

**Applicant:**

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Certificate:

EB-051

Antenna model:

Sailor 600 Ka equipped
with Viasat PTRIA

Diameter:

65 cm

Standard:

Standard M

Characterization date:

29 November 2019

Most recent test data received on:

10 November 2019

System Description:

Ka band 65 cm circular antenna with double reflector, circular polarization and three axis tracking system. The antenna integrates the Viasat 5W PTRIA, a transceiver integrating also the modem. The antenna is connected to the IDU via a single cable. This antenna can be used only in Ka band on the KA-SAT network based on Viasat technology and waveform.

The parameters have been defined by measurement of the antenna with radome.

Maximum Allowed EIRP:

For digital carriers transmitted at the **KA-SAT** satellite receive contour of 18 dB/K (EESS 502 refers):
26 dBW / 40 kHz for an orbital satellite separation $\geq 1.5^\circ$.

Tx Frequency:

29.50 – 30.00 GHz

Rx Frequency:

19.70 -20.20 GHz

Tx Gain:

43.0 dBi (typical at 29.75 GHz)

Rx Gain:

39.3 dBi (typical at 19.95 GHz)

Tx XPD:

≥ 24.2 dB within -1 dB contour (worst case)

Rx XPD:

≥ 21.0 dB @ boresight (worst case)

Pointing error:

$< 0.117^\circ$ average , 0.120° RMS

G/T:

15.6 dB/K theoretical assuming LNB NF=1.8 dB.

Tx Inhibit reaction time: <38 ms**Tx re-activation reaction time: <231 ms****Restrictions and remarks:**

- 1) The terminal, i.e. antenna plus modem, have been designed in order to be operated only over KA-SAT with the Viasat technology and waveform. The access is assumed to be in TDMA mode on digital carriers of maximum 10 MSym/s.
- 2) The authorization to operate the terminal is conditioned to the approval to access the Eutelsat S.A. Space Segment (ref. <http://www.eutelsat.com/files/contributed/satellites/pdf/esog110.pdf>, ESOG 110).
- 3) This Characterization was performed at the test range of Thales Alenia Space in Cannes (France) in the period 3 – 8 October 2019.
- 4) The Characterization must be coordinated with the transmission plans operated over KA-SAT.
- 5) The RX presents an overshoot of about 5 dB around 1° from the bore-sight, to be taken into account for link budget computations.
- 6) The efficiency of the dish without radome is 52 %, estimated at 29.75 GHz.
- 7) The Tx inhibit threshold was configured during the tests at 0.5° . Such a value shall be re-configured to be compatible with the EESS 502 requirements.