

## **Exhibit C**

### **Antenna / Antenna System Declaration of Conformity with 47 C.F.R. Ch. 1 §25.222**

Attached as Exhibit C of this application is a Declaration by Mr. Peter G. Blaney, Chief Engineer of Sea Tel Products, a division of Cobham SATCOM, Marine Systems. In this declaration, Mr. Blaney affirms conformity with the following components of 47 C.F.R. Ch. 1 §25.222, detailed as follow below. Further, Mr. Blaney states that all relevant test data pertinent to the declarations made in the attachment are available upon request.

#### **§25.222(a)(1)(i)**

**Requirement:** “An ESV system shall not exceed the off-axis EIRP spectral-density limits and conditions defined in paragraphs (a)(1)(i)(A) through (a)(1)(i)(D) of this section.”

**Declaration:** Paragraph #3 in this attachment contains a declaration in compliance with this requirement.

#### **§25.222(a)(1)(ii)**

**Requirement:** “Each ESV transmitter must meet one of the following antenna pointing requirements: (A) Each ESV transmitter shall maintain a pointing error of less than or equal to 0.2° between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna, or (B) Each ESV transmitter shall declare a maximum antenna pointing error that may be greater than 0.2° provided that the ESV does not exceed the off-axis EIRP spectral-density limits in paragraph (a)(1)(i) of this section, taking into account the antenna pointing error.”

**Declaration:** Paragraph #4 in this attachment contains a declaration in compliance with this requirement.

#### **§25.222(a)(1)(iii)**

**Requirement:** “Each ESV transmitter must meet one of the following cessation of emission requirements: (A) For ESVs operating under paragraph (a)(1)(ii)(A) of this section, all emissions from the ESV shall automatically cease within 100 milliseconds if the angle between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna exceeds 0.5°, and transmission will not resume until such angle is less than or equal to 0.2°, or (B) For ESV transmitters operating under paragraph (a)(1)(ii)(B) of this section, all emissions from the ESV shall automatically cease within 100 milliseconds if the angle between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna exceeds the declared maximum antenna pointing error and shall not resume transmissions until such angle is less than or equal to the declared maximum antenna pointing error.”

**Declaration:** Paragraph #5 in this attachment contains a declaration in compliance with this requirement.

#### **§25.222(b)(1) and §25.222(b)(1)(ii)**

**Requirement:** “(1) An ESV applicant proposing to implement a transmitter under paragraph (a)(1) of this section must demonstrate that the transmitter meets the off-axis EIRP spectral-density limits contained in paragraph (a)(1)(i) of this section. To provide this demonstration, the application shall include the tables described in paragraph (b)(1)(i) of this section or the certification described in paragraph (b)(1)(ii) of this section. The ESV applicant also must provide the value N described in paragraph (a)(1)(i)(A) of this section. An ESV applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(A) of this section must provide the certifications identified in paragraph (b)(1)(iii) of this section. An ESV applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(B) of this section must provide the demonstrations identified in paragraph (b)(1)(iv) of this section.”

“(ii) A certification, in Schedule B, that the ESV antenna conforms to the gain pattern criteria of § 25.209(a) and (b), that, combined with the maximum input power density calculated from the EIRP density less the antenna gain, which is entered in Schedule B, demonstrates that the off-axis EIRP spectral density envelope set forth in paragraphs (a)(1)(i)(A) through (a)(1)(i)(C) of this section will be met under the assumption that the antenna is pointed at the target satellite.”

**Declaration:** Paragraph #3 in this attachment contains a declaration in compliance with this requirement when the value of N = 1. GCI will employ Frequency Division Multiple Access (FDMA) and/or Time Division Multiple Access (TDMA) multiple access techniques on this ESV system, thus employing a system for which the manufacturer declaration (Paragraph #3 of this attachment) is applicable.

#### **§25.222(b)(1)(iii)**

**Requirement:** “An ESV applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(A) of this section, must provide a certification from the equipment manufacturer stating that the antenna tracking system will maintain a pointing error of less than or equal to 0.2 between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna and that the antenna tracking system is capable of ceasing emissions within 100 milliseconds if the angle between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna exceeds 0.5°.”

**Declaration:** As stated above for §25.222(a)(1)(ii), paragraph #4 in this attachment contains a declaration in compliance with this requirement.

#### **§25.222(b)(1)(iv)**

**Requirement:** “An ESV applicant proposing to implement a transmitter under paragraph (a)(1)(ii)(B) of this section must: (A) Declare, in their application, a maximum antenna pointing error and demonstrate that the maximum antenna pointing error can be achieved without exceeding the off-axis EIRP spectral-density limits in paragraph (a)(1)(A) of this section; and (B) Demonstrate that the ESV transmitter can detect if the transmitter exceeds the declared maximum antenna pointing error and can cease transmission within 100 milliseconds if the

angle between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna exceeds the declared maximum antenna pointing error, and will not resume transmissions until the angle between the orbital location of the target satellite and the axis of the main lobe of the ESV antenna is less than or equal to the declared maximum antenna pointing error.”

**Declaration:** As stated above for §25.222(a)(1)(iii), paragraph #5 in this attachment contains a declaration in compliance with this requirement.



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Declaration of Cobham SATCOM, Sea Tel, Inc.

1. Cobham SATCOM - Marine Systems, Sea Tel Products 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 Ku-band Earth Station on Vessels (ESV) networks.
2. FCC regulation 47 C.F.R. § 25.222 defines the provisions for blanket licensing of ESV antennas operating in the Ku Band. This declaration covers the requirements for meeting § 25.222 (a)(1) by the demonstrations outlined in paragraphs (b)(1)(i) and (b)(1)(iii). The requirements for meeting § 25.222 (a)(3)-(a)(7) are left to the applicant. The paragraph numbers in this declaration refer to the 2009 version of FCC 47 C.F.R. § 25.222.
3. Sea Tel hereby declares that the antennas listed below will meet the off-axis EIRP spectral density requirements of § 25.222 (a)(1)(i) with an N value of 1, when the following Input Power spectral density limitations are met:

0.6 Meter Ku Band, Models 2406 and USAT-24 are limited to	-21.6 dBW/4kHz
0.75 Meter Ku Band, Model USAT-30 is limited to	-21.6 dBW/4kHz
1.0 Meter Ku Band, Models 4003/4006/4009/4010 are limited to	-16.3 dBW/4kHz
1.2 Meter Ku Band, Models 4996/5009/5010 are limited to	-14.0 dBW/4kHz
1.5 Meter Ku Band, Models 6006/6009 are limited to	-14.0 dBW/4kHz
2.4 Meter Ku Band, Model 9797 is limited to	-14.0 dBW/4kHz
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, thus meeting the requirements of § 25.222 (a)(1)(ii).
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, thus meeting the requirements of § 25.222 (a)(1)(iii).
6. Sea Tel maintains all relevant test data, which is available upon request, to verify these declarations.

Executed on: 7/28/10

By:

Peter G. Blaney  
Chief Engineer, Sea Tel Products  
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