

Date: Sep. 02, 2021

Federal Aviation Administration
Office of Spectrum Policy and Management
ASR-1
800 Independence Avenue, SW
Washington D.C 20591
USA

**Reference: FAA Notification of FCC Equipment under FCC Part 87
AVIATOR 200S/700S, Aeronautical Earth Station
Satellite Communication Transceivers.
FCC ID: ROJ-AVIATOR200S
FCC ID: ROJ-AVIATOR700S**

APPLICANT: Thrane & Thane A/S Trading as Cobham SATCOM

Dear Sir,

In accordance with Federal Communications Commission (FCC) Rules and Regulations, Part 87.147(d), Thrane & Thane A/S Trading as Cobham SATCOM hereby notifies the Federal Aviation Administration of its filing with the FCC of an application for certification of the SDU-5045 Satellite Data Unit (SDU), LGA-5005 Low Gain Antenna (LGA) and HPA-5015 High Power Amplifier (HPA).

Please find below the information required pursuant to Part 87.147(d)(1).

1) Description of Equipment

Table 1: AVIATOR S SATCOM Systems - RF Components

| AVIATOR 200S | AVIATOR 700S |
|---------------------|---|
| SDU-5045 | SDU-5045 |
| LGA-5005 | HPA-5015 |
| | Type Approved Diplexer/Low Noise Amplifier (DLNA) |
| | Type Approved High Gain Antenna (HGA) |

Notes:

1. Both system configurations include an SCM-5055 SDU Configuration Module (SCM). This unit is a memory module that additionally houses the BGAN SIM card(s) and security card.
2. The antenna used in the AVIATOR 700S is a passive radiating element and does not contain any active elements.

AVIATOR 200S

The AVIATOR 200S SATCOM System is comprised of three units: The SDU-5045 Satellite Data Unit (SDU), the LGA-5005 Low Gain Antenna (LGA) and the SCM-5055 SDU Configuration Module (SCM).

Interconnection between the SDU and other sub-system components as illustrated in Figure 1.

AVIATOR 200S (Class 4 system)

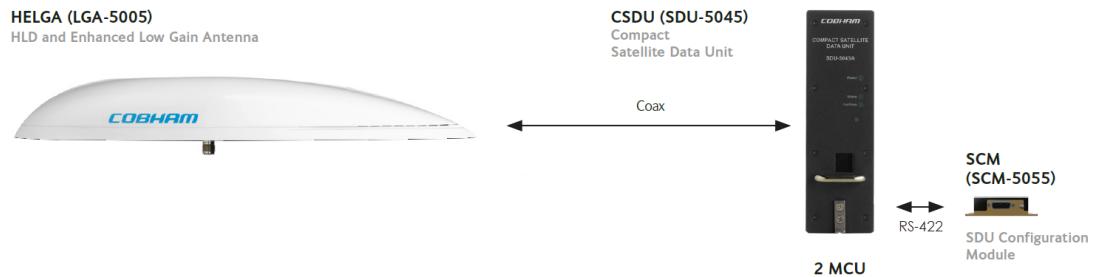


Figure 1: AVIATOR 200S System

The SDU-5045 supports Inmarsat SwiftBroadband carriers using QPSK, 16QAM, 32QAM and 64QAM. The SDU signals are amplified by the LGA-5005 Antennas internal amplifier and transmitted through the Low Gain Antenna.

The AVIATOR 200S system provides one baseband communication carrier capable of supporting simultaneous full-duplex of SwiftBroadband functionality. The System functions in the 1525 – 1559 MHz receive band and 1626.5 – 1660.5 MHz and 1668 – 1675 MHz transmit band.

The AVIATOR 200S System is a mounted Aeronautical Communication Systems supporting simultaneous voice and data communication through the Inmarsat BGAN satellite service.

The standard system components consist of the following Items:

- SDU (Satellite Data Unit) SDU-5045
- LGA (Low Gain Antenna) LGA-5005
- SCM (SDU Configuration Module) SCM-5055
- Aircraft interfaces (as required by the aircraft installation)

The SDU-5045 Satellite Data Unit (SDU) and the LGA-5005 Low Gain Antenna (LGA) support the SwiftBroadband-Safety aeronautical satellite communications service. The transceiver meets the applicable requirement of RTCA/DO-262D "Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS)".

AVIATOR 700S

The AVIATOR 700S SATCOM System is comprised of five units: The SDU-5045 Satellite Data Unit (SDU), the HPA-5015 High Power Amplifier (HPA), SCM-5055 SDU Configuration Module (SCM), a Type-F Diplexer/Low Noise Amplifier (DLNA) and a passive radiating antenna (e.g. the HGA-7001).

Interconnection between the SDU and other sub-system components as illustrated in Figure 2:

AVIATOR 700S (Class 6 system)

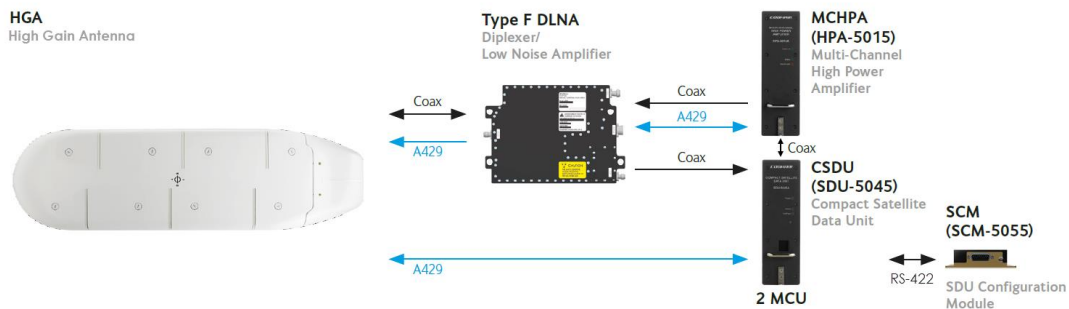


Figure 2: AVIATOR 700S System

The SDU-5045 supports Inmarsat SwiftBroadband carriers using QPSK, 16QAM, 32QAM and 64QAM. The SDU signals are amplified by the HPA-5015 High Power Amplifier and transmitted through the Diplexer and into the High Gain Antenna.

The AVIATOR 700S system provides two baseband communication carriers capable of supporting simultaneous full-duplex of SwiftBroadband functionality. The System functions in the 1525 – 1559 MHz receive band and 1626.5 – 1660.5 MHz transmit band.

The AVIATOR 700S System is a mounted Aeronautical Communication Systems supporting simultaneous voice and data communication through the Inmarsat BGAN satellite service.

The standard system components consist of the following Items:

- SDU (Satellite Data Unit) SDU-5045
- HPA (High Power Amplifier) HPA-5015
- SCM (SDU Configuration Module) SCM-5055
- Type approved DLNA. e.g. Type-F
- Type approved Antenna e.g. HGA-7001
- Aircraft interfaces (as required by the aircraft installation)

The SDU-5045 Satellite Data Unit (SDU) and the HPA-5015 High Power Amplifier (HPA) support the SwiftBroadband-Safety aeronautical satellite communications service. The transceiver meets the applicable requirement of RTCA/DO-262D "Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS)".

2) Manufacturer's Identification

The Thrane & Thane A/S Trading as Cobham SATCOM model identification and the FCC Identifier for the AVIATOR 200S are presented in Table 1. For reference, the supported Inmarsat services are included.

Table 2: Manufacturer's Identification

| Equipment Identification | | | Inmarsat Services (Swiftbroadband) | | | | |
|--------------------------|-----------------|-------------------|------------------------------------|----------------|--|------------------------|-----------------------|
| Model | FCC ID | IC ID (Canadian) | Domain | Background IP | Streaming IP | Circuit-switched voice | Packet-switched voice |
| AVIATOR 200S | ROJ-AVIATOR200S | 6200B-AVIATOR200S | COCKPIT | Up to 200 kbps | 8/16/32 kbps | Yes (1) | Yes (1) |
| AVIATOR 700S | ROJ-AVIATOR700S | 6200B-AVIATOR700S | COCKPIT | Up to 432 kbps | 8/16/32/64/128 kbps/ X-STREAM/ Half-HDR/ Full-HDR | Yes (1) | Yes (1) |
| | | | CABIN | Up to 432 kbps | 8/16/32/64/128 kbps/ X-STREAM/ Half-HDR/ Full-HDR | No | No |

3) Antenna Characteristics

The AVIATOR 200S system is designed to operate only with the LGA-5005 Antenna as this forms part of the transceiver chain.

The AVIATOR 700S system is designed to operate with Inmarsat approved SATCOM aeronautical antenna sub-systems.

These antenna and DLNA meet the requirements of ARINC Characteristics 741 and/or ARINC Characteristics 781, and RTCA/DO-262.

4) Rated Output Power (EIRP)

| System | RF Power EIRP [dBW] |
|--------------|--|
| AVIATOR 200S | 10 dBW +3.5/-1.5 dB (5-70° elevation) 8 dBW +5.5/-1.5 dB (70-90° elevation) |
| AVIATOR 700S | 20.0 dBW +2.0/-3.5 dB per carrier |

5) Emission Types and Characteristics

The AVIATOR 200S and 700S equipment emission types and characteristics are summarized in Table 2.

Table 2: Emission Types and Characteristics

| Symbol Rate [ksym/s] | Modulation Type | | Data Rate [kb/s] | Allocated Band Width [kHz] | AVIATOR 200S | AVIATOR 700S |
|----------------------|-----------------|----|------------------|----------------------------|--------------|--------------|
| 33.6 | QAM | 16 | 134.4 | 50 | 50K0D1W | 50K0D7W |
| 67.2 | QAM | 16 | 268.8 | 100 | 100KD1W | 100KD7W |
| 151.2 | QAM | 16 | 604.8 | 200 | 200KD1W | 200KD7W |
| 33.6 | QAM | 16 | 134.4 | 50 | 50K0D1W | 50K0D7W |
| 67.2 | QAM | 16 | 268.8 | 100 | 100KD1W | 100KD7W |
| 151.2 | QAM | 16 | 604.8 | 200 | 200KD1W | 200KD7W |
| 67.2 | QPSK | 4 | 134.4 | 100 | 100KG1W | 100KG7W |
| 151.2 | QPSK | 4 | 302.4 | 200 | 200KG1W | 200KG7W |
| 16.8 | QPSK | 4 | 33.6 | 25 | 25K0G1W | 25K0G7W |
| 33.6 | QPSK | 4 | 67.2 | 50 | 50K0G1W | 50K0G7W |
| 67.2 | QPSK | 4 | 134.4 | 100 | 100KG1W | 100KG7W |
| 151.2 | QPSK | 4 | 302.4 | 200 | 200KG1W | 200KG7W |
| 16.8 | QPSK | 4 | 33.6 | 25 | 25K0G1W | N/A |
| 33.6 | QPSK | 4 | 67.2 | 50 | 50K0G1W | N/A |
| 84 | QPSK | 4 | 168 | 100 | 100KG1W | N/A |
| 84 | QAM | 16 | 336 | 100 | 100KD1W | 100KD7W |
| 168 | QAM | 16 | 672 | 200 | N/A | 200KD7W |
| 84 | QAM | 32 | 420 | 100 | N/A | 100KD7W |
| 84 | QAM | 64 | 504 | 100 | N/A | 100KD7W |
| 168 | QAM | 32 | 840 | 200 | N/A | 200KD7W |
| 168 | QAM | 64 | 1008 | 200 | N/A | 200KD7W |

6) Frequencies of Operation

| System | Operating Frequencies |
|--------------|--|
| AVIATOR 200S | 1525 to 1559 MHz receiving. 1626.5 to 1660.5 and 1668.0 to 1675.0 MHz transmitting. |
| AVIATOR 700S | 1525 to 1559 MHz receiving. 1626.5 to 1660.5 MHz transmitting. |

7) Receiver Characteristics

The receiving characteristics of the AVIATOR 200S and 700S equipment meet the applicable requirements of the Inmarsat System Definition Manuals (SDMs) and RTCA/DO-262.

If this information meets with your approval, Thrane & Thane A/S Trading as Cobham SATCOM herein requests that your office notify the FCC's Office of Engineering and Technology Laboratory, Authorization and Evaluation Division, in order to indicate that, pursuant to Section 87.147(d)(2) of the FCC's rules, the FAA does not have an objection to the certification of the equipment described in this letter.

If you have any questions on the above information, please feel free to contact me directly.

Sincerely,



Marcin Kazmierczak
Engineering and Program Director
Cobham Aerospace Communications

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