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ESV - EARTH STATIONS ON VESSELS

RF PERFORMANCE CHARACTERIZATION AND VALIDATION BY EUTELSAT

05 July 2010

eutelsat
communications via satellite

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This handbook lists all the ESVs (Earth Stations on Vessels) type-approved or characterized by Eutelsat.

Eutelsat type-approval and standard M approval.

Eutelsat type-approval is granted to antennas that have demonstrated full compliance with the Eutelsat Earth Station Standard M (EESS 502 Issue 12 Rev.1). The type-approval process includes successful witnessed RF tests on at least three units chosen at random during the production phase, a survey of the manufacturing, integration and QA/QC processes, and close follow up of antenna operations for Eutelsat satellites.
For maritime antennas, tracking performance and resistance to shock and vibration tests are essential for completion of the type-approval process.

Antennas that fully meet Eutelsat standards, but for which fewer than three units have undergone RF performance testing, will be considered as “characterized” and will normally be granted Eutelsat standard M approval. Additional verifications and tests, however, may be required on a case-by-case basis.

M-x Nomenclature

The M-x nomenclature applies when individual sidelobe peaks exceed the Eutelsat specified masks (EESS 502 Issue 12 Rev.1 refers) by more than 3 dB (or 6 dB, depending on the D/λ of the antenna) when the azimuth or elevation angle is equal to or smaller than 9.2° and/or by more than 6 dB when this angle is greater than 9.2°. In all cases, the cross-polarisation discrimination value must be at least > 20 dB at the -1 dB contour of the main lobe.

Very small (D/λ in the order of 30) antennas designed for maritime applications will not usually meet the Eutelsat EESS Standards due to physical constraints imposing special shapes, e.g. the need to limit the size of the radome for maritime antennas.
Application of the M-x nomenclature may be considered for such antennas on a case-by-case basis, subject, however, to determining a valid transmission plan where extra bandwidth generally needs to be allocated in order to cater for the deviations from the EESS 502 Standard M observed (usually in the main lobe/sidelobe patterns).

RF performance characterization

The characterization process consists in performing witnessed RF tests at accredited test ranges on at least one antenna subsystem (with radome) selected during the production phase.
Based on the results obtained, the characterization will specify the operating frequency bands, the measured Tx and Rx Gain, the Tx and Rx cross-polarisation discrimination and the value of the maximum allowed eirp density to be transmitted at the 0 dB/K reference contour of the Eutelsat satellites, based on either the highest measured sidelobe or the worst cross-polarisation discrimination, whichever applies.
Where applicable, a note has been added e.g. to specify the recommended type of modulation to be used.
For additional information on type-approval and characterization of ESVs as M or M-x, please send an e-mail to esapproval@eutelsat.fr.

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

Intellian Technologies, Inc.
7th Floor, Dongik Building,
98 Nonhyun-Dong Gangnam-Gu,
Seoul, 135-010
Korea

Tel: +82-2-511-2244
Fax:+82-2-511-2235
mailto: wendy@intelliantech.com

Antenna model:
V60

Diameter:
60 cm

Standard:
Nomenclature M-x

Characterisation date:
06-04-10

System Description:
Stabilised maritime antenna – splash feed cassegrain – composite foam radome. Three axis stabilization platform with conical scanning tracking.
BUC NJRC or Codan 4-6-8 W with integrated LNB.

Models Available:
Standard configuration: 13.75-14.50 GHz linear orthogonal polarization.

Maximum Allowed EIRP:

31.5 dBW / 40 kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502, Issue 12 - Rev.1, § 6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
38.1 dBi (typical at 14.25 GHz)

Rx Gain:
35.8 dBi (typical at 12.50 GHz)

Tx XPD:
>26 dB within -1 dB contour

Rx XPD:
>28 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance.
The validation of the performance of the tracking system and the operations of the antenna when installed on a vessel is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.intelliantech.com
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc.) and BPSK modulation for the ship-to-shore carrier.
3
The characterization was performed on one antenna unit with radome, at the LACE test range of Politecnico di Torino, Italy, on the 15th March 2010.

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

Intellian Technologies, Inc.
7th Floor, Dongik Building,
98 Nonhyun-Dong Gangnam-Gu,
Seoul, 135-010
Korea

Tel: +82-2-511-2244
Fax:+82-2-511-2235
mailto: wendy@intelliantech.com

Antenna model:
V110

Diameter:
105 cm

Standard:
M

Characterization date:
05-07-2010

System Description:
Stabilised maritime antenna – splash feed cassegrain – composite foam radome. Three axis stabilization platform with conical scanning tracking.
BUC NJRC or Codan 4-6-8 W with integrated LNB.

Models Available:
Standard configuration: 13.75-14.50 GHz linear orthogonal polarization.

Maximum Allowed EIRP:

40.3 dBW / 40 kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502, Issue 12 - Rev.1, § 6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Tx Gain:
41.7 dBi (typical at 14.25 GHz)

Tx XPD:
>28 dB within -1 dB contour

Rx Frequency:
12.50 - 12.75 GHz
See restrictions below (*)

Rx Gain:
39.8 dBi (typical at 12.50 GHz)

Rx XPD:
>30 dB (*) within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance.
The validation of the performance of the tracking system and the operations of the antenna when installed on a vessel is out of the scope of this summary. The manufacturer states that operations of the tracking is such that the pointing error is less than +/-0.2° for the following ship motions:
Roll = +/-20° at 8-12 sec periods
Pitch = +/-10° at 6-12 sec periods
2
The characterization was performed on one antenna unit with radome, at the France Telecom test range of La Turbie, France, on the 15-18 June 2010.

Restrictions:
(*) The service quality, in conjunction with operations in Rx bands other than 12.50 – 12.75 GHz may be significantly impaired. Nevertheless, these operations may be exceptionally authorized according to a valid Eutelsat transmission plan.

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

KNS Inc.
1314 Gwanpyeong-dong, Yuseong-gu,
Daejeon, 305-509

S. KOREA

Tel: +82 42 932 0351
Fax: +82 42 932 0353
mailto :bwjin@kns-kr.com

Antenna model:
Supertrack Z6Mk2

Diameter:
60 cm

Standard:
Nomenclature M-x

Characterization date:
24-04-09

System Description:
Interactive maritime antenna -splash feed cassegrain – composite foam radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

30.4 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
36.4 dBi (typical at 14.25 GHz)

Rx Gain:
35.0 dBi (typical at 12.50 GHz)

Tx XPD:
>27 dB within -1 dB contour

Rx XPD:
>27 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer's web site: http://www.kns-kr.com
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

KNS Inc.
1314 Gwanpyeong-dong, Yuseong-gu,
Daejeon, 305-509

S. KOREA

Tel: +82 42 932 0351
Fax: +82 42 932 0353
mailto :bwjin@kns-kr.com

Antenna model:
Supertrack Z8

Diameter:
85 cm

Standard:
Nomenclature M-x

Characterization date:
27-03-08

System Description:
Interactive maritime antenna -splash feed cassegrain – composite foam radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

32.3 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
38.3 dBi (typical at 14.25 GHz)

Rx Gain:
38 dBi (typical at 12.50 GHz)

Tx XPD:
>35 dB within -1 dB contour

Rx XPD:
>32 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer's web site: http://www.kns-kr.com
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. Mini-ESV Summary Sheet

Manufacturer:

KVH Industries, Inc.
50 Enterprise Center
Middletown, RI 02842
USA

Tel: +1 401-847-3327
Fax: +1 401-849-0045
mailto: info@kvh.com

Antenna model:
KVH-60 cm

Diameter:
60 cm

Standard:
Nomenclature M-x

Characterization date:
25-07-08

System Description:
Interactive maritime antenna -splash feed cassegrain - plastic radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

31.1 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
14.00 - 14.50 GHz

Rx Frequency:
11.70 - 12.75 GHz

Tx Gain:
36.6 dBi (typical at 14.25 GHz)

Rx Gain:
35.4 dBi (typical at 12.50 GHz)

Tx XPD:
>35 dB within -1 dB contour

Rx XPD:
>35 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer's web site: http://www.kvh.com
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

MAC
MICRO ADVANCED COMMUNICATIONS S.R.L.
Via B. Spinoza, 5
20131 MILANO
ITALY

Tel: +39 02 706411
Fax:+39 02 70641120
mailto : carlo.muzio@mac.fastwebnet.it

Antenna model:
ISA 75

Diameter:
75 cm

Standard:
M

Characterization date:
10-02-09

System Description:
Interactive maritime antenna –Axisymmetric circular front fed – General Dynamics OMT - Fiberglass/Honeycomb 100 cm radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

35.7 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
36.5 dBi (typical at 14.25 GHz)

Rx Gain:
35.6 dBi (typical at 12.50 GHz)

Tx XPD:
>30 dB within -1 dB contour

Rx XPD:
>30 dB within -1 dB contour

Remarks:

The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on this web site: http://www.sitmar.it

Eutelsat S.A. ESV Summary Sheet

Applicant:

MITSUBISHI ELECTRIC CORPORATION
2-7-3, Marunouchi Chiyoda-ku, Tokyo
100-8310, Japan

Tel : +81 3 3218 3346
Fax : +81 3 3218 9492
Website : http://global.mitsubishielectric.com

Certificate:
EA-V056

Antenna:
Ku Mate

Diameter:
1 m

Standard:
M

Approval date:
21-12-2009

System Description:
Stabilised maritime antenna consisting of 1 m ring focus Gregorian aluminum antenna with fiberglass radome, with three axis stabilization platform and polarization axis and a conical scanning tracking. BUC 8 W NJRC model NJT5118NT, LNA Mitsubishi RB255882-G03.

Models Available:
Standard configuration: 14.00-14.50 GHz linear orthogonal polarisation
Option 1 : Tx and Rx parallel.
Option 2 : 13.75 GHz extended band
Option 3 : Tx and Rx parallel and 13.75 GHz extended band

Maximum Allowed EIRP:

39.7 dBW / 40 kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502, Issue 12 - Rev.1, § 6.1 refers)

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.70 - 12.75 GHz

Tx Gain:
40.9 dBi (typical at 14.25 GHz)

Rx Gain:
39.8 dBi (typical at 12.75 GHz)

Tx XPD:
>30 dB within -1 dB contour

Rx XPD:
>30 dB within -1 dB contour

Remarks:
1
Operations of the tracking has been tested on a Sea Simulator, with rms pointing error <0.2°.

Roll	=+/-30°/7sec and 24.2°/sec²
Pitch	=+/-10°/5sec and 15.8°/sec²
Yaw	=+/-4°/14sec and 0.8°/sec²

2
Measured G/T= 18.4 dB/K @ 12.5 GHz, 30° Elevation

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

NAUTISAT s.r.l.
Via A. Panzini 4
00137 ROMA (registered office)
Via Montenero 58/60
00012 GUIDONIA MONTECELIO (head office)
ITALY

Tel: + 39 0774 57 25 83
Fax: + 39 0774 57 25 86
mailto: nautisat@nautisat.com

Antenna model:
VSAT 120

Diameter:
1.2 m

Standard:
M

Characterization date:
18-03-2010

System Description:
Stabilised maritime antenna – front fed axi-symmetric antenna – three layers 140 cm radome. Three axis stabilization platform with polarisation axis and conical scanning tracking. BUCs Terrasat (or equivalent) 2-4-8-16-40 W with integrated LNB.

Models Available:
Standard configuration: 13.75-14.50 GHz linear orthogonal polarization.

Maximum Allowed EIRP:

41.5 dBW / 40 kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502, Issue 12 - Rev.1, § 6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.70 - 12.75 GHz

Tx Gain:
42.1 dBi (typical at 14.25 GHz)

Rx Gain:
40.4 dBi (typical at 11.7 GHz)

Tx XPD:
>26 dB within -1 dB contour

Rx XPD:
>31 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance, which was assessed in a professional test range facility.
The validation of the performance of the tracking system and the operations of the antenna when installed on a vessel is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.nautisat.com
2
The characterization was performed on three FPQ (First Pieces Qualification) antennas at the test range of France Telecom in La Turbie, France.
3
This temporary characterization is granted for a period of six months, pending the availability and verification of the first production units.

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

NAVISYSTEM
V. Fondacci 269
Z.I. Montramito
55054 MASSAROSA (Lu)
ITALY

Tel: +39 0584-425454
Fax: +39 0584 434386
mailto : b.locatori@navisystem.com

Antenna model:
Navisystem 75

Diameter:
70 cm

Standard:
Nomenclature M-x

Characterization date:
29-07-08

System Description:
Interactive maritime antenna -splash feed cassegrain - VTR radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

29.6 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
36 dBi (typical at 14.25 GHz)

Rx Gain:
35.2 dBi (typical at 12.75 GHz)

Tx XPD:
>35 dB within -1 dB contour

Rx XPD:
>32 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.navisystem.com.
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

NAVISYSTEM
V. Fondacci 269
Z.I. Montramito
55054 MASSAROSA (Lu)
ITALY

Tel: +39 0584-425454
Fax: +39 0584 434386
mailto : b.locatori@navisystem.com

Antenna model:
Navisystem 85

Diameter:
81 cm

Standard:
Nomenclature M-x

Characterization date:
30-07-08

System Description:
Interactive maritime antenna -splash feed cassegrain - VTR radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

33.8 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
37.8 dBi (typical at 14.25 GHz)

Rx Gain:
37.5 dBi (typical at 12.50 GHz)

Tx XPD:
>30 dB within -1 dB contour

Rx XPD:
>26 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.navisystem.com.
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

NAVISYSTEM
V. Fondacci 269
Z.I. Montramito
55054 MASSAROSA (Lu)
ITALY

Tel: +39 0584-425454
Fax: +39 0584 434386
mailto : b.locatori@navisystem.com

Antenna model:
Navisystem 95

Diameter:
95 cm

Standard:
Nomenclature M-x

Characterization date:
04-08-08

System Description:
Interactive maritime antenna -splash feed cassegrain - VTR radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

34.3 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
39.3 dBi (typical at 14.25 GHz)

Rx Gain:
Not measured

Tx XPD:
>30 dB within -1 dB contour

Rx XPD:
>30 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer's web site: http://www.navisystem.com.
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. Type Approval Summary Sheet

Applicant:

ORBIT
5b Hatzoran St.
P.O. Box 8657 NETANYA
42504 ISRAEL

Tel: +972 9 89262739
Fax: +972 9 892 2820
mailto : guy@orbit-ltd.co.il

Certificate:
EA-A033

Antenna:
OrSat AL-7103-Ku Mk II

Diameter:
1.15m

Standard:
M

Approval date:
06-04-2007

Revision 2 date:
02-10-2008

System Description:
Stabilised maritime antenna consisting of OrSat 1.15m dual offset Gregorian composite material antenna with single piece foam or honeycomb radome, with three axis stabilization platform and a conical scanning tracking. Can support transceivers 4 W, 8 W, 16 and 20 W rating.

Models Available:
AL-7103-Ku-Mk II with two standard configurations: with ERA OMT and Tx Reject Filter or Orbit Integrated RF front-end.

Maximum Allowed EIRP:

39.3 or 41.3* dBW / 40 kHz for digital carriers transmitted at the satellite receive contour of 0 dB/K (EESS 502, Issue 12 - Rev.1, § 6.1 refers)

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
42.3 dBi (typical at 14.25 GHz)

Rx Gain:
41.0 or 40.2* dBi (typical at 12.50 GHz)

Tx XPD:
>30 dB within -1 dB contour

Rx XPD:
>35 dB within -1 dB contour

Remarks:
1
Operations of the tracking has been tested on a Sea Simulator.
RMS pointing error 0.12° at 3σ for the following ship maximum velocity and acceleration:
Roll =11°/sec and 4°/sec²
Pitch =18°/sec and 19°/sec²
Yaw = 5°/sec and 0.3°/sec²

2
(*) applies to the configuration using the Orbit Integrated RF front-end

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

RADIO MARINE S.p.A.
c/o Sviluppo Italia Liguria
ex palazzina Omsav - Zona Porto
17100 - Savona
ITALY

Tel: +39 019 838 7134
Fax: +39 019 807 983
mailto: fp@radio-marine.com

Antenna model:
Radiomarine BroadBand80

Diameter:
80 cm

Standard:
Nomenclature M-x

Characterization date:
07-11-08

System Description:
Interactive maritime antenna; splash feed cassegrain. Carbon fibre antenna. fiberglass radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

33.0 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
39.0 dBi (typical at 14.25 GHz)

Rx Gain:
37.9 dBi (typical at 12.50 GHz)

Tx XPD:
>30 dB within -1 dB contour

Rx XPD:
>35 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.radio-marine.com
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

SEATEL
4030 Nelson Avenue
CONCORD, CA
94520
USA

Tel: +1 925 798 7979
Fax:+1 925 798 7986
mailto : Timothy.OConnor@cobham.com

Antenna model:
USAT24

Diameter:
60 cm

Standard:
Nomenclature M-x

Characterization date:
16-01-09

System Description:
Interactive maritime antenna -splash feed cassegrain – three layers 27 inches radome. Two axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

31.9 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
37.0 dBi (typical at 14.25 GHz)

Rx Gain:
35.9 dBi (typical at 12.50 GHz)

Tx XPD:
>25 dB within -1 dB contour

Rx XPD:
>30 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.seatel.com. The manufacturer advises that this antenna is not suitable for operations in rough seas.
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

SEATEL
4030 Nelson Avenue
CONCORD, CA
94520
USA

Tel: +1 925 798 7979
Fax:+1 925 798 7986
mailto : Timothy.OConnor@cobham.com

Antenna model:
2406

Diameter:
60 cm

Standard:
Nomenclature M-x

Characterization date:
14-01-09

System Description:
Interactive maritime antenna -splash feed cassegrain – three layers 34 inches radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

32.2 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
37.2 dBi (typical at 14.25 GHz)

Rx Gain:
36.1 dBi (typical at 12.50 GHz)

Tx XPD:
>25 dB within -1 dB contour

Rx XPD:
>25 dB within -1 dB contour

Remarks:
1
The characterization uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.seatel.com.
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

SEATEL
4030 Nelson Avenue
CONCORD, CA
94520
USA

Tel: +1 925 798 7979
Fax:+1 925 798 7986
mailto : Timothy.OConnor@cobham.com

Antenna model:
4006

Diameter:
1 m

Standard:
M

Characterization date:
25-09-08

System Description:
Interactive maritime antenna -splash feed cassegrain – three layers 50 inches radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

39.2 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
40.6 dBi (typical at 14.25 GHz)

Rx Gain:
39.8 dBi (typical at 12.50 GHz)

Tx XPD:
>26 dB within -1 dB contour

Rx XPD:
>30 dB within -1 dB contour

Remarks:

Operations of the tracking have been tested on a Sea Simulator.

Pointing error less than +-0.2° for the following ship motions:
Roll =+-20 degrees at 8-12 sec periods
Pitch =+-10 degrees at 6-12 sec periods

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

SEATEL
4030 Nelson Avenue
CONCORD, CA
94520
USA

Tel: +1 925 798 7979
Fax:+1 925 798 7986
mailto : Timothy.OConnor@cobham.com

Antenna model:
4009

Diameter:
1 m

Standard:
M

Characterization date:
01-12-09

System Description:
Interactive maritime antenna -splash feed cassegrain – three layers 50 inches radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

39.2 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
40.6 dBi (typical at 14.25 GHz)

Rx Gain:
39.8 dBi (typical at 12.50 GHz)

Tx XPD:
>26 dB within -1 dB contour

Rx XPD:
>30 dB within -1 dB contour

Remarks:

Operations of the tracking have been tested on a Sea Simulator.

Pointing error less than +-0.2° for the following ship motions:
Roll =+-20 degrees at 8-12 sec periods
Pitch =+-10 degrees at 6-12 sec periods

Eutelsat S.A. ESV Summary Sheet

Manufacturer:

SITEP Italia Spa
V. Vincinella 14 (loc. Ponzano)
19035 SANTO STEFANO MAGRA (SP)
ITALY

Tel: +39 0187 695911
Fax: +39 0187 630503
mailto : p.salutari@sitep.it

Antenna model:
CommSat80

Diameter:
80 cm

Standard:
Nomenclature M-x

Characterization date:
18-09-08

System Description:
Interactive maritime antenna -splash feed cassegrain - honeycomb radome. Three axis stabilization platform with conical scanning tracking.

Maximum Allowed EIRP:

31.6 dBW/40kHz for digital carriers at the satellite receive contours of 0 dB/K (EESS502, issue 12 rev 1, §6.1 refers).

Tx Frequency:
13.75 - 14.50 GHz

Rx Frequency:
10.95 - 12.75 GHz

Tx Gain:
38.1 dBi (typical at 14.25 GHz)

Rx Gain:
36.5 dBi (typical at 12.50 GHz)

Tx XPD:
>28 dB within -1 dB contour

Rx XPD:
>28 dB within -1 dB contour

Remarks:
1
The characterisation uniquely refers to the RF electrical performance which was assessed in a professional test range facility.
The validation of the performance of the tracking subsystem and the operations of the antenna when installed on a ship is out of the scope of this summary. More information about this can be found on the manufacturer web site: http://www.sitep.it
2
This antenna should normally be used in both transmit and receive sides in conjunction with spread spectrum or CDMA modems. The association of this antenna with SCPC/TDMA modems is conditioned to the existence of a Eutelsat valid transmission plan (e.g. with high efficiency FEC (1/3, 1/4, etc) and BPSK modulations for the ship-to-shore carrier).