Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
ECHOSTAR CORPORATION	)	
	)	File No. SAT-LOA-2010_____
Application for Authority to Operate EchoStar 6 as an In-Orbit Spare and Activate Its Communications Payload at 61.65º W.L. as Needed	)	

APPLICATION FOR AUTHORITY[1]

By this Application, EchoStar Corporation ("EchoStar") requests authority (a) to operate the EchoStar 6 satellite as an in-orbit spare at the 61.65º W.L. orbital location; and (b) to activate the communications payload without additional authority as needed.[2] This request is necessitated by the recent loss of additional transponder capacity on EchoStar 3. In light of the timing exigencies posed by this further, and unforeseen, loss, EchoStar requests action by no later than March 1, 2010.[3]

[1] Concurrent with this application, EchoStar is filing (1) one STA application to relocate EchoStar 6 from 72.7° W.L. to 61.65° W.L. and to operate it as an in-orbit spare; (2) STA applications to operate five transmit/receive earth stations to provide TT&C service to EchoStar 6 during its relocation to 61.65° W.L. ("Relocation STAs"); and (3) STA applications to operate three transmit/receive earth stations to provide TT&C and feeder link communications for EchoStar 6 once it is located at 61.65° W.L. ("On-Station STAs").

[2] The technical parameters of the satellite and its proposed operations are provided in the attached Technical Annex (Attachment 1) and associated Schedule S.

[3] With regards to the FCC's licensing procedures for DBS satellites, in particular, because the satellite will operate on the channels already licensed to EchoStar at 61.5° W.L., this application is not subject to the "freeze" on new DBS applications currently in place. *See* Public Notice, Direct Broadcast Satellite (DBS) Auction Nullified: Commission Sets Forth Refund

EchoStar is currently operating two Direct Broadcast Satellite ("DBS") service satellites at the nominal 61.5º W.L. orbital location – EchoStar 3 and EchoStar 12 (formerly Rainbow 1). As the Commission is aware, EchoStar 3 has experienced several transponder failures due to Traveling Wave Tube Amplifier ("TWTA") anomalies, and has been operating at reduced capacity.[4] On January 7, 2010, EchoStar 3 experienced another TWTA anomaly further diminishing its operating capacity. As a result of this failure, EchoStar will not be able to maintain the current level of service provided from 61.5° W.L. unless it relocates at least one additional satellite to the orbital location. EchoStar, therefore, requests authority to temporarily relocate EchoStar 6 to 61.65º W.L. to maintain it as an in-orbit spare and to supplement, as needed, the service provided by EchoStar 3 and EchoStar 12 to maintain regular programming.

The proposed redeployment will ensure that EchoStar's customer, DISH Network Corporation, will be able to continue providing high-quality DBS service to consumers without any service interruptions until EchoStar's EchoStar 15 satellite begins operating at 61.5º W.L.[5] EchoStar 15, a 32-transponder-capable DBS satellite, is expected to effectively replace EchoStar 3 and will be ready for launch by the fourth quarter of 2010.[6] Upon launch and successful testing of EchoStar 15, EchoStar currently expects to return EchoStar 6 to its current home –

Procedures for Auction No. 52 Winning Bidders and Adopts a Freeze on All New DBS Service Applications, FCC 05-213, at 2 (rel. Dec. 21, 2005).

[4] *See* EchoStar 3 Status Report, File No. SAT-STA-20090821-00092 (filed Dec. 30, 2009) ("EchoStar 3 Status Report"); *EchoStar Satellite Operating Corporation, Application for Extension and Modification of Special Temporary Authority to Operate Direct Broadcast Satellite Service over Channels 23 and 24 at the 61.5º W.L. Orbital Location*, Order and Authorization, 22 FCC Rcd. 2223, at ¶¶ 4-6 (2007).

[5] EchoStar has previously informed the Commission that it has initiated construction of the satellite at EchoStar's own risk, and intends to file an application seeking authority to launch and operate the satellite in the immediate future.

[6] *See* EchoStar 3 Status Report.

72.7° W.L. EchoStar has been advised by its partner, Telesat Canada, which has the license for that Canadian orbital location, that the move from, and return to, 72.7° W.L. is not likely to cause regulatory concern on the part of Industry Canada. In any event, any redeployment of EchoStar 6 will take place after securing all necessary authority, and EchoStar will advise the Commission of any change in its plans.

In light of the health problems that confront EchoStar at 61.5º W.L., EchoStar requests the flexibility to activate EchoStar 6's communication payload as needed and to operate it on any and all channels that are licensed to EchoStar under permanent authority or STA. EchoStar has licenses for 30 of the 32 DBS channels available at that location. Use of the STA channels (channels 23 and 24) will be subject to the conditions governing that authorization, including the temporary partial waiver of these conditions.

For the reasons set forth herein, grant of this Application will not cause harmful interference to any authorized user of the spectrum and will serve the public interest.

I. GRANT OF THIS APPLICATION IS IN THE PUBLIC INTEREST

EchoStar and its predecessors have been providing consumer DBS service from the 61.5° W.L. orbital location since 1998. The STA requested in this application is in the public interest because it will ensure continuity of national programming for consumers in the event of a service outage until EchoStar 15 is brought into service later this year. Nor will this move entail a service interruption at 72.7º W.L., since Nimiq 5 will continue to provide service from that orbital slot.[7]

[7] *See* File No. SES-LFS-20080512-00595 (granted July 28, 2008); *see also* File No. SAT-MOD-20070912-00124 (filed Sept. 12, 2007). In 2007, XM Radio Inc. requested similar authority to operate two satellites as in-orbit spares at the 85° W.L. orbital slot and authority to activate the satellites' communications payload in the event of a service outage on either of its two operating satellites. The Commission granted this request subject to a notification condition.

Neither the operation of EchoStar 6 as an in-orbit spare at 61.65º W.L. nor activation of its communications payload will cause harmful interference to any other U.S.-licensed satellite operator. To the east, there are no operational BSS satellites serving the United States within 9 degrees of 61.65º W.L., other than EchoStar's own EchoStar 12 satellite.[8] To the west, the closest operational BSS satellite serving the United States is the DIRECTV 1R satellite, which is operating at 72.5º W.L. under Canadian authority. The DIRECTV satellite would be more than 10 degrees away from the proposed orbital location for EchoStar 6 and, therefore, would not experience additional interference as a result of the proposed operations.

Finally, the proposed operation of the EchoStar 6 satellite at 61.65º W.L. will not create any risk of in-orbit collision. EchoStar 6 will be maintained within +/- 0.05º east/west station-keeping, which will ensure that its station-keeping volume will not overlap with EchoStar's own satellites at 61.5º W.L. EchoStar will coordinate all drift orbit operations with other potentially affected in-orbit operators.

II. THE PROPOSED RELOCATION IS CONTEMPLATED IN THE U.S.-CANADA LETTER EXCHAGE

EchoStar 6 is operating at the 72.7 º W.L. orbital location, which has been allotted to Canada under the International Telecommunication Union's Region 2 Plan for the Broadcasting-Satellite Service ("BSS"). The eventuality of moving EchoStar 6 from 72.7° W.L. has been already contemplated with specificity in the letters exchanged between the U.S. and Canadian

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That condition is not necessary here – the DBS industry, and DISH in particular, has a long history of activating spares without incident.

[8] Concurrent with this application, EchoStar is filing an application requesting STA to move EchoStar 12 to 61.35° W.L. to accommodate EchoStar 6.

administrations when EchoStar 6 was originally moved to 72.7° W.L.[9] These letters provide a clear roadmap and confirm that Commission action on the relocation of the satellite is not contingent on any prior Canadian action. The U.S. letter states: "Operation of the EchoStar 6 satellite at any location other than at the 72.7 W.L. orbital location will be subject to licensing by the FCC, including any operations as a result of equipment failure in the satellite that results in the inability to maintain the satellite within +/- 0.1 degrees of its assigned position at the 72.7 W.L. orbital location."[10]

The U.S. letter further states:

> In the event of the exercise by EchoStar of its contractual rights to move the EchoStar 6 satellite, and in the event that there are any provisions in Telesat's license from Industry Canada, or any provisions in the Canadian laws and regulations governing the telecommunications operations of Telesat that would preclude or otherwise limit the exercise of EchoStar's contractual rights within the time frames specified in the EchoStar/Telesat/Express Vu agreement, the FCC would appreciate the opportunity to consult with Industry Canada, prior to any exercise of such licensing authority, or application of such law or regulation by Industry Canada. I would appreciate acknowledgement of these views and expression of any view which Industry Canada may have concerning the matter discussed in this paragraph. Let me also express the FCC's willingness to discuss this matter further, in the event, at a later date, it becomes necessary to do so.[11]

The Canadian letter, in turn, acknowledges these provisions and also states with respect to actions under Canadian law: "To the extent possible under the circumstances and the law, Industry Canada will inform the FCC of the exercise of licensing authority, or the application of

[9] Stamp Grant, SAT-STA-20080512-00103, Annex A to Conditions of Grant (granted July 2, 2008) ("Exchange of Letters").

[10] *Id.* at 2.

[11] *Id.* at 3.

law or regulation by Industry Canada, that would preclude or otherwise limit the exercise of EchoStar's contractual rights within the time frames specified in the agreement."[12]

EchoStar currently plans to return the satellite to 72.7° W.L. The existing letter exchange is more than adequate to cover the possibility of such a return, and there is no need for the Commission and Industry Canada to exchange letters anew at that time. If, however, either the Commission or Industry Canada disagree, any new letter can be the same in substance as the ones already in place.

III. WAIVER PURSUANT TO SECTION 304 OF THE ACT

In accordance with Section 304 of the Communications Act of 1934, as amended, 47 U.S.C. § 304, EchoStar hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise.

IV. CONCLUSION

For the foregoing reasons, EchoStar respectfully requests the grant of its application authority to operate EchoStar 6 as an in-orbit spare at 61.65° W.L. and to activate the communications payload as needed.

While the satellite is maintained as an in-orbit spare, all transponders other than the TT&C transponders will be switched off. In the event the communications payload is activated, EchoStar will abide by the following conditions:

a) All operations at 61.65° W.L. shall be on a non-harmful interference basis, meaning that EchoStar shall not cause inference to, and shall not claim protection from, interference caused to it by any other lawfully operating satellites.

[12] *Id.* at 4.

b) In the event that any harmful interference is caused while the satellite is operating at 61.65° W.L., EchoStar shall cease operations immediately upon notification of such interference and shall inform the Commission immediately, in writing, of such event.

Respectfully submitted,

/s/

Pantelis Michalopoulos
Petra A. Vorwig
L. Lisa Sandoval
Steptoe & Johnson LLP
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 429-3000
Counsel for EchoStar Corporation

Linda Kinney
Vice President, Law and Regulation
EchoStar Corporation
1233 20th Street, N.W.
Suite 302
Washington, DC 20036-2396
(202) 293-0981

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ATTACHMENT 1

Technical Information to Supplement Schedule S

1. GENERAL DESCRIPTION

The ECHOSTAR-6 satellite will provide DBS services to the Continental United States from the 61.65° W.L. geostationary orbital position. The satellite was designed to provide 32 channels in medium power mode or 16 channels in high power mode. Full frequency re-use is achieved through the use of dual circular polarization.

2. SATELLITE TRANSMIT PERFORMANCE

The downlink beam coverage of the ECHOSTAR-6 satellite from the 61.65°W.L. location is shown in Figure 2-1.[1,2] The satellite employs two shaped reflectors, each operating in both right-hand circular polarization (RHCP) and left-hand circular polarization (LHCP). The performance in both polarizations is nominally the same. The cross-polar isolation of the satellite transmit antennas exceeds 30 dB at all transmit frequencies. The peak antenna gain is 35.5 dBi.

Each transponder will use either a single 125 Watt Traveling Wave Tube Amplifier (TWTA) ("medium power" mode) or two paralleled 125 Watt TWTAs ("high power" mode), the latter giving approximately a 2.5 dB increase in transmit EIRP. The losses between the TWTA output and the antenna input amount to 1.8 dB in medium power mode and 2.3 dB in high power mode. The maximum beam peak saturated EIRP level for the transponders in medium power mode is 54.7 dBW and 57.2 dBW in high power mode.

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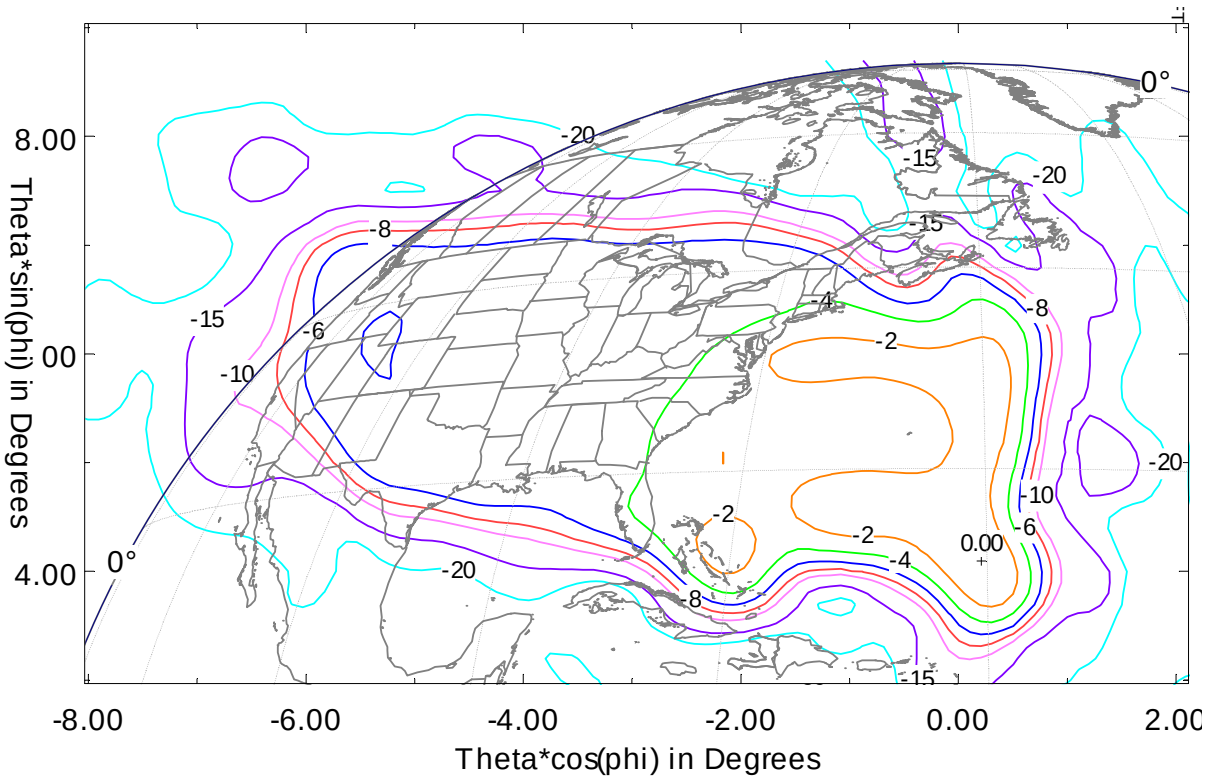
1 This beam coverage is achieved by applying appropriate pointing bias to the ECHOSTAR-6 satellite, which was originally designed for operation at the 110°W.L. orbital location, to provide CONUS coverage and near-CONUS service.

2 Note that service to Hawaii and Alaska is not possible using ECHOSTAR-6 from the 61.65°W.L. orbital location owing to the fact that Hawaii and Alaska are not visible from the 61.65°W.L. orbital location.

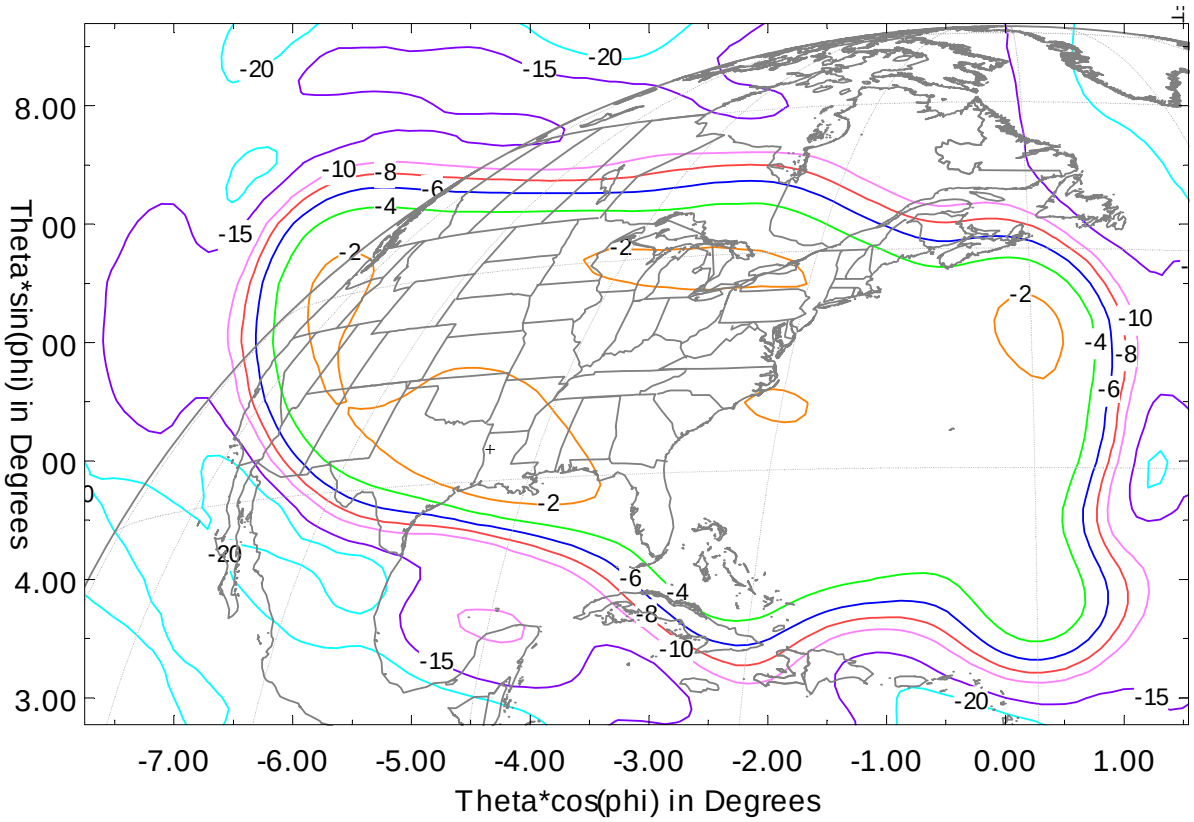
Figure 2-1: ECHOSTAR-6 Downlink Beam Coverage from 61.65°W.L.



3. SATELLITE RECEIVE PERFORMANCE

This uplink beam operates in both RHCP and LHCP. The antenna gain contours of the beam are shown in Figure 3-1. The performance in both polarizations is nominally the same. The cross-polar isolation of the satellite receive antennas exceeds 30 dB at all receive frequencies. The peak gain of the beam is 33.8 dBi, with a noise temperature of 590K, for a peak G/T of 6.1 dB/K.

Figure 3-1: ECHOSTAR-6 Uplink Beam Coverage from 61.65°W.L.



4. FREQUENCY AND POLARIZATION PLANS

The ECHOSTAR-6 satellite uses the standard channel center frequencies and channel bandwidths prescribed in the ITU's Region 2 BSS Plan.[3] Circular polarization is used on both the uplink and downlink.

5. COMMUNICATIONS PAYLOAD CONFIGURATION

The uplink signals are received in both polarizations by the satellite receive antenna. Two active receivers are used on the satellite – one for each polarization. After appropriate down-conversion,

[3] Channel bandwidth is 24 MHz. Spacing between center frequencies of adjacent cross-polar channels is 14.58 MHz. Thus, the center of the co-polar channels is offset by 29.16 MHz.

channel filtering and amplification the signals are transmitted from the satellite using a single 125 Watt TWTA per channel in the case of medium power mode operation. Each channel can be configured to use two parallel TWTAs for high power mode operation, giving a corresponding increase in the EIRP level of approximately 2.5 dB. In total, the communications payload can support 32 channels in medium power mode, or 16 channels in high power mode, or the corresponding number of a mixture of high power and medium power mode transponders. The reconfiguration of all transponders is switchable by ground telecommand. The outputs of the TWTAs are then multiplexed into the appropriate downlink antenna ports.

6. SATURATION FLUX DENSITY AND TRANSPONDER GAIN

The Saturation Flux Density (SFD) of the uplink receive beam ranges between –74.7 dBW/m^2 (low gain) to –94.7 dBW/m^2 (high gain) at receive beam peak and is adjustable in 1 dB steps.

The transponder gain is controlled by an Automatic Level Control (ALC) system which automatically adjusts the transponder gain to give a constant satellite transmit power level for each transponder. The maximum transponder gain is 129.1 dB.

7. RECEIVER AND TRANSMITTER CHANNEL FILTER RESPONSE CHARACTERISTICS

The typical receiver and transmitter frequency responses of each RF channel, as measured between the receive antenna input and transmit antenna, fall within the limits shown in Table 7-1 below.

In addition, the frequency tolerances of Section 25.202(e) and the out-of-band emission limits of Section 25.202(f) (1), (2) and (3) of the Commission's rules will be met. 47 C.F.R. §§ 25.202(e), (f)(1), (f)(2), (f)(3).

Table 7-1: Typical Receiver and Transmitter Filter Responses

Offset from Channel Center Frequency (MHz)	Receiver Filter Response (dB)	Transmitter Filter Response (dB)
± 5	> -0.5	> -0.4
± 7	> -0.7	> -0.5
±9	> -1.0	> -0.8
± 11	> -1.5	> -1.7
±12	> -2.0	> -3.6
±17.5	< -18	< -8
±20.2	< -38	< -18
±27.2	< -50	< -35

8. SPACECRAFT DESCRIPTION

The ECHOSTAR-6 satellite's characteristics, including its physical and electrical characteristics, are described in the associated Schedule S form.

9. EARTH STATIONS

The primary subscriber earth station antennas to be used with the ECHOSTAR-6 satellite will range between 45 cm and 60 cm, although slightly larger antennas might be used in certain circumstances.

The feeder link earth stations will be located at EchoStar's existing facilities in Cheyenne, WY and Gilbert, AZ. EchoStar will file any necessary earth station modification applications with the FCC for the feeder link earth stations that will operate with ECHOSTAR-6 at the 61.65°W.L. orbital location.

10. Telemetry, Tracking and Control (TT&C)

A summary of the TT&C subsystem performance is given in Table 10-1.

Table 10-1: Summary of the TT&C Subsystem Performance

Parameter	Performance
On-Station Command Frequency	17,305 MHz
Uplink Flux Density	Between -88 and -108 dBW/m^2
Uplink Polarization	LHCP
On-Station Telemetry Frequencies	12,203 MHz 12,204 MHz
Maximum Downlink EIRP	16.0 dBW
Downlink Polarization	LHCP

During relocation from 72.7°W.L., TT&C for the satellite will be provided using the 14002.5 MHz frequency in addition to the 17 GHz frequencies in order to avoid harmful interference with the DIRECTV 1R satellite operating at 72.5°W.L. The following Ku-band satellites operate between the two orbital locations: AMC-6 at 72.0° W.L., Nahuel 1 at 71.8° W.L., Star One C2 at 70.0° W.L., Star One C1 at 65.0° W.L. and Telstar 14 at 63.0° W.L. Use of the frequency will be controlled so as to avoid any interference into, or from, these Ku-band satellites. Once ECHOSTAR-6 reaches 61.65°W.L., TT&C will be conducted as described above in Table 10-1.

11. LINK BUDGETS

Representative link budgets for the DBS transmissions, which include details of the transmission characteristics, performance objectives and earth station characteristics, are provided in the associated Schedule S submission. Link budgets for the TT&C transmissions are also included therein.

12. ORBITAL DEBRIS MITIGATION PLAN

Several sections of Section 25.114(d) require a statement that the station operator has made certain assessments.[4]

12.1 Spacecraft Hardware Design

The ECHOSTAR-6 satellite was designed and manufactured by Space Systems/Loral and was launched in 2000. The satellite will not undergo any planned release of debris during its operation.

EchoStar has assessed and limited the probability of the satellite becoming a source of debris by collisions with small debris or meteoroids of less than one centimeter in diameter that could cause loss of control and prevent post-mission disposal. Such probability has been limited through component placement and the use of redundant systems.

The ECHOSTAR-6 satellite has separate TT&C and propulsion subsystems that are necessary for end-of-life disposal. The spacecraft TT&C system, vital for orbit raising, is extremely rugged with regard to meteoroids smaller than 1 cm, by virtue of its redundancy, shielding, separation of components and physical characteristics. An omni-directional antenna and wide angle horn system are used principally during orbit raising. The redundant command receivers and decoders and telemetry encoders and transmitters are located within a shielded area and physically separated. A single rugged thruster and shielded propellant tank provide the energy for orbit raising. Otherwise, there are no single points of failure in the system.

12.2 Minimizing Accidental Explosions

EchoStar has assessed and limited the probability of accidental explosions during and after completion of mission operations. A Failure Mode Verification Analysis has also been conducted, and the probability of accidental explosions has been limited through extensive monitoring of the ECHOSTAR-6 satellite's batteries and fuel tanks for pressure and temperature. Furthermore, bipropellant mixing is prevented by the use of valves that prevent backwards flow in propellant lines and pressurization lines. Excessive battery charging or discharging is limited by a monitoring and

[4] 47 C.F.R. §§25.114(d)(14)(i-iii).

control system which will automatically limit the possibility of fragmentation. Corrective action, if not automatically undertaken, will be immediately undertaken by the spacecraft operator to avoid destruction and fragmentation. Thruster temperatures, impulse and thrust duration are carefully monitored, and any thruster may be turned off via redundant valves. At the end of the satellite's life, all energy sources will be depleted. Specifically, the batteries will be left in a permanent state of discharge, chemical propulsion systems will be depleted, and the electrical propulsion system will be disabled.

12.3 Safe Flight Profiles

In considering current and planned satellites that may have a station-keeping volume that overlaps the ECHOSTAR-6 satellite, EchoStar has reviewed the lists of FCC licensed satellite networks, as well as those that are currently under consideration by the FCC. In addition, networks that have been submitted to the ITU within ±0.15 degrees from 61.65°W.L. have also been reviewed.

Currently there are two operational U.S. licensed satellites in the vicinity of 61.65° W.L. These are as follows:

- ECHOSTAR-3 satellite at 61.5° W.L.
- ECHOSTAR-12 (formerly Rainbow 1) satellite at 61.65° W.L.

Both satellites are operated with an east-west station-keeping tolerance of ±0.05 degrees. Just before the ECHOSTAR-6 satellite arrives at 61.65°W.L., the ECHOSTAR-12 satellite will be moved from 61.65°W.L. to 61.35°W.L. (subject to approval to be separately sought from the Commission) and will be operated with an east-west station-keeping tolerance of ±0.05°. Further, the ECHOSTAR-6 satellite will be operated at 61.65° W.L. also with an east-west station-keeping tolerance of ±0.05 degrees. Therefore, there is no possibility of station-keeping volume overlap between these three satellites.

There are no pending applications before the Commission for additional satellites to be located at an orbital location in the immediate vicinity of 61.65° W.L. There are no FSS networks within

±0.15 degrees of 61.65° W.L. and the two BSS networks at 61.5° W.L. (USABSS-8 and USABSS-17) are assigned to EchoStar.

Based on the preceding, EchoStar concludes there is no requirement to physically coordinate the ECHOSTAR-6 satellite with another satellite operator at the present time.

12.4 Post Mission Disposal

Upon mission completion, the ECHOSTAR-6 satellite will be maneuvered to a disposal orbit at least 300 km above its operational geostationary orbit.[5] Based on data from the satellite manufacturer, less than 7 kg of fuel will be required to achieve this. Accordingly, 7 kg of fuel will be reserved at the end of the satellite's life. The fuel reserve will be calculated using three methods. The first method is the pressure-volume temperature method, which uses tank pressure and temperature information to determine remaining propellant. The second method is the bookkeeping method, which evaluates the flow rate at average pressure and total thruster on-time of orbital maneuvers to determine the amount of propellant used. The third method is the propellant depletion gauge operations method, which uses propellant temperature measurements taken while tank heaters are activated to determine more accurately the amount of oxidizer and fuel in tanks at the end of mission life. EchoStar has assessed fuel gauging uncertainty and has provided an adequate margin of fuel to address such uncertainty.

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[5] The ECHOSTAR-6 satellite was launched in 2000. Pursuant to the Commission's *Mitigation of Orbital Debris*, Second Report and Order, 19 FCC Rcd 11567 (2004), a calculation of the satellite's disposal orbit according to the IADC formula is not required. *See* Second Report and Order at ¶81 ("we will grandfather all on orbit GEO spacecraft that were launched as of the release of the *Notice* in this proceeding").

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this application and that it is complete and accurate to the best of my knowledge and belief.

/s/

Stephen D. McNeil
Telecomm Strategies Canada, Inc.
Ottawa, Ontario, Canada
(613) 270-1177