

### **Description of Operations and Public Interest Statement**

Pursuant to 47 CFR 25.120 of the Commission's Rules, Lockheed Martin Corporation ("Lockheed Martin") hereby requests Special Temporary Authority ("STA") for a period of thirty (30) days to operate its Carpentersville, New Jersey fixed earth station (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 EchoStar 23 satellite.

EchoStar 23 is a Space Systems Loral Model SSL-1300 Ku-band Broadcasting-Satellite Service ("BSS") satellite authorized under Brazilian authority for operations at the 45° W.L. orbital location by EchoStar 45, an EchoStar affiliate. The satellite will provide direct-to-home ("DTH") television service to Brazil from its assigned orbital location.

The satellite is scheduled for an upcoming launch aboard a SpaceX Falcon 9 launch vehicle from Cape Canaveral, Florida, as early as October 25, 2016.<sup>1</sup> Accordingly, Lockheed Martin respectfully requests authority to begin test transmissions on that date. Further, Lockheed Martin is requesting that the duration of this STA be a total of thirty (30) days 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 ten (10) days after the EchoStar 23 satellite is launched.

#### **1. Requested STA Operations**

Lockheed Martin specifically seeks authority to transmit telecommand signals at the center frequencies 17305.0 and 17791.0 MHz for in transit telecommand communications (Earth-to-space), and to receive telemetry signals from the satellite on 12207.0 and 12208.0 MHz frequencies.

The proposed TT&C operations in support of the EchoStar 23 launch will be on a strictly non-harmful interference, non-protected basis. 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 above-referenced FCC license. When no commands are being sent, a CW carrier that is within the emission of the licensed operation would be present. However, in the case of an anomaly, extraordinary measures, such as increasing power, may be necessary; if such measures are required during this STA period, Lockheed Martin will notify the FCC within seven (7) business days that such measures were needed.

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<sup>1</sup> As the Bureau is aware, recent events at the Cape Canaveral launch facility have resulted in unforeseen delays. Because of the uncertainty related to the actual launch date, Lockheed Martin will be submitting a concurrent STA extension request for a period of up to sixty (60) days. Nonetheless, in the event that the launch is permitted to take place on October 25, Lockheed Martin respectfully requests Commission consideration of its request for authority to commence from that date onward.

Lockheed Martin incorporates by reference the radiation hazard study and Schedule B information that were included with its most recent filings at the FCC. In addition, Lockheed Martin is submitting herewith a Frequency Coordination Report prepared by Comsearch.

Lockheed Martin designates Michael Usarzewicz to be the contact person that will be available whenever transmission to, or reception from, EchoStar 23 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 EchoStar 23 satellite serve the public interest. Lockheed Martin understands that the EchoStar 23 satellite has been licensed by the Brazilian Administration to provide DTH television service to Brazil. 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 location. No end user service will be provided within the United States at any time. 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 EchoStar 23 satellite is controlled while over North America en route to its final geostationary orbital position. In this regard, Lockheed Martin's earth station thus will serve a vital function.

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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 EchoStar 23 satellite, for a term of 30 days, commencing October 25, 2016.

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

SITE NAME (or identifier):	<b>Carpentersville, NJ – Call Sign E7541</b>
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***Antenna location***

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

***Antenna Characteristics (size & gain)***

Size	14.2
TX Gain	57.3 dBi @ 6.0 GHz
RX Gain	53.9 dBi @ 4.0 GHz
Antenna Model	14.2 KFPA
Antenna Manufacturer	TIW (GD SATCOM)
Maximum HPA Power	650W

<b>Telecommand Uplink</b>		
TC1 Center Frequency	Center frequency of TC1 in MHz	17791.00
TC1 Bandwidth	TC1 carrier maximum occupied RF bandwidth in kHz	1000
TC1 Start Frequency	Calculated start frequency for TC1 carrier	17790.50
TC1 End Frequency	Calculated end frequency for TC1 carrier	17791.50
TC1 Polarization	Polarization for TC1 carrier	RHCP
TC2 Center Frequency	Center frequency of TC2 in MHz	17305.00
TC2 Bandwidth	TC2 carrier maximum occupied RF bandwidth in kHz	1000
TC2 Start Frequency	Calculated start frequency for TC2 carrier	17304.50
TC2 End Frequency	Calculated end frequency for TC2 carrier	17305.50
TC2 Polarization	Polarization for TC2 carrier	LHCP
TC3 Center Frequency	Center frequency of TC3 in MHz	
TC3 Bandwidth	TC3 carrier maximum occupied RF bandwidth in kHz	
TC3 Start Frequency	Calculated start frequency for TC3 carrier	0.00
TC3 End Frequency	Calculated end frequency for TC3 carrier	0.00
TC3 Polarization	Polarization for TC3 carrier	
TC4 Center Frequency	Center frequency of TC4 in MHz	
TC4 Bandwidth	TC4 carrier maximum occupied RF bandwidth in kHz	
TC4 Start Frequency	Calculated start frequency for TC4 carrier	0.00
TC4 End Frequency	Calculated end frequency for TC4 carrier	0.00
TC4 Polarization	Polarization for TC4 carrier	
Data Rate	Data rate for command carriers	250bps
Modulation Type(s)	Type(s) of modulation for command carriers (i.e. FM, BPSK etc.)	FM, NRZ-L BPSK
Emission Designator(s)	ITU standard code to represent bandwidth and modulation of a carrier (i.e. 800KF8D). See Emission Designator tab for more information	1M00F2DAN
<b>Ranging Uplink</b>		
Bandwidth	Ranging carrier maximum occupied RF bandwidth in kHz	1000
Modulation Type	Type of modulation (i.e. FM, QPSK, 16QAM, etc.)	FM
Emission Designator(s)	ITU standard code to represent bandwidth and modulation of a carrier (i.e. 800KF8D). See Emission Designator tab for more information	1M00F8XJN
<b>Telemetry downlink</b>		
TM1 Center Frequency	Center frequency of TM1 in MHz	12207.00
TM1 Bandwidth	TM1 carrier maximum occupied RF bandwidth in kHz	1000
TM1 Start Frequency	Calculated start frequency for TM1 carrier	12206.50
TM1 End Frequency	Calculated end frequency for TM1 carrier	12207.50
TM1 Polarization	Polarization for TM1 carrier	LHCP
TM2 Center Frequency	Center frequency of TM2 in MHz	12208.00
TM2 Bandwidth	TM2 carrier maximum occupied RF bandwidth in kHz	1000
TM2 Start Frequency	Calculated start frequency for TM2 carrier	12207.50
TM2 End Frequency	Calculated end frequency for TM2 carrier	12208.50
TM2 Polarization	Polarization for TM2 carrier	LHCP
TM3 Center Frequency	Center frequency of TM3 in MHz	
TM3 Bandwidth	TM3 carrier maximum occupied RF bandwidth in kHz	
TM3 Start Frequency	Calculated start frequency for TM3 carrier	0.00
TM3 End Frequency	Calculated end frequency for TM3 carrier	0.00
TM3 Polarization	Polarization for TM3 carrier	

<b>TM4 Center Frequency</b>	<i>Center frequency of TM4 in MHz</i>	
<b>TM4 Bandwidth</b>	<i>TM4 carrier maximum occupied RF bandwidth in kHz</i>	
<b>TM4 Start Frequency</b>	<i>Calculated start frequency for TM4 carrier</i>	<b>0.00</b>
<b>TM4 End Frequency</b>	<i>Calculated end frequency for TM4 carrier</i>	<b>0.00</b>
<b>TM4 Polarization</b>	<i>Polarization for TM4 carrier</i>	
<b>Data Rate</b>	<i>Data rate for telemetry carriers</i>	4.8kbps
<b>Modulation Type(s)</b>	<i>Type(s) of modulation (i.e. FM, BPSK,etc.)</i>	PM, BPSK PCM/NRZ-L
<b>Emission Designator(s)</b>	<i>ITU standard code to represent bandwidth and modulation of a carrier (i.e. 800KF8D). See Emission Designator tab for more information</i>	1M00G8DAN