Approved by OMB
3060–0678

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATIONEnter a description of this application to identify it on the main menu:
STA Request for Thales ESAA services using Telenor Thor–7 Satellite

1. Applicant

Name:	Thales Avionics, Inc.	**Phone Number:**	571–255–4479
DBA Name:		**Fax Number:**	703–838–9692
Street:	1110 W. Hibiscus Blvd.	**E–Mail:**	Pasquale.AMODIO@us.thalesgroup.com
City:	Melbourne	**State:**	FL
Country:	USA	**Zipcode:**	32091 –
Attention:	Mr Pasquale Amodio		

60 days "With Conditions"

GRANTED
International Bureau

File # SES-STA-20190429-00556

Call Sign E170068 Grant Date 05/16/2019
(or other identifier)

Term Dates
From: 05/20/2019 To: 07/19/2019

Approved:

2. Contact

Name:	Pat Amodio	**Phone Number:**	571-255-4479
Company:	Thales Avionics, Inc.	**Fax Number:**	703-838-9692
Street:	2733 South Crystal Dr	E-Mail:	pasquale.amadio@us.thalesgroup.com
	Suite 1200		
City:	Arlington	**State:**	VA
Country:	USA	**Zipcode:**	22202 -2220
Attention:		**Relationship:**	Other

(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)
3. Reference File Number SESMFS2019042400544 or Submission ID

4a. Is a fee submitted with this application?
(●) If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).
( ) Governmental Entity ( ) Noncommercial educational licensee
( ) Other(please explain):

4b. Fee Classification CGV – Fixed Satellite VSAT System

5. Type Request

(●) Use Prior to Grant ( ) Change Station Location ( ) Other

6. Requested Use Prior Date 05/20/2019	

7. CityN/A	8. Latitude (dd mm ss.s h) 0 0 0.0
9. State	10. Longitude (dd mm ss.s h) 0 0 0.0

11. Please supply any need attachments.

Attachment 1: Thor–7 STA Narrative Attachment 2: Attachment 3:

12. Description. (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

Thales Avionics, Inc. which currently holds a Ka-band ESAA license requests a 60-day Special Temporary Authority (STA) to operate up to 25 MCT-A ESAA terminals on the Telenor Satellite Thor-7 satellite starting on May 20, 2019.

13. By checking Yes, the undersigned certifies that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti–Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes. ◉ Yes ○ No

14. Name of Person Signing Pat Amadio	15. Title of Person Signing Senior Director – Regulatory Compliance

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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60 days "With conditions"

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International Bureau

File # SES-STA-20190429-00556

Call Sign E170068 Grant Date 05/16/2019
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Term Dates
From: 05/20/2019 To: 07/19/2019

Approved: Paul E Patrico

Applicant: Thales Avionics, Inc.
File Number: SES-STA-20190429-00556
Call Sign: E170068
Special Temporary Authority ("STA")

Thales Avionics, Inc. ("Thales") is granted to operate under special temporary authority for 60 days, beginning May 20, 2019, to operate up to 25 technically-identical earth station aboard aircraft (ESAA) antennas (0.36 meter model MCT-A) for flight testing on 29500-30000 GHz (Earth-to-space) and 19700-20200 GHz (space-to-Earth) frequencies to communicate with the Norway administration's Thor-7 satellite at the 0.65°W orbital location. Operations are subject to the following conditions:

1. Flight test shall be over the Atlantic Ocean and northeastern Canada.

2. Flight test shall not include U.S. airspace.

3. Operations shall not exceed the 18.4 dBW/1MHz eirp density pursuant to Section 25.138(a)(1) as coordinated with Telenor Satellite operator on Thor-7 satellite and not exceed any other emission designators currently authorized.

4. ESAAs authorized must cease transmissions when the antenna-to-GSO skew angle for antenna model MCT-A exceeds 40° and the off-axis EIRP spectral density emissions risk harmful interference to GSO space station. The ESAA(s) may resume transmissions once the risk of harmful interference has passed.

5. Operations are on an unprotected and non-harmful interference basis. Thales must cease operations immediately upon notification of such interference and must immediately inform the Commission, in writing, of such an event.

6. In the 17.8-20.2 GHz frequency range, in order to protect Federal satellite services, the licensee shall communicate only with satellites whose operator has completed an agreement with Federal operators pursuant to footnote US334 of the U.S. Table of Frequency Allocations, 47 C.F.R. § 2.106, and that agreement has been approved by both the Federal Communications Commission and the National Telecommunications and Information Administration. The licensee's operations pursuant to this authorization shall be consistent with such US334 agreements.

7. The antenna performance specifications do not comply with Sections 25.138(a) and 25.209 of the FCC Rules. The operation of these antennas will not be protected from harmful interference caused by other geostationary satellite networks to the extent that harmful interference would not be expected to be caused to an antenna that is compliant with the antenna performance standards of Section 25.209.

8. Waiver of Section 25.138(a)(2) of the Commission Rules is granted. The antenna performance specifications do not comply with Section 25.138(a)(2). The operation of these antennas will not be protected from harmful interference caused by other geostationary satellite networks to the extent that harmful interference would not be expected to be caused to an antenna that is compliant with the antenna performance standards of Section 25.209.

9. Thales must take all necessary measures to ensure that the operation authorized does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers. The licensee shall ensure installation of terminals on aircraft by qualified installers who have an understanding of the antenna's radiation environment and the measures best suited to maximize protection of the general public and persons operating the aircraft and equipment. A terminal exhibiting radiation exposure levels exceeding 1.0 mW/cm2 in accessible areas, such as at the exterior surface of the radome, shall have a label attached to the surface of the terminal warning about the radiation hazard and shall include thereon a diagram showing the regions around the terminal where the radiation levels could exceed 1.0 mW/cm2.

10. Transmitter(s) must be turned off during antenna maintenance to ensure compliance with the FCC-specified safety guidelines for human exposure to radiofrequency radiation in the region between the antenna feed and the reflector. Appropriate measures must also be taken to restrict access to other regions in which the earth station's power flux density levels exceed the specified guidelines.

11. Operations authorized pursuant to this license are operations by U.S.-registered aircraft anywhere within the coverage area/frequency bands identified in the application for the satellites listed as points of communication. Operations authorized pursuant to this license also include operations by non-U.S.-registered aircraft within U.S. territory, including territorial waters.

12. Operation in the territory or airspace of any country other than the United States must comply with the applicable laws, regulations, and licensing procedures of that country, as well as with the conditions of this authorization.

13. Antenna elevation for all operations must be at least three (3) degrees above the geographic horizon while the aircraft is on the ground. Stub

14. All operations shall be on a non-common carrier basis.

15. The licensee shall comply with any pertinent limits established by the International Telecommunication Union to protect other services allocated internationally.

16. The licensee must maintain a U.S. point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein. The licensee shall have available, at all times, the technical personnel necessary to perform supervision of remote station operations: Thales Network Operations Center, 7415 Emerald Dunes Drive, Suite 2000, Orlando, FL 32822, Phone number: 407-812-2538, Email address is: MOC@us.thalesgroup.com

17. Operations authorized pursuant to this license are operations by U.S.-registered aircraft anywhere within the coverage area/frequency bands identified in the application for the satellites listed as points of communication. Operations authorized pursuant to this license also include operations by non-U.S.-registered aircraft within U.S. territory, including territorial waters. Authorization for operations by U.S.-registered aircraft outside U.S. territory, pursuant to this license, does not constitute a grant of access to the market in the United States under the Commission's DISCO II policies.

18. All existing transmitting facilities, operations and devices regulated by the Commission must comply with the Commission's radiofrequency (RF) exposure guidelines, pursuant to Section 1.1307(b)(1) through (b)(3) of the Commission's rules, or if not in compliance, file an Environ- mental Assessment (EA) as specified in Section 1.1311. See 47 CFR § 1.1307(b)(5).

19. ESAAs authorized herein must employ a tracking algorithm that is resistant to capturing and tracking adjacent satellite signals, and each station must be capable of inhibiting its own transmission in the event it detects unintended satellite tracking.

20. ESAAs authorized herein must be monitored and controlled by a ground-based network control and monitoring center. Such stations must be able to receive "enable transmission" and "disable transmission" commands from the network control center and must cease transmission immediately after receiving a "parameter change" command until receiving an "enable transmission" command from the network control center. The network control center must monitor operation of each ESAA to determine if it is malfunctioning, and each ESAA must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed-satellite service network.

21. Stations authorized herein must not be used to provide air traffic control communications.

22. The ESAAs are authorized, on a non-protected and non-harmful interference basis, to transmit to the following geostationary-orbit space stations: Thor-7 at orbital location 0.65° W using the 29.5-30.0 GHz frequency band. The ESAAs authorized herein must immediately terminate operations upon notification that such operation is causing harmful interference to any

other radio system lawfully operating in the 29.5-30.0 GHz frequency band. The ESAAs authorized herein cannot claim protection from harmful interference from any radio system lawfully operating in the 29.5-30.0 GHz frequency band.

23. The ESAAs are authorized, on a non-protected and non-harmful interference basis, to receive downlink transmissions from the following geostationary-orbit space station: Thor-7 at orbital location 0.65° W using the 19.7-20.2 GHz frequency band. The ESAAs operations authorized herein must accept interference from any radio system lawfully operating in the 19.7-20.2 GHz frequency band.

24. Operations pursuant to this authorization must comply with the terms of the coordination agreements with operators of Ka-band geostationary space stations within thirty angular degrees of the target satellite Thor-7. In the event another GSO space station commences operation in the 29.5-30.0 GHz frequency band at a location within thirty degrees of any of the target satellites, ESAAs operating pursuant to this authorization must cease transmitting to the target satellite(s) unless and until such operation has been coordinated with the new space station's operator or Thales demonstrates that such operation will not cause harmful interference to the new co-frequency space station.

25. Communications between Thales ESAAs and Thor-7 must comply with all existing and future space station coordination agreements reached between Canada and other Administrations.

26. When operating in airspace within line-of-sight of the territory of a foreign administration where Fixed Service networks have an allocation in the 28.35- 29.1 GHz or 29.5-30.0 GHz frequency bands, the ESAAs must not exceed the following EIRP limits: +64 dBW in any 1 MHz band if Theta is less than or equal to 0° +64 + 3*Theta dBW in any 1 MHz band if Theta is greater than 0° but less than or equal to 5°, where Theta is the angle of elevation of the horizon viewed from the center of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

27. Operation of ESAAs authorized herein are subject to any requirements the Commission may adopt in any future proceeding concerning operations in the 19.7-20.2 GHz(space-to-Earth) frequency band and 29.5-30.0 GHz (Earth-to-space) frequency band including, but not limited to, ESAAs communicating with geostationary orbit space stations.

28. The licensee must maintain records of the following data for each operating ESAA: location (latitude, longitude, altitude); aircraft attitude (pitch, yaw, roll); transmit frequency and occupied bandwidth; data rate; EIRP; and target satellite. This data must be recorded at intervals of no more than one minute while an ESAA is transmitting and every 30 seconds when aircraft roll angle is greater than 10 degrees. The licensee must also record instances when ESAA pointing error exceeds 0.2 degrees. The licensee must make this data available upon request to a

fixed-satellite service system operator or the Commission within 24 hours after receiving the request.

29. For purposes of this authorization, the term earth stations aboard aircraft, or ESAA, is used to refer to any earth station on aircraft communicating with Fixed-Satellite Service (FSS) geostationary-orbit (GSO) space stations, without reference to the technical and licensing rules specifically adopted for earth stations on aircraft in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz, and 14.0-14.5 GHz frequency bands. See 47 C.F.R. § 25.227; Revisions to Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.34-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands, IB Docket No. 12-376, Notice of Proposed Rulemaking and Report and Order, FCC 12-161, 27 FCC Rcd 16510 (2012); Revisions of Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands, IB Docket No. 12-376, Second Report and Order on Reconsideration, FCC 14-45, 29 FCC Rcd 4226 (2014). Nothing in this authorization extends those technical and licensing rules to earth stations on aircraft not operating in those specified frequency bands.

30. Grant of this authorization is without prejudice to any determination that the Commission may make regarding Thales' pending application FCC IBFS File number SES-MFS-20190424-00544 or future applications.

31. Grant of operation under this special temporary authority does not constitute U.S. market access.

This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106.

"With conditions"

60 days

GRANTED
International Bureau

File # SES-STA-20190429-00556

Call Sign E170068 Grant Date 05/16/2019
(or other identifier)

Term Dates
From: 05/20/2019 To: 07/19/2019

Approved:

Request for Special Temporary Authority

Thales Avionics, Inc. ("Thales") which currently holds a Ka-band ESAA license[1], pursuant to Section 25.120(b)(3) of the Federal Communications Commission Rules and Regulations requests a 60-day Special Temporary Authority (STA) to operate up to 25 MCT-A ESAA terminals on the Telenor Satellite Thor-7 satellite starting on May 20, 2019. On April 24, 2019, Thales filed a license modification to add the Thor-7 satellite as a point of communication.[2] The modification also seeks to add one new transmit emission and two new receive emissions. Thales has designed their modification filing under the requirements of §25.138 for operation of GSO FSS at Ka-band, the existing FCC Rules governing ESAA, §25.227, and previously granted licenses for ESAAs using GSO FSS at Ka-band. Thales operations under this STA will be consistent with the criteria proposed in the modification application and will adhere to any commission STA provisions.

The grant of this STA is in the public interest because it will allow Thales to meet urgent customer requirements for provision of aeronautical, two-way in-flight broadband data services to airline passengers, crews, and operations. In particular, this service will provide much needed aeronautical connectivity to transatlantic flights in the densely-traveled air corridor between North America and the UK and Europe.

The Thales ESAA operation under this STA is fully consistent with the FCC policies and all the terms of their existing license. Telenor Satellite has coordinated the operations of this service with adjacent satellite operators and the downlink PFD levels are compliant with the levels specified in §25.138(a)(6).

Thales ESAA operations under this STA on Thor-7 at orbital location 0.65° W.L. will:

- be flight tested using a leased aircraft, before providing aeronautical connectivity services to Air Canada
- be over the Atlantic Ocean and northeastern Canada
- not use U.S. airspace
- operate between 29.5-30 GHz on the uplink and 19.7-20.2 GHz on the downlink

The uplink power will be 45.4 dBW and the EIRP density is 18.4 dBW/4 kHz, values which are slightly lower (0.1 dB) than those in the existing referenced license.

Thales respectfully seeks from the Commission an expedited grant of this STA since the ESAA operations are consistent with FCC policies, the operations use currently-licensed ESAA terminals, and operations will not cause interference into existing GSO or NGSO systems.

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[1] See FCC File No. SES-LIC-20170217-00183, Call Sign E170068, granted on 07/07/2017. The MCT-A terminal is identified as AES1 and the license provides for operation of up to 250 terminals.

[2] See FCC File No. SES-MFS-20190424-00544, filed on 04/24/2019. The modification requests operation on Thor-7 at 0.65 degrees west longitude. It also adds 1 uplink emission designator 1M00G7D between 29.5-30 GHz and 2 new receive emission designators, 22M8G7D and 11M4G7D, in the 19.7-20.2 GHz band.