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EARTH STATION ANTENNAS RF PERFORMANCE CHARACTERISATION BY EUTELSAT

23 November 2011

EARTH STATION ANTENNAS RF PERFORMANCE CHARACTERISATION BY EUTELSAT

This list aims at providing Eutelsat customers with guidance on the selection of the most appropriate earth station equipment to access the Eutelsat capacity. Any antennas which are regularly deployed on the Eutelsat satellites may be eligible for being included in this list.

The criteria for inclusion are:

- Eutelsat is in possession of a full set of measured RF electrical characteristics,
- The antenna's RF performance fully meets the minimum Eutelsat requirements (EESS 502) at the characterisation's date,
- There is no known record of operational problems or interference issues related to this antenna.

Inclusion in the list is a decision which pertains uniquely and ultimately to Eutelsat alone. At any moment a given antenna may be removed from the list, should Eutelsat deem necessary to do so.

As the data are not originating from a fully fledged type approval campaign, they are limited in scope and extent. Therefore this characterisation does not replace in any way the Eutelsat type approval program, cfr. <http://www.eutelsat.com/satellites/pdf/typeapproval.pdf>

For a given antenna, additional RF characteristics not explicitly listed (e.g. other operating frequency bands) can be found at the URL address of the manufacturer datasheet, if available.

Notes:

- The characterisations dated before February 2011 may be subject to a review of the maximum allowed EIRP for the case where the orbital adjacent satellite separation would be less or equal to 2.5°.
- The characterisation's validity is subject to regular submission of patterns to confirm that the system remains compliant with the Eutelsat standard at the inspection date.
- Any change to the characterized configuration need to be notified to Eutelsat and may be subject to further tests.
- This book provides information on the antenna static systems' performance only. This performance shall not be associated with the performance of auto-pointing systems, unless the latter has been duly characterised in the conditions referenced in the following link: http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf



Manufacturer:

VERTEX RSI

General Dynamics C4 Systems
2600 N. Longview Street
KILGORE, TX 75662
USA

Tel: +1 903 988 6102
Fax: +1 903 984 0555
mailto: robert.hoferer@gdsatcom.com

Antenna model:
2.4SFC-2712C**Diameter:**
2.4 m
2-ports feed**Standard:**
M**Characterisation date:**
22-06-2009**System Description:**

Light weight flyaway carbon fibre antenna - Front fed offset, 9 pieces, with mode generator two ports feed and rotary joint.

Maximum Allowed EIRP:

54.9 dBW/40kHz for digital carriers transmitted anywhere in the satellite receive contour of the C-band capacity of the Eutelsat satellites (EESS502, issue 11 rev 1, §6.1 refers).

Tx Frequency:

5.850 – 6.425 GHz

Rx Frequency:

3.625 – 4.200 GHz

Tx Gain:

41.9 dBi (typical at 6.000 GHz)

Rx Gain:

38.1 dBi (typical at 4.000 GHz)

Tx XPD:

>27.3 dB within -1 dB contour

Rx XPD:

>19.7 dB within -1 dB contour

Remarks:

Summary sheet based on the analysis of a Vertex test range report dated 7 January 2000.



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mailto: robert.hoferer@gdsatcom.com

Antenna model:
2.4SFK-1575I**Diameter:**
2.4 m
2-ports feed**Standard:**
M**Characterisation date:**
22-06-2009**System Description:**

Light weight flyaway carbon fibre circular antenna - Front fed offset, 9 pieces, with mode generator two ports feed and rotary joint.

Maximum Allowed EIRP:

48.4 dBW/40kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502, Issue 11 - Rev.0, § 6.1 refers).

Tx Frequency:
13.75-14.50 GHz**Rx Frequency:**
10.70-12.75 GHz**Tx Gain:**
48.9 dBi (typical at 14.00 GHz)**Rx Gain:**
46.6 dBi (typical at 11.00 GHz)**Tx XPD:**
>33 dB within -1 dB contour**Rx XPD:**
>27 dB within -1 dB contour**Remarks:**

Summary sheet based on the analysis of a Vertex test range report dated March-April 2000.

**Manufacturer:**

ND SatCom GmbH
P.O. Box
88039 Friedrichshafen
GERMANY
Tel : +49 7545 939 8725
Fax : +49 7545 939 8866

Website : www.ndsatcom.com
Email : christian.hauff@ndsatcom.com

Antenna model:

SkyRAY Compact 1500
SkyRAY Compact 1500 Plus
SkyRAY MAS 1500

Diameter:

1.2 m (See remark 4)

Standard:

M

Characterization date:

01-06-2011

Validity period:

See remark 6

System Description:

Antenna system based on the ERA type approved EA-A017 one piece 1.2 m Ku Diamond shape front fed offset antenna with mode generator, vehicle mounted.

The detail of the characterisation of the antenna system with an auto-pointing configuration is available via http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf

Maximum Allowed EIRP for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502 § 6.1 refers) :

37.0 dBW / 4 kHz (**static antenna performance**).

35.4 dBW / 4 kHz if the adjacent satellite separation is $\leq 2.5^\circ$ (**static antenna performance**).

35.2 dBW / 4 kHz (**autopointing antenna performance**)

Tx Frequency:

13.75 – 14.50 GHz

Rx Frequency:

10.70 – 12.75 GHz

Tx Gain:

43.8 dBi (average at 14.421 GHz)

Tx XPD:

>30 dB within -1 dB contour (**static**)

>27 dB within -1 dB contour (**auto-pointed**)

Restrictions and remarks:

- 1 The authorisation to operate the terminal is conditioned to the approval to access the Eutelsat S.A. Space Segment (ref. <http://www.eutelsat.com/satellites/pdf/esog110.pdf> ESOG 110).
- 2 Characterisation performed via ESVA tests performed via satellite with the ERS of Aflenz on the 23rd August 2010.
- 3 Please refer to http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf for auto-pointing configuration details.
- 4 The dimensions of the Ku Diamond antennas are 1.5mx1.5m, the equivalent circular diameter is 1.2m.
- 5 SkyRAY Compact/MAS 1500 is equipped with one HPA (400 Watt maximum), SkyRAY Compact 1500 Plus is equipped with two HPAs (400 Watt maximum for each).
- 6 The characterisation's validity is subject to regular submission of patterns to confirm that the system remains compliant with the Eutelsat standard at the inspection date.
- 7 Any change to the characterised configuration needs to be notified to Eutelsat and may be subject to further tests.

**Manufacturer:**

ND SatCom GmbH
P.O. Box
88039 Friedrichshafen
GERMANY
Tel : +49 7545 939 8725
Fax : +49 7545 939 8866

Website : www.ndsatcom.com
Email : christian.hauff@ndsatcom.com

Antenna model:
SkyRAY MAS 1900

Diameter:
1.5 m (See remark 4)

Standard:
M

Characterisation date:
01-08-2011

Validity period:
See remark 6

System Description:

Antenna system based on the ERA type approved EA-A004 one piece 1.5 m Ku Diamond shape front fed offset antenna with mode generator, vehicle mounted.

The detail of the characterisation of the antenna system with an auto-pointing configuration is available via http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf

Maximum Allowed EIRP for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502 § 6.1 refers) :

37.4 dBW / 4 kHz (**static antenna performance**) for any adjacent satellite separation.

35.7 dBW / 4 kHz (**autopointing antenna performance**)

Tx Frequency:

13.75 – 14.50 GHz

Rx Frequency:

10.95 – 12.75 GHz

Tx Gain:

45.4 dBi (average at 14.25 GHz)

Tx XPD:

>35 dB within -1 dB contour (**static**)

>27.8 dB within -1 dB contour (**auto-pointed**)

Restrictions and remarks:

- 1 The authorisation to operate the terminal is conditioned to the approval to access the Eutelsat S.A. Space Segment (ref. <http://www.eutelsat.com/satellites/pdf/esog110.pdf> ESOG 110).
- 2 Characterisation performed via ESVA tests performed via satellite with the ERS of Aflenz on the 30th June and 1st July 2011.
- 3 Please refer to http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf for auto-pointing configuration details.
- 4 The dimensions of the Ku Diamond antennas are 1.9mx1.9m; the equivalent circular diameter is 1.5m.
- 5 SkyRAY MAS1900 can be equipped with one HPA (750 Watt maximum) or with two HPA's (750 Watt maximum for each).
- 6 The characterisation's validity is subject to regular submission of patterns to confirm that the system remains compliant with the Eutelsat standard at the inspection date.
- 7 Any change to the characterised configuration needs to be notified to Eutelsat and may be subject to further tests.

**Applicant:**

VISLINK Communications Ltd
27 Maylands Avenue
Hemel Hempstead
Hertfordshire, HP2 7DE
United Kingdom
Tel :+ 44 (0) 1442 431 300
Fax :+44 (0) 1442 431 301

Website : www.vislink.com
Email : Dave.melville@vislink.com

Antenna model:
FlyDrive 120

Diameter:
1.2 m

Standard:
M

Characterization date:
23-11-2011

Validity period:
See remark 5

System Description:

Antenna system based on Advent four segments 1.2 m Ku antenna with mode generator, for Fly away and Drive Away applications.

The detail of the characterisation of the antenna system with an auto-pointing configuration is available via http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf

Maximum Allowed EIRP: 45.0 dBW / 40 kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502 § 6.1 refers)

Tx Frequency:

13.75 – 14.50 GHz

Rx Frequency:

10.70 – 12.75 GHz

Tx Gain:

43.1 dBi (average at 14.25 GHz)

Rx Gain:

40.7 dBi (average at 11.70 GHz)

Tx XPD:

>32 dB within -1 dB contour

Rx XPD:

>23.4 dB within -1 dB contour

Restrictions and remarks:

- 1 The authorisation to operate the terminal is conditioned to the approval to access the Eutelsat S.A. Space Segment (ref. <http://www.eutelsat.com/satellites/pdf/esog110.pdf> ESOG 110).
- 2 RF performance characterisation was performed on one antenna unit at the CTS test range in Leatherhead, UK, on the 22 and 23 August 2011.
- 3 Please refer to http://www.eutelsat.com/satellites/pdf/Autopointing_Antennas.pdf for auto-pointing configuration details.
- 4 FlyDrive 120 can be equipped with one HPA (400 Watt maximum).
- 5 The characterisation's validity is subject to regular submission of patterns to confirm that the system remains compliant with the Eutelsat standard at the inspection date.
- 6 Any change to the characterised configuration needs to be notified to Eutelsat and may be subject to further tests.