Description of Operations and Public Interest Statement

Lockheed Martin Corporation ("Lockheed Martin") hereby requests special temporary authority ("STA") to operate its Carpentersville, New Jersey C-band fixed earth station (FCC Call Sign E7541) to provide telemetry, tracking and control ("TT&C") functions during the post-launch and early orbit phases ("LEOP") of operation for the Eutelsat 117 West B satellite ("E117WB")(formerly known as Satmex-9). E117WB is a Boeing Model 702SP satellite using all-electric propulsion and licensed by Mexico for operation at the 116.8° West longitude orbital location (116.8° W.L.), which is scheduled for an upcoming launch aboard a SpaceX Falcon 9 launch vehicle from Cape Canaveral, Florida.

Lockheed Martin will need to begin test transmissions in preparation for the launch on or about June 8, 2016.[1] Due to the need to place this request on FCC Public Notice and solicit public comment prior to grant under the FCC's Rules and the Communications Act of 1934, as amended,[2] Lockheed Martin respectfully requests that this request be placed on Public Notice at the earliest possible date. However, as insufficient time remains prior to launch to allow complete processing of this 180-day STA Request by June 8, 2016, Lockheed Martin is also filing concurrently a request for an interim 30-day STA for these same operations to allow testing and LEOP operations to commence on a timely basis in advance of grant of the longer term authority requested here.

1. Requested STA Operations

Lockheed Martin specifically seeks authority to transmit telecommand signals at the center frequency 6423.3 MHz for in-transit communications. Additional technical parameters for the STA operation are set forth in the table that is the final page of this attachment and in the Comsearch Frequency Coordination and Interference Analysis Report ("Comsearch Report") that is Attachment 2 to this STA request. Lockheed Martin is requesting STA for a total of one-hundred and eighty (180) days commencing June 8, 2016, or such later date as may be coincident with the expiration of the related 30-day STA that is being requested contemporaneously. The requested 180-day duration is longer than has been typical in the past for most satellite LEOP

[1] The test transmissions that would begin on or about June 8th would occur over a period of approximately three to five 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] As detailed below, the nature of these operations requires at least 180 days of operational authority. *See* 47 U.S.C. §309(c)(2)(G) (non-broadcast special temporary authorizations limited to thirty days where no application for regular operation is contemplated unless public notice is provided under Section 309(b) of the Act); 47 C.F.R. § 25.120(b)(2).

operations because the satellite employs an all-electric propulsion system.[3] An all-electric satellite allows a much lighter payload, as heavy chemical fuel tanks are not required. Indeed, the Boeing 702SP Class satellites are of sufficiently reduced mass and weight that two can be launched on a single launch vehicle, resulting in cost savings of up to twenty percent when compared to previously available launch options. The trade-off, however, is that it takes a matter of months, rather than weeks, for an all-electric satellite to reach its final, on-orbit operating position. Given this lengthy period for LEOP maneuvers, Lockheed Martin anticipates that it may require an additional STA to extend operations beyond the initial 180-day period.[4]

Lockheed Martin's proposed transmissions will use total input power and emissions for telecommand as stated in the Comsearch Report. When no commands are being sent, a CW carrier that is within the emission of Lockheed Martin's E7541 operation would be present, as provided for in its license. The authority requested in this application is very similar to that previously granted to Lockheed Martin to perform LEOP services early last year.[5] A radiation hazard study with respect non-ionizing radiation for the antenna at higher power operation was part of Lockheed Martin's original application for this facility under FCC File No. SES-LIC-20081103-01443, and that report is hereby incorporated by reference.

All of Lockheed Martin's proposed TT&C operations in support of the E117WB launch will be on a strictly non-harmful interference, non-protected basis as the requested transmit frequencies are not included in Lockheed Martin's current C-band authority for the Carpentersville site. Lockheed Martin designates Michael Usarzewicz to be the contact person that will be available whenever transmission to, or reception from, E117WB 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 operations it proposes in support of the launch of the E117WB satellite are required in furtherance of the public interest. Operations have been

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[3] The Commission has previously granted several STAs for LEOP operations of 180 days in length to cover deployments of this same class of satellite. *See, e.g.*, Intelsat License LLC, FCC File No. SES-STA-20141217-00907, granted Jan. 27, 2015 (granting a 180-day STA, commencing February 1, 2015, to provide LEOP services for the Eutelsat-115WB satellite); Lockheed Martin Corporation, FCC File No. SES-STA-20150304-00111, granted April 17, 2015 (granting 180-day STA to provide LEOP for the ABS-3A satellite).

[4] "The Commission may grant a temporary authorization for a period not to exceed 180 days, *with additional periods not exceeding 180 days*, if the Commission has placed the [original] special temporary authority (STA) request on public notice." 47 C.F.R. § 25.120(b)(2) (emphasis added).

[5] *See* Lockheed Martin Corporation, FCC File No. SES-STA-20150304-00111, *supra* n.3.

coordinated with all potentially affected entities that operate communications systems in compliance with the Table of Frequency Allocations, and a copy of the coordination report is attached to this application. E117WB is a next-generation satellite that will be located in geostationary orbit at 116.8° W.L. providing service to customers in Mexico, Central America, the Caribbean, and South America in the telecommunications, government and video sectors, including the direct-to-home video market.

Lockheed Martin's Carpentersville earth station will be part of a global network of control facilities that will be used to position the satellite as it progresses from transfer orbit over a period of months to its final location. The safe and orderly use of the entire geostationary orbital resource and protection of the hundreds of satellites licensed by the U.S. and other countries that operate there depends in no small part on ensuring that the E117WB satellite is controlled while over North America; Lockheed Martin's earth station thus will serve a vital function.

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As outlined above, Lockheed Martin requests authority to operate its Carpentersville, NJ C-band earth station antenna to provide critical TT&C services during the launch and early operations phase of the E117WB satellite, for a term of 180 days commencing on June 8, 2016, or such later date as may be coincident with the expiration of an interim 30-day STA granted pursuant to a separately-filed request for authority.

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

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

Antenna details	
Latitude	40-38-39.1 N
Longitude	075-11-27.8 W
Antenna height	19.14 m AGL
Ground elevation (AMSL)	54.86 m
Diameter	14.2 m
Tx Gain	57.5 dBi @ 14.0 GHz
Telecommand uplink	
TC1 frequency (MHz)	6423.3
TC1 polarization	On-station: RHCP Fwd/AftPipe: LHCP
Command Modulation scheme	2 Layer - FM/BPSK
Emission Designators	400KFXD – 800KFXD
BPSK coding	NZR-L format
BPSK rate	1 kHz
PSK subcarrier	16 kHz
FM deviation	±400 kHz
Max occupied RF bandwidth	800 kHz
Ranging uplink	
Ranging Modulation scheme	seven-tone (ESA-like)
Highest freq baseband tone	53.1 kHz
FM deviation	±200 kHz
Max occupied RF bandwith	400 kHz
Satellite Commercial name:	Eutelsat 117 West B (f.k.a. Satmex-9)
Orbital Longitude:	116.8°W