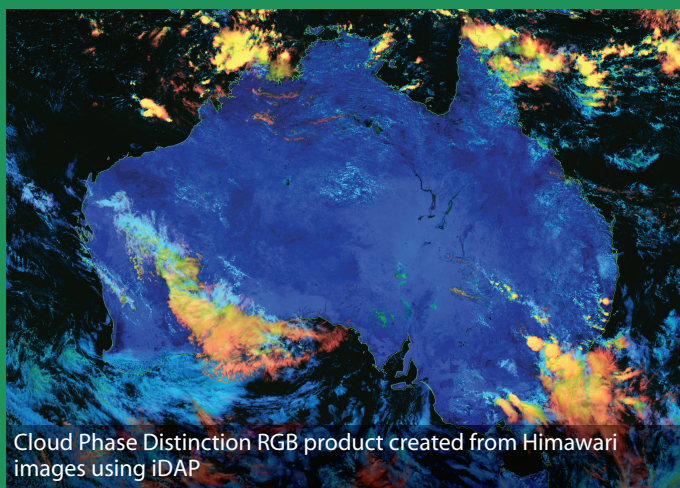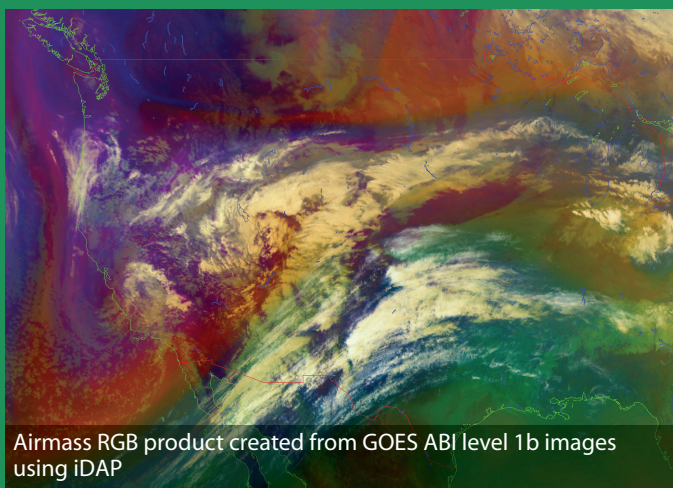# EUMETCast System

Reliable, high-performance system for receiving and processing MTG, MSG, Himawari, Electro-L, GOES, SAF and other data from EUMETCast services

MSG High-Resolution Visible (HRV) image with Blue Marble mask

Cloud Phase Distinction RGB product created from Himawari images using iDAP

Airmass RGB product created from GOES ABI level 1b images using iDAP

The Dartcom EUMETCast System can receive, archive, process and display MTG FCI/LI, MSG SEVIRI, Himawari AHI, GOES ABI/GLM and other data from EUMETSAT's EUMETCast Europe and Africa services.

Antenna and receiver options are available to suit different locations and requirements. Ku-Band (Europe) and C-Band (Africa) services are both supported.

Meteosat Third Generation (MTG) data available on EUMETCast initially includes Flexible Combined Imager (FCI) images and Lightning Imager (LI) data, with sounding data to follow.

Meteosat Second Generation (MSG) data includes Spinning Enhanced Visible and Infra-Red Imager (SEVIRI) images with standard and rapid scanning services.

Himawari, Electro-L and Geostationary Operational Environmenal Satellite (GOES) Advanced Baseline Imager (ABI) and Geostationary Lightning Mapper (GLM) data are available on EUMETCast Europe.

Images can be viewed, processed and animated using the Dartcom iDAP/MacroPro software. Outputs are also available for processing software such as PCI Geomatica, ERDAS IMAGINE and ENVI/IDL, as well as standard interchange formats such as PGM and GeoTIFF.

Components

- **Antenna** – various sizes available to suit different locations, or customers can source their own locally.

- **Receiver** – various options available to suit different services.

- **Ingest and visualisation PC** – running Dartcom Geostationary Ingester and Dartcom iDAP/MacroPro software. Customers can either supply their own PC, or for a turnkey solution Dartcom can supply a PC fully set-up and tested.

Dartcom can also provide on-site installation and training services.

Features

- Fully automatic reception, decryption, decompression, archiving, output and processing.

- Multi-threaded software allowing simultaneous ingest from multiple services and accelerated processing.

- Proven, robust, reliable hardware and software, with installations all over the world in all climates, temperatures and environments.

- Comprehensive hardware and software diagnostics at all levels, with on-screen and email alarms, and full logging if required.

- Full technical support and regular software updates.
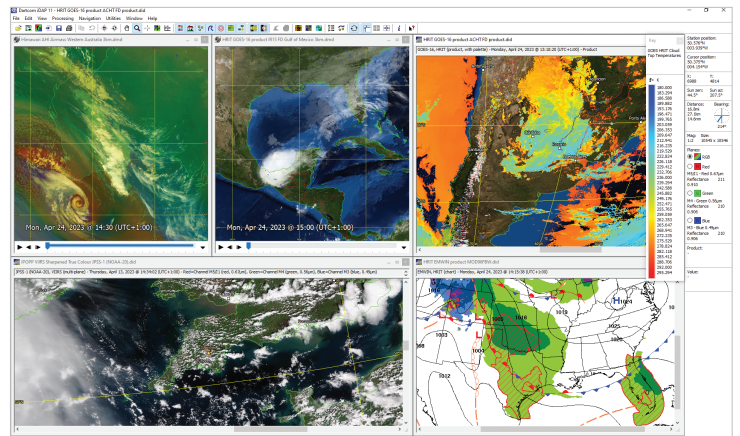
Software

- **Dartcom Geostationary Ingester** – provides automatic ingest, archiving and output of images and other data.

- **Dartcom iDAP** – provides a wide range of image manipulation and processing facilities such as animation, enhancement, RGB products, palette products, reprojection, masking, printing, archiving and exporting to third-party file formats.

- **Dartcom MacroPro** – automates the image processing facilities provided by iDAP, with full logging and alarms.

Dartcom Ku-Band EUMETCast System with additional antenna aligned on the Europe backup satellite to provide higher availability
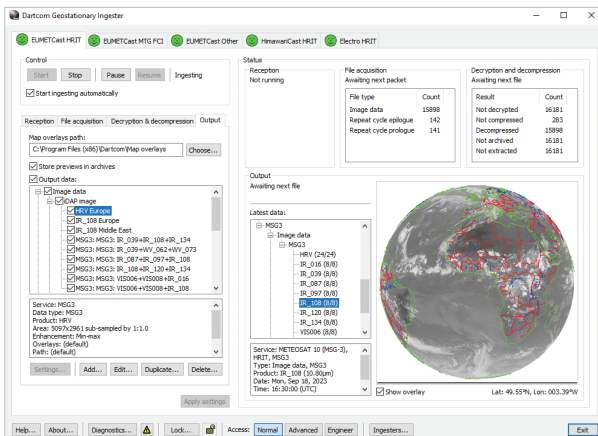
Dartcom Geostationary Ingester software

Dartcom iDAP/MacroPro processing and visualisation software

Ku-Band hardware

Required for the EUMETCast Europe service. For coverage with different antenna sizes, please see the *Service availability* section.

Antenna

- Powder-coated solid aluminium (1.25m) or glass-fibre reinforced compression moulded polyester (1.8m) offset reflector.

- 2.4–3.7m antennas also available for fringe area reception.

- Optional additional antenna aligned on the EUMETCast backup satellite to provide higher availability.

- Azimuth/elevation mounting bracket with the 1.25m antenna.

- 4" tubular pedestal with the 1.8m antenna. Non-penetrating roof mount also available.

- State-of-the-art weatherproof quad LNB with 0.3dB noise figure.

- Supplied with 150m of CT100 75Ω co-axial cable (50m per input) and F-type connectors.

DVB receiver and software

- TBS 6908 internal PCIe quad tuner DVB-S2 receiver card, as recommended by EUMETSAT.

- Allows all three EUMETCast transponders (basic/HVS1, HVS2 and HVS3) to be received simultaneously with a single antenna.

- Supplied with Windows drivers and Tellicast software.


1.25m Ku-Band offset dish antenna

1.8m Ku-Band offset dish antenna

Ku-Band LNB specifications

Feed type	Scalar horn
Polarisation	Linear
RF input	10.7–12.75GHz
Noise figure	0.3dB typical
Total gain	50–60dB
Local oscillator frequency	Low: 9.75GHz
	High: 10.6GHz
RF output	950–2150MHz

TBS 6908 PCIe quad tuner DVB-S2 receiver card specifications

RF input frequency	950–2150MHz
RF input connectors	4 × 75Ω F-type
Symbol rates	1Msps to 67.5Msps
Channel rate	Up to 190Mbps
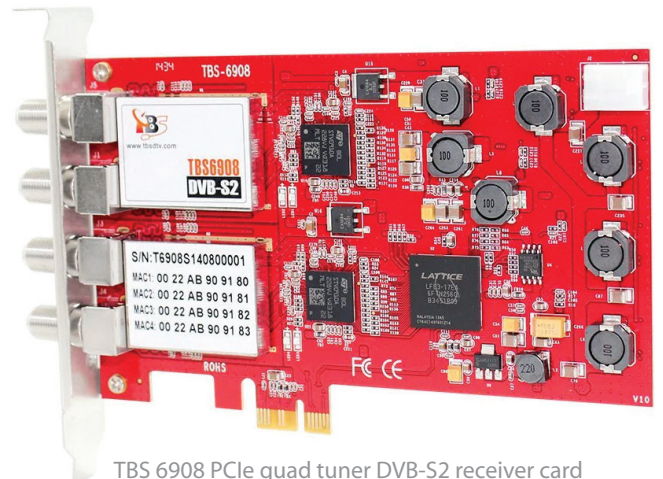
TBS 6908 PCIe quad tuner DVB-S2 receiver card

Ku-Band antenna specifications

	1.25m antenna	**1.8m antenna**
Reflector type	21.3˚ offset	Offset
Reflective material	Solid aluminium, white powder-coated	Glass-fibre reinforced polyester
Reflector diameter	1.25m	1.8m
F/D ratio	0.66	0.66
Gain	41.3dBi	45.5dBi
Polarisation	Linear	Linear
G/T @ 5˚ elevation	19.2dB/K	26.0dB/K
Wind speeds	80km/h (43kt) operational	72km/h (39kt) operational
	120km/h (65kt) survival	201km/h (109kt) survival

C-Band hardware

Required for the EUMETCast Africa service. For coverage with different antenna sizes, please see the *Service availability* section.

Antenna

- 3-segment (2.4m) or 8-segment (3.7m) glass-fibre reinforced precision compression moulded polyester parabolic reflector.

- Galvanised steel azimuth/elevation mount and pedestal.

- Phase locked loop LNB with 5G rejection in weatherproof powder-coated housing.

- Supplied with 50m of CT100 75Ω co-axial cable.

DVB receiver and software

- TBS 6903 PCIe DVB-S2 receiver card.

- Supplied with Windows drivers and Tellicast software.

C-Band LNB specifications

Feed type	Scalar horn
Polarisation	Circular
RF input	3.8–4.2GHz
Noise figure	0.8dB maximum
Total gain	>60dB
RF output	950–1350MHz

TBS 6903 PCIe DVB-S2 receiver card specifications

RF input frequency	950–2150MHz
RF input connectors	2 × 75Ω F-type
Symbol rates	1Msps to 67.5Msps
Channel rate	Up to 190Mbps

2.4m C-Band parabolic dish antenna

3.7m C-Band parabolic dish antenna


C-Band LNB

TBS 6903 PCIe DVB-S2 receiver card

C-Band antenna specifications

	2.4m antenna	**3.7m antenna**
Reflector type	Prime focus parabolic	Prime focus parabolic
Reflective material	3-segment glass-fibre reinforced polyester	8-segment glass-fibre reinforced polyester
Reflector diameter	2.4m	3.7m
F/D ratio	0.37	0.37
Gain	37.5dBi	40.9dBi
Polarisation	Circular	Circular
G/T @ 5˚ elevation	17.7dB/K	21.7dB/K
Wind speeds	80km/h (43kt) operational	72km/h (39kt) operational
	201km/h (109kt) survival	201km/h (109kt) survival

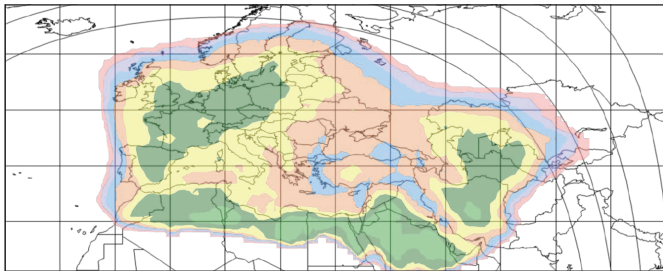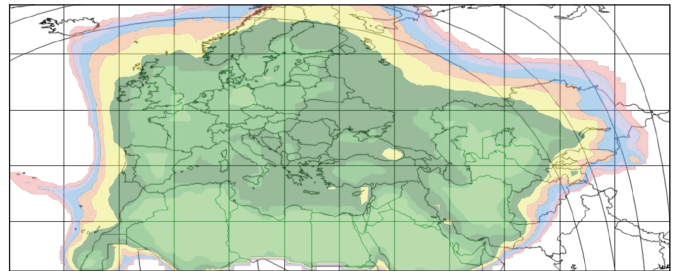| >98%	>99%	>99.5%	>99.8%	>99.9%	>99.95%	>99.98%	>99.99%
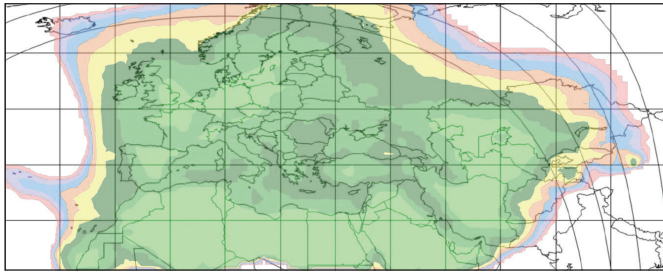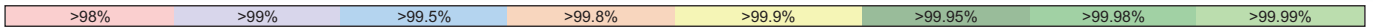
Ku-Band basic service availability – 1.25m antenna
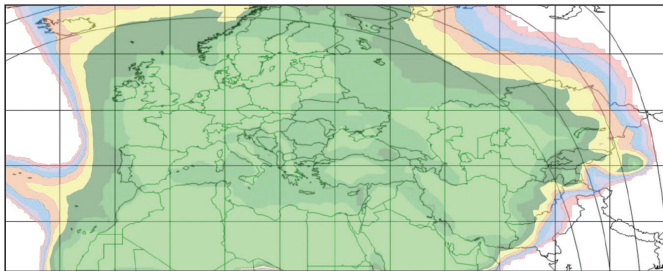(G/T @ 12.5GHz = 20.5dB/K)
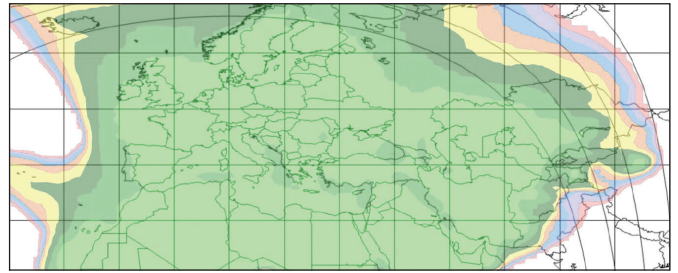
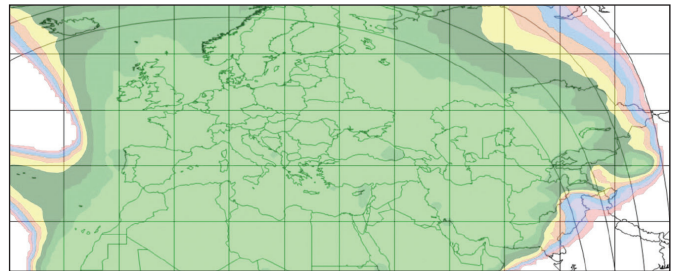Ku-Band basic service availability – 1.8m antenna
(G/T @ 12.5GHz = 23.5dB/K)

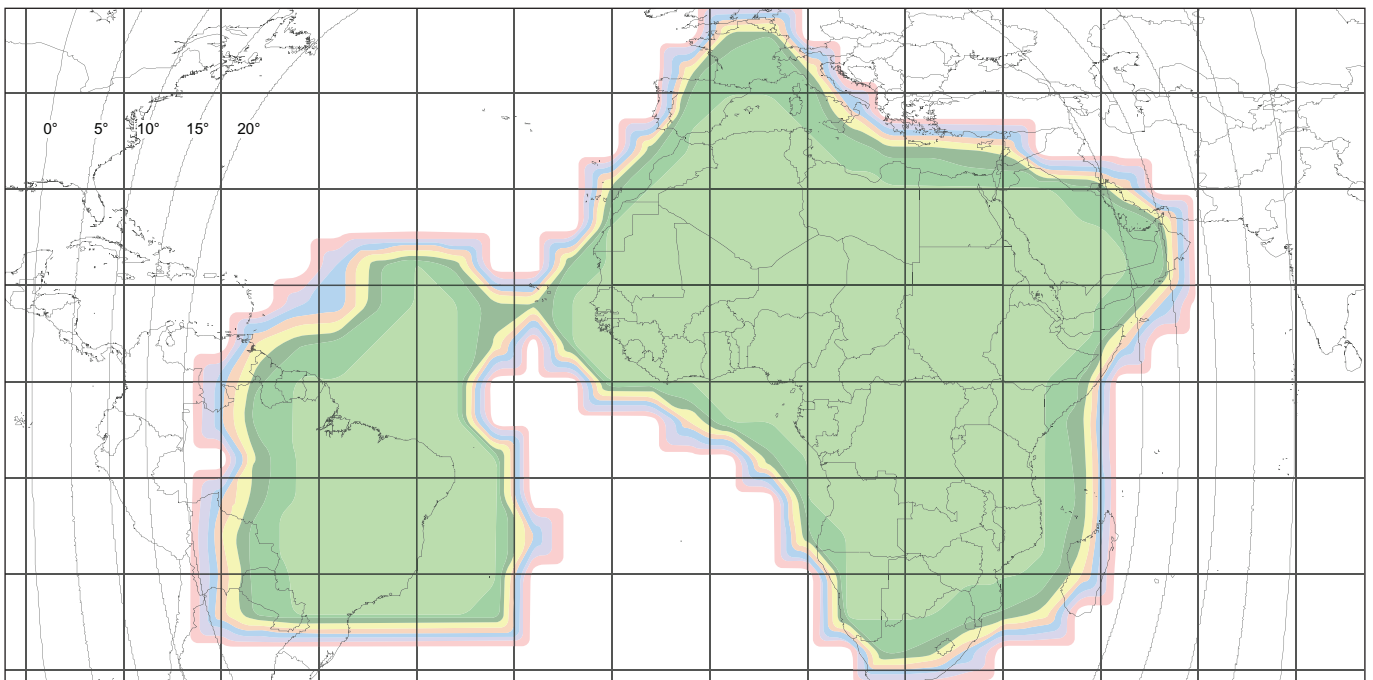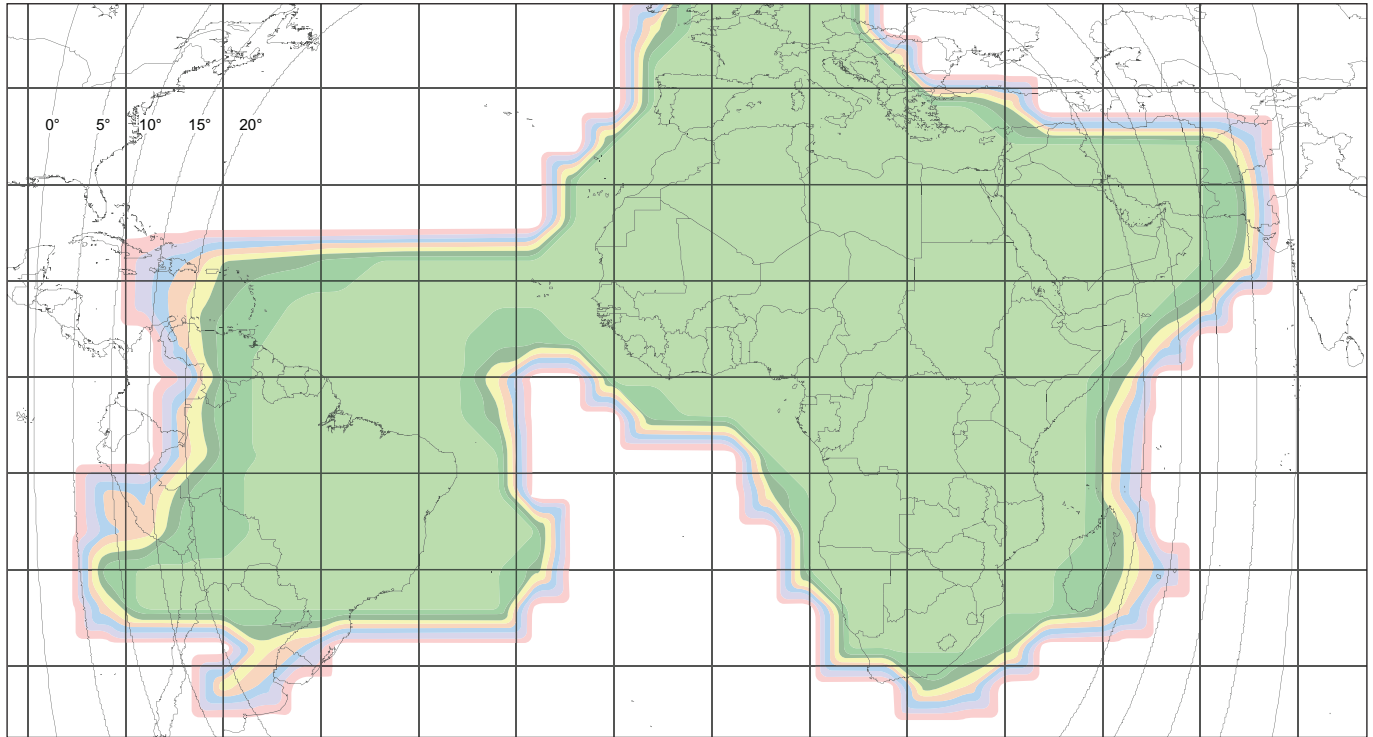Ku-Band high volume service availability – 1.25m antenna
(G/T @ 12.5GHz = 20.5dB/K)

Ku-Band high volume service availability – 1.8m antenna
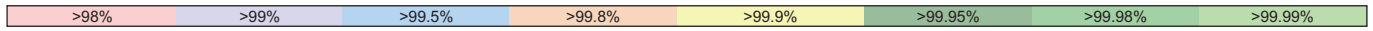(G/T @ 12.5GHz = 23.5dB/K)

Ku-Band high volume service availability – 2.4m antenna
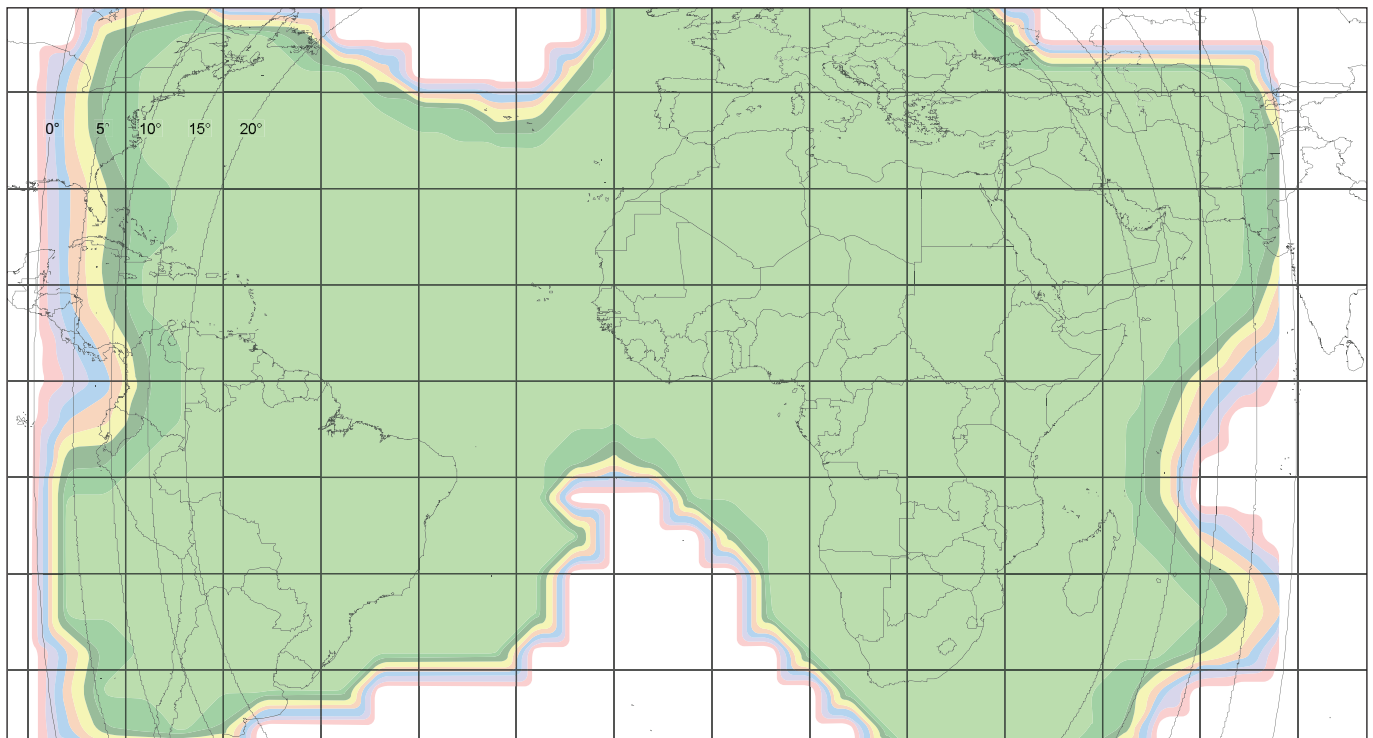(G/T @ 12.5GHz = 26.0dB/K)

Ku-Band high volume service availability – 3.7m antenna
(G/T @ 12.5GHz = 28.9dB/K)

0°   5°   10°   15°   20°

C-Band service availability – 1.8m antenna

>98%	>99%	>99.5%	>99.8%	>99.9%	>99.95%	>99.98%	>99.99%

0° 5° 10° 15° 20°

C-Band service availability – 2.4m antenna

0° 5° 10° 15° 20°

C-Band service availability – 3.7m antenna