

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)

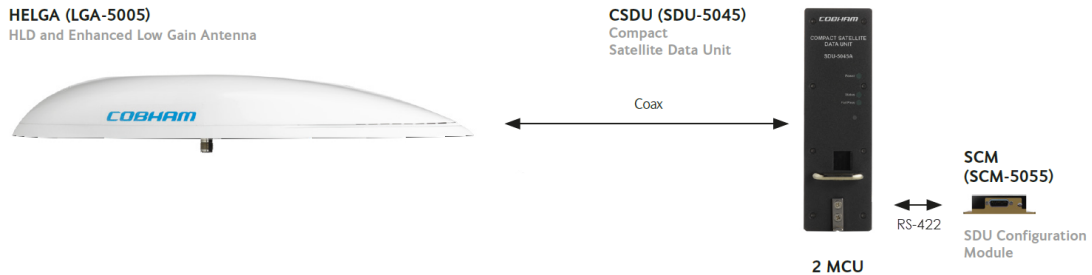


Figure 1: AVIATOR 200S System

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)

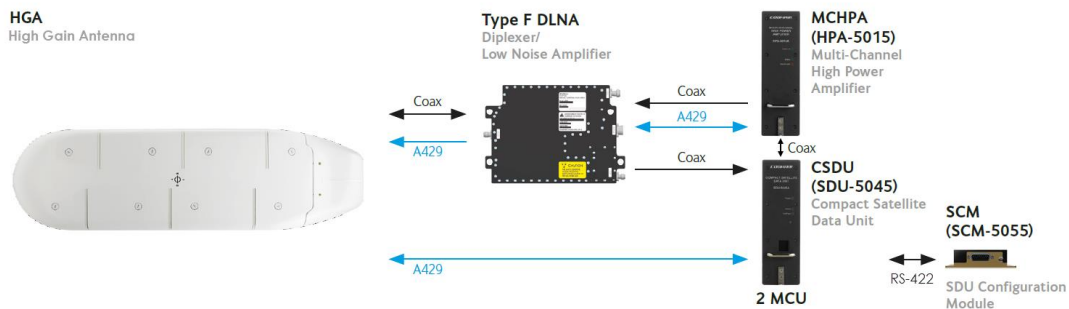


Figure 2: AVIATOR 700S System

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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