E7541 SES-STA-20151216-00944 IB2015002428
Lockheed Martin Corporation

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:
Carpentersville TT&C 30–Day LEOP STA for AMU–1 for 12–2015

1. Applicant

Name:	Lockheed Martin Corporation	**Phone Number:**	703–413–5970
DBA Name:		**Fax Number:**	703–413–5908
Street:	2121 Crystal Drive	**E–Mail:**	Jennifer.Warren@lmco.com
	Suite 100		
City:	Arlington	**State:**	VA
Country:	USA	**Zipcode:**	22202 –
Attention:	Ms Jennifer Warren		

30 days "with conditions"

GRANTED
International Bureau

File # SES-STA-20151216-00944

Call Sign E7541 Grant Date 12/21/2015
(or other identifier)

Term Dates
From 12/21/2015 To: 01/20/2016

Approved:

Applicant: Lockheed Martin Corporation
Call Sign E7541
File No.: **SES-STA-20151216-00944**
Special Temporary Authority (STA)

Lockheed Martin Corporation (Lockheed Martin)is granted special temporary authority for a period of 30 days, beginning December 21, 2015, to use its Carpentersville, NJ fixed earth station to provide tracking, telemetry and control ("TT&C") functions during the post-launch and early orbit phases ("LEOP") of operation to the Ekspress AMU-1 (aka Eutelsat 36C) satellite as is travels to its36° E.L. orbital location on the following center frequencies: 17301.5 Mhz and 17303.0 MHz ((Earth to-space), 11700.2 MHz and 11702.5 MHz (space-to-Earth). Operations are authorized under the following conditions:

1. Operations under this grant of special temporary authority must be on an unprotected, non-harmful interference basis, *i.e.,* while operating under this temporary authority Lockheed Martin must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating radio communication system. Lockheed Martin must cease operations immediately upon notification of such interference and must immediately inform the Commission, in writing, of such an event.

2. Lockheed Martin's proposed transmissions must not exceed total input power and emissions currently authorized for call sign E7541 for the telecommand carriers in its FCC license.

3. Lockheed Martin must take all necessary measures to ensure that the antenna does not create potential exposure of humans to radio frequency radiation in excess of the FCC exposure limits defined in 47 CFR § § 1.1307(b) and 1.1310.

4. Lockheed Martin must maintain a point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized, for discussing interference concerns with other licensees and U.S. Government agencies.

5. Antenna elevation for all operations must be at least 5 degrees above the geographic horizon.

6. Grant of this authorization is without prejudice to any determination that the Commission may make regarding pending applications or future requests for special temporary authority.

7. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at Lockheed Martin's risk.

This action is issued pursuant to Section 0.26 1 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 or applications for review under Sections 1.115 of the Commission's rules, 47 C.F.R. § § 1.106, 1.115, may be made within thirty days of the date of the public notice indicating that this action was taken.

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Telecommand (Uplink) Carrier Parameters

Type of Service (Broadcast Data TTC)	TTC
Occupied Bandwidth	800 kHz
Emission Designators	800KFXD
Deviation	6400 kHz
Frequency	8 kHz
Data Type	BPSK/NRZ-L
Data Rate(S):	1000 bps
Modulation:	FM
Polarization:	LHCP and RHCP

Forward Error Coding Rate: None

Ranging

Method	ESA-like 7 tone (MCC configured) with 27.77 kHz major tone for either.
Modes Supported	Range with either, both or none of the telemetry sub-carriers active.

Operating Parameters for Proposed Carpentersville, NJ Ku-Band TT&C LEOP STA

SITE NAME (or identifier):	**Carpentersville, NJ – Call Sign E7541**

Antenna location

Longitude (deg, min, sec- *NAD 83*)	75 ° 11 ' 27.8 " W
Latitude (deg, min, sec- *NAD 83*)	40 ° 38 ' 39.1 " N
Antenna Height (in meters):	19.2
Ground Elevation (AMSL)	85.7 m

Antenna Characteristics (size & gain)

Size	14.2m
TX Gain	65.0 dBi @ 17.0 GHz
RX Gain	63.12 dBi @ 11.7 GHz
Antenna Model	14.2 KFPA
Antenna Manufacturer	TIW (GD SATCOM)
Maximum HPA Power	2 kW
Satellites Arc to Coordinate:	4° W.L. to 139° W.L.
Satellites Desired:	AMU-1 LEOP

RF Characteristics

Downlink	**FTX1 = 11700.2 MHZ LHCP & RHCP**
	FTX2 = 11702.5 MHZ RHCP & LHCP
Uplink	**CMR1 = 17301.5 MHZ RHCP & LHCP**
	CMR2 = 17303.0 MHz LHCP & RHCP

Telemetry (Downlink) Sub-Carriers

Modulation	PM
Frequency	65536 Hz
Data Type	BP-L PCM/BPSK
Data Rate	8192 bps Viterbi-Inverted

Lockheed Martin is requesting that the duration of this STA be a total of thirty (30) days commencing December 21, 2015 to cover any slippage in the anticipated dates of the various phases of operation; it nonetheless expects that all Carpentersville operations in support of the launch will be completed within approximately fifteen (15) days after the AMU-1 satellite is launched. Lockheed Martin designates Michael Usarzewicz as the contact person that will be available whenever transmission to, or reception from, AMU-1 is to occur through the subject earth station. Mr. Usarzewicz can be reached at the following cell phone number: (609)-865-2658 and/or station number: (908) 859-4050.

2. Grant of the Requested Authority Will Serve the Public Interest

Lockheed Martin believes that the limited operations it proposes in support of the launch of the AMU-1 satellite are required in the public interest. AMU-1 will be a state-of-the-art high-capacity satellite with up to 70 Ku- and Ka-band transponders. It will provide coverage for broadcast satellite services in the European part of the Russian Federation, and will also ensure service continuity and growth for broadcast markets developed by Eutelsat in sub-Saharan Africa.

Lockheed Martin's Carpentersville earth station will be part of a global network of control facilities that will be used solely to position the satellite as it progresses from transfer orbit to its final geosynchronous orbital location. No end user service will be provided within the United States at any time. The safe and orderly use of the geostationary orbital resource and protection of the satellites licensed by the U.S. and other countries that operate there depends in on ensuring that the AMU-1 satellite is controlled while over North America *en route* to its final position; Lockheed Martin's earth station thus will serve a vital function.

* * * * *

As outlined above, Lockheed Martin requests authority to operate its Carpentersville, NJ earth station antenna to provide critical TT&C services during the launch and early operations phase of the AMU-1 satellite, for a term of 30 days commencing December 21, 2015.

Description of Operations and Public Interest Statement

Lockheed Martin Corporation ("Lockheed Martin") requests special temporary authority ("STA") to operate its Carpentersville, New Jersey fixed earth station (*see* File No. SES-LIC-20081103-01443, as amended; Call Sign 7541) to provide tracking, telemetry and control ("TT&C") functions during the post-launch and early orbit phases ("LEOP") of operation for the Ekspress AMU-1 (aka Eutelsat 36C) satellite ("AMU-1"). AMU-1 is destined for operation at the nominal 36° East longitude orbital location (36° E.L.), and is currently scheduled for launch on December 24, 2015 aboard a Proton Breeze-M launch vehicle from the Baikonur Cosmodrome in Kazakhstan. Accordingly, Lockheed Martin requests to begin test transmissions on December 21, 2015 in preparation for the scheduled launch.[1]

1. Requested STA Operations

Lockheed Martin specifically seeks authority to transmit signals at the center frequencies 17301.5 MHz and 17303.0 MHz for in transit telecommand communications (Earth-to-space). It will receive telemetry signals from the satellite (space-to-Earth) at the center frequencies 11700.2 MHz and 11702.5 MHz, frequencies that are covered by its existing authorization. These frequencies are appropriate for TT&C operations as they are near the band edges, as required by the FCC's Rules. *See* 47 C.F.R. § 25.202(g). A Frequency Coordination and Interference Analysis Report prepared by Comsearch is a separate attachment to this STA request.

Lockheed Martin's proposed transmissions will use total input power and emissions for Ku-band telecommand that will fall below the highest input power, EIRP, EIRP density, and bandwidth prescribed for the telecommand carriers in its FCC license. Additional technical parameters for the STA operation are set forth in the table that comprises the final two pages of this attachment. When no commands are being sent, a CW carrier that is within the emission of Lockheed Martin's currently authorized operation would be present. *See, e.g.,* File No. SES-AMD-20081219-01664, at Schedule B. All of Lockheed Martin's proposed TT&C transmit operations in support of the AMU-1 launch will be on a strictly non-harmful interference, non-protected basis. *See* 47 C.F.R. § 25.282. Lockheed Martin notes that it is possible that during an unexpected emergency with the satellite, the authorized power levels for the earth station may need to be exceeded to help recover the satellite. Under these extremely unlikely circumstances, Lockheed Martin will make every effort to coordinate such operations with affected users, and will take all reasonable steps to swiftly eliminate any harmful interference caused, consistent with the non-harmful interference, non-protected status of the temporary operations proposed.

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[1] The test transmissions that would begin on or about December 21st would occur over a period of approximately three days. During these tests, the earth station would not be communicating with any satellite; instead, the transmissions will be made with the antenna at zenith to verify RF functionality.

2. Contact

Name:	David S. Keir	**Phone Number:**	(202) 429-8970
Company:	Lerman Senter PLLC	**Fax Number:**	(202) 293-7783
Street:	2000 K Street, NW Suite 600	E-Mail:	dkeir@lermansenter.com
City:	Washington	**State:**	DC
Country:	USA	**Zipcode:**	20006 -1809
Attention:		**Relationship:**	Legal Counsel

(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 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 CGX – Fixed Satellite Transmit/Receive Earth Station

5. Type Request

○ Use Prior to Grant ○ Change Station Location ◉ Other

6. Requested Use Prior Date 12/21/2015	
7. CityCarpentersville	8. Latitude (dd mm ss.s h) 40 38 39.1 N

9. State NJ	10. Longitude (dd mm ss.s h) 75 11 27.8 W

11. Please supply any need attachments.

Attachment 1: Description Attachment 2: Coordination Report 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.)

Lockheed Martin Corporation requests Special Temporary Authority (STA) for a 30-day period, commencing no later than 12/21/2015, to use the Ku-band antenna at its Carpentersville, NJ earth station (Call Sign E7541) to support post-launch/early-orbit operations TT&C for the AMU-1 satellite, which is expected to be launched on or about

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 Jennifer Warren	15. Title of Person Signing Vice President, Technology Policy & Regulation

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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12. Description

Lockheed Martin Corporation requests Special Temporary Authority (STA) for a 30-day period, commencing no later than 12/21/2015, to use the Ku-band antenna at its Carpentersville, NJ earth station (Call Sign E7541) to support post-launch/early-orbit operations TT&C for the AMU-1 satellite, which is expected to be launched on or about December 24, 2015. See Attached Narrative Description.