# Exhibit F Manufacturer Certifications



Sea Tel Inc. 4030 Nelson Ave., Concord California, 94520, USA T: +1 (925) 798-7979 F: +1 (925) 798-7986

# **FCC Declaration of Conformity**

- 1. Sea Tel, Inc. designs, develops, manufactures and services marine stabilized antenna systems for satellite communication at sea. These products are in turn used by our customers as part of their Kaband Earth Station on Mobile Platform (ESoMP) networks.
- 2. FCC regulation 47 C.F.R. § 25.138 defines the provisions for blanket licensing of GSO FSS Earth Stations operating in the Ka Band.
- 3. Sea Tel hereby declares that the antennas listed below will meet the off-axis EIRP spectral density requirements of § 25.138 (a)(1) with an N value of 1, when the following Input Power spectral density limitations are met:
  - 0.6 Meter Ka Band, Model GX 60, is limited to
  - 1.0 Meter Ka Band, Model 4012 GX, is limited to

-10.5 dBW/40kHz -10.5 dBW/40kHz

- 4. Sea Tel hereby declares that the antennas referenced in paragraph 3 above, will maintain a stabilization pointing accuracy of better than 0.2 degrees under specified ship motion conditions.
- 5. Sea Tel hereby declares that the antennas referenced in paragraph 3 above, will automatically cease transmission within 100 milliseconds if the pointing error should exceed 0.5 degrees and will not resume transmission until the error drops below 0.2 degrees.
- 6. Sea Tel maintains all relevant test data, which is available upon request, to verify these declarations.

Peter Blaney, Chief Engineer Sea Tel, Inc Concord, CA

12 Dec 2014

JRC Japan Radio Co., Ltd.

1-1, Shimorenjaku 5 Chome, Mitaka-shi Tokyo 181-8510, JAPAN Phone +81-422-45-9381 Fax +81-422-45-9923

## Pointing Accuracy declaration for Global Xpress JUE-60GX

Japan Radio Co., Ltd. hereby certifies that JUE-60GX will maintain a stabilization pointing accuracy of better than 0.2 degrees and will automatically cease transmission within 100 milliseconds if the pointing error should exceed 0.5 degrees and will not resume transmission until the error drops below 0.2 degrees.

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Shigeru Senoh Manager, Maritime Satellite Communications Group Engineering Department



**Cobham SATCOM** Lundtoftegaardsvej 93 D 2800 Kgs. Lyngby Denmark

T: +45 39 55 88 00 F: +45 39 55 88 88

#### Declaration of Thrane & Thrane A/S

1. This declaration refers to the following Thrane & Thrane antenna model:

TT- 7090C SAILOR 100 GX system, Maritime Ka-Band system.

- 2. Thrane and Thrane A/S hereby declares that the antenna referenced in 1, above, will maintain a stabilization pointing accuracy of 0.2 degrees RMS or less under specified ship motion conditions.
- 3. Thrane and Thrane A/S hereby declares the antenna referenced in 1, above, will automatically cease transmission within 100 milliseconds if the pointing error should exceed 0.5 degrees and will not resume transmission until the pointing error drops below 0.2 degrees.

Date: 5/12-2014

Vibeke Fink R&D Director Thrane & Thrane A/S



# **Pointing Accuracy and Auto TX Shutdown**

We, Intellian Technologies, Inc. hereby certifies that the Intellian GX60 will maintain a stabilization pointing accuracy of better than 0.2 degrees and will automatically cease transmission within 100 milliseconds if the pointing error should exceed 0.5 degrees and will not resume transmission until the error drops below 0.2 degrees.

### **Product Information:**

Product Name:	Intellian GX60, 65cm Ka-band Maritime Stabilized Antenna System

#### **Background:**

Intellian GX60 employs closed loop servo systems to keep the antenna pointed accurately at the satellite. The closed loop servo system includes highly accurate sensors continuously to monitor the antenna's position in inertial space. In the normal operation, the servo mechanism keeps the antenna pointing within  $\pm 0.1^{\circ}$  degrees RMS and the pointing accuracy is approximately 0.2° peak. However there always exists the possibility that unexpected conditions will cause the antenna to deviate outside this normal operation.

Examples of some possible conditions are:

- Unexpected mechanical disturbance from an external source.
- Mechanical malfunction.
- Ship motions beyond the pedestal specifications which cause very large accelerations on the axes.
- Failure of one or more drive motors.
- Sensor malfunction (Rate Sensors, GPS, Gyrocompass).

#### **Antenna Pointing Accuracy:**

At all times, the ACU (antenna control unit) continual monitors the antenna position as part of the normal servo loop operation of the antenna and compares a running average of the measured azimuth and elevation to the desired azimuth and elevation positions. If the antenna becomes miss-pointed by exceeding 0.5° from the axis of the main lobe of the target satellite, then the ACU will send a "cease transmissions" signal by providing a TX MUTE instruction to the below-deck satellite modem within 100 milliseconds. The ACU will suppress the signal until the off-axis angle is within 0.2° of the target satellite.

Authority:

Kevin Eom/ CTO, Research and Development

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Signature:	$\langle \dots \rangle$

Date: December 11, 2014

Intellian Technologies USA, Inc. US Headquarters 9004 Research Drive Irvine, CA 92618 USA Tel: +1 949 727 4498

#### Intellian Technologies, Inc.

EMEA & APAC Headquarters 18-7, Jinwisandan-ro, Jinwi-myeon, Pyeongtaek-Si, Gyeonggi-do 451-862, Korea Tel: +82 2 511 2244 Doc Number IT14-DC1211-02



# **Pointing Accuracy and Auto TX Shutdown**

We, Intellian Technologies, Inc. hereby certifies that the Intellian GX100 will maintain a stabilization pointing accuracy of better than 0.2 degrees and will automatically cease transmission within 100 milliseconds if the pointing error should exceed 0.5 degrees and will not resume transmission until the error drops below 0.2 degrees.

#### **Product Information:**

Product Name: Inte	tellian GX100, 1m Ka-band Maritime Stabilized Antenna System

#### **Background:**

Intellian GX100 employs closed loop servo systems to keep the antenna pointed accurately at the satellite. The closed loop servo system includes highly accurate sensors continuously to monitor the antenna's position in inertial space. In the normal operation, the servo mechanism keeps the antenna pointing within  $\pm 0.1^{\circ}$  degrees RMS and the pointing accuracy is approximately 0.2° peak. However there always exists the possibility that unexpected conditions will cause the antenna to deviate outside this normal operation.

Examples of some possible conditions are:

- Unexpected mechanical disturbance from an external source.
- Mechanical malfunction.
- Ship motions beyond the pedestal specifications which cause very large accelerations on the axes.
- Failure of one or more drive motors.
- Sensor malfunction (Rate Sensors, GPS, Gyrocompass).

#### **Antenna Pointing Accuracy:**

At all times, the ACU (antenna control unit) continual monitors the antenna position as part of the normal servo loop operation of the antenna and compares a running average of the measured azimuth and elevation to the desired azimuth and elevation positions. If the antenna becomes miss-pointed by exceeding 0.5° from the axis of the main lobe of the target satellite, then the ACU will send a "cease transmissions" signal by providing a TX MUTE instruction to the below-deck satellite modem within 100 milliseconds. The ACU will suppress the signal until the off-axis angle is within 0.2° of the target satellite.

Authority:

Kevin Eom/ CTO, Research and Development

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Signature:	$\sim$

Date: December 11, 2014

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