Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
DISH Operating L.L.C.	)	File Nos. SAT-MOD-20100329-00058 and
	)	SAT-AMD-20100610-00127
Application to Modify the License for EchoStar 7 to Specify Operations at the 118.8° W.L. orbital location	)	Call Sign: S2740

MEMORANDUM OPINION AND ORDER

Adopted: October 17, 2012 **Released:** October 17, 2012

By the Chief, Satellite Division, International Bureau:

I. INTRODUCTION

1. By this order we grant DISH Operating L.L.C.'s request to modify the license for the EchoStar 7 space station to specify operations at the 118.8° W.L. orbital location, instead of the 118.9° W.L. orbital location. We deny in part, and dismiss as moot in part, Petitions to Dismiss or Deny the applications, filed by Spectrum Five LLC. We find that allowing DISH to operate the EchoStar 7 Direct Broadcast Satellite (DBS) service space station at the 118.8° W.L. orbital location will not cause impermissible interference to other radiocommunication systems, and will serve the public interest.[1]

II. BACKGROUND

2. DBS operations in the United States occur within a framework specified in International Telecommunication Union (ITU) Radio Regulations. Specifically, under the ITU Region 2 Broadcasting Satellite Service (BSS) and Feeder Link Plans (Region 2 BSS Plans),[2] the United States is assigned eight

[1] For purposes of this authorization, "DBS" refers to Broadcasting-Satellite Service (BSS) operations in the 12.2-12.7 GHz (space-to-Earth) and the associated Fixed-Satellite Service feeder link frequency band 17.3-17.8 GHz (Earth-to-space).

[2] BSS is the international term used for a radiocommunication service in which the signals transmitted or retransmitted by space stations are intended for direct reception by the general public. *See* 47 C.F.R. § 2.1. DBS is the term used in the United States to describe the domestic implementation of the BSS international service in the 12.2-12.7 GHz frequency bands. *See* 47 C.F.R. § 25.201, at definition of "*Direct Broadcast Satellite Service*," and 47 C.F.R. § 25.202(a)(7). The ITU Radio Regulations divide the world into three Regions. In general, Region 1 includes Africa, Europe, Northern and Western portions of Asia; Region 2 includes the Americas and Greenland; and Region 3 includes southern portions of Asia, Australia and the South Pacific. *See* ITU Radio Regulations, Article 5, Section 1. The ITU Region 2 BSS Plans comprise the Plan for BSS in the band 12.2-12.7 GHz in ITU Region 2, as contained in Appendix 30 of the ITU Radio Regulations, and the associated Plan for the feeder-links in the frequency band 17.3-17.8 GHz for the broadcasting-satellite service in Region 2, as contained in Appendix 30A of the ITU Radio Regulations.

orbital locations for providing DBS, three of which can provide coverage of the 48 contiguous United States.[3]

3. DISH provides DBS service to consumers in the United States from satellites operating pursuant to the U.S. Region 2 BSS Plan assignments at the 61.5° W.L., 110° W.L and 119° W.L orbital locations. In 2002, the Commission authorized DISH's predecessor in interest to operate EchoStar 7 using DBS channels 1-21 at the 119° W.L. orbital location.[4] In March 2010, the Commission authorized DISH to launch the technically improved EchoStar 14 satellite to the 118.9° W.L. orbital location. To accommodate the EchoStar 14 space station, DISH filed the instant modification application to permit relocation of EchoStar 7 from 118.9° W.L. to 118.8° W.L.[5]

4. DISH's modification application was placed on Public Notice.[6] In response to the Public Notice, Spectrum Five filed a Petition to Dismiss or Deny DISH's application.[7] Spectrum Five argued that DISH's application failed to provide an orbital debris mitigation statement and an interference analysis. Spectrum Five indicated that DISH's application consequently did not adequately consider potential negative impacts to Spectrum Five (1) due to physical co-location of EchoStar 7 with Spectrum Five's proposed 17/24 GHz BSS satellite at the 118.8° W.L. orbital location,[8] and (2) due to increased interference to Spectrum Five's proposed BSS satellites at the 114.5° W.L. orbital location.[9]

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[3] Pursuant to an agreement among the nations of the Western Hemisphere, the eight orbital locations assigned to United States are located above the Equator at 61.5°, 101°, 110°, 119°, 148°, 157°, 166°, and 175° West Longitude. Only the 101°, 110°, and 119° West Longitude orbital locations are capable of providing a "full-CONUS" signal, *i.e.*, one that reaches the entire contiguous United States. There are 32 frequency channels in the 12.2-12.7 GHz DBS service-link band and a corresponding 32 frequency channels in the 17.3-17.8 GHz FSS feeder-link band assigned to the United States at each of these eight orbital locations.

[4] EchoStar Satellite Corporation, *Order and Authorization*, 17 FCC Rcd 894 (Sat. & RadioComm. Div., Int'l Bur. 2002) (*EchoStar 7 Order*). The EchoStar 4 and EchoStar 6 satellites also operated at that location at the time, but later moved to other orbital locations.

[5] DISH is currently operating the EchoStar 7 space station at the 118.8° W.L. orbital location pursuant to special temporary authority. *See* IBFS File No. SAT-STA-20100219-00031 (grant stamped with conditions on April 16, 2010 - to relocate EchoStar 7 from 118.9° W.L. to 118.8° W.L. and operate at 118.8° W.L.) and IBFS File Nos. SAT-STA-20100824-00183 (granted Oct. 14, 2010), SAT-STA-20110204 (granted March 17, 2011), and SAT-STA-20110804-00144 (granted Sept. 21, 2011), SAT-STA-20120119-00007 (granted Mar. 7, 2012), and SAT-STA-20120718-00118 (granted Aug. 28, 2012), extending DISH's special temporary authority to operate at 118.8° W.L. DISH's STA applications were placed on Public Notice. No comments were filed in response to the Notices. *See* Policy Branch Information, *Public Notices*, Report No. SAT-00671 (March 12, 2010), Report No. SAT-00719 (Sept. 10, 2010), Report No. SAT-00758 (Feb. 11, 2011), Report No. SAT-00801 (Aug. 19, 2011), Report No. SAT-00841 (Feb. 3, 2012) and Report No. SAT-00885 (Jul. 27, 2012).

[6] Policy Branch Information, *Public Notice*, Report No. SAT-00681 (April 16, 2010).

[7] Spectrum Five LLC, Petition to Dismiss or Deny Modification Application, filed May 17, 2010 (*Spectrum Five Petition to Dismiss or Deny Application*).

[8] Spectrum Five LLC, IBFS File No. SAT-LOI-20081113-00216 (*Spectrum Five 17/24 GHz BSS Application*).

[9] In 2006, the FCC granted Spectrum Five market access to provide DBS service to the United States from two Netherlands-authorized DBS space stations at the 114.5° W.L. orbital location. Spectrum Five LLC, *Order*, 21 FCC Rcd 14023 (Int'l Bur. 2006) (*Spectrum Five 114.5° W.L. Order*). The 114.5° W.L. orbital location is between (continued....)

5. DISH amended its application on June 10, 2010, to include an orbital debris mitigation statement.[10] Spectrum Five filed a Petition to Dismiss or Deny the Amendment.[11] Spectrum Five maintained that the modification application as amended must be dismissed because defective applications cannot be cured under the Commission's "First-Come, First-Served" processing procedures.[12] Spectrum Five further stated that DISH failed to address how it intended to physically coordinate EchoStar 7 with Spectrum Five's proposed satellite at the 118.8° W.L. orbital location. It is not sufficient, Spectrum Five states, for DISH to state that it will relocate EchoStar 7 if a risk arises, because Commission rules require operators to plan ahead to assess orbital debris risks.[13]

6. On September 13, 2012, the Satellite Division asked DISH to submit additional information regarding EchoStar 7's orbital debris mitigation plan.[14] DISH responded on September 28, 2012.[15] DISH submitted further information on October 9, 2012.[16]

III. DISCUSSION

7. *Impact on Spectrum Five's Proposed Space Station at 118.8° W.L.* Since filing its petition, Spectrum Five has requested a change in orbital location for its proposed 17/24 GHz BSS system – to 119.25° W.L. Spectrum Five filed its amendment to, among other things, comply with the Commission's requirement for a minimal orbital separation of 0.2 degrees between 17/24 GHz BSS and DBS space stations.[17] In light of Spectrum Five's amendment, Spectrum Five's objection to DISH's application based on this issue is moot.

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the 110° W.L. and 119° W.L. Region 2 BSS Plan orbital locations assigned to the United States. Spectrum Five's grant required it to meet the same milestone schedule that U.S. operators must meet. It also included conditions to ensure that its satellites would not cause interference to any satellites serving the United States from Region 2 BSS Plan locations pending the Commission's adoption of final rules governing service to the United States from "reduced-spacing" locations. *Id.* at 14043. Spectrum Five's proposed operations are documented at the ITU in a proposed modification to the ITU Region 2 BSS Plan for its DBS system, using the satellite network name SF_BSS5.

[10] DISH Operating L.L.C., IBFS File No. SAT-AMD-20100610-00127. *See also* Email from Karl Kensinger, Associate Chief, Satellite Division, International Bureau to Howard W. Waltzman and Brian Wong, Mayer Brown LLP (May 18, 2010), IBFS File No. SAT-MOD-20100329-00058.

[11] Spectrum Five Petition to Dismiss or Deny Amendment to Application and Application, filed August 2, 2010 (*Spectrum Five Petition to Dismiss or Deny Amendment*).

[12] *Id.* at 2.

[13] *Id.* at 3.

[14] Letter to Pantelis Michalopoulos, Counsel for DISH Operating L.L.C., from Robert G. Nelson, Chief, Satellite Division, International Bureau (Sept. 13, 2012) (*Division Letter*).

[15] Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from Pantelis Michalopoulos, Counsel for DISH Operating L.L.C. (Sept. 28, 2012)(*DISH Response Letter*).

[16] Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from Stephanie Roy, Counsel for DISH Operating L.L.C. (October 9, 2012)(*DISH Supplement*).

[17] 47 C.F.R. § 25.264(g).

8. *Impact on Spectrum Five's proposed satellites at 114.5° W.L.* Section 25.114(d)(13)(ii) requires DBS applicants to submit analyses as to whether the proposed system will need to be coordinated with other radiocommunication systems. We find no reason to require DISH to submit an interference analysis pursuant to Section 25.114(d)(13)(ii) with respect to Spectrum Five's proposed satellites, under the circumstances presented here, and therefore waive Section 25.114(d)(13)(ii) on our own motion.[18] In July 2011, the International Bureau declared Spectrum Five's grant of market access for DBS service to the United States from the 114.5° W.L. orbital location null and void.[19] In that Order, the Bureau found that Spectrum Five had failed to meet conditions of the grant, including construction completion milestones and requirements related to coordination with existing DBS operators.[20] Under the circumstances, we decline to require EchoStar to submit an interference analysis taking into account a proposal that appears unlikely to be effectuated. In any event, we calculate that any additional interference that may result from EchoStar 7's move to 118.8° W.L. into DBS satellites authorized to serve the U.S., or Region 2 BSS Plan systems serving areas outside the U.S., is *de minimis.*[21] However, consistent with standard practice and Section 25.111(c) of our rules,[22] we will condition this authorization to require DISH to submit information necessary for ITU coordination, and note that DISH's operation of EchoStar 7 at 118.8° W.L. is subject to any coordination arrangements necessary to achieve the agreement of other administrations.

9. *Miscellaneous.* Spectrum Five questions whether DISH improperly operated EchoStar 7 at the 118.9° W.L. location, stating that the initial authorization specifies 119° W.L.[23] We note that at time of EchoStar 7's initial authorization, the Commission often specified in licenses an orbital location at the center of the ITU-assigned BSS orbital cluster[24] rather than one of the specific operating locations surrounding the center of the cluster, and permitted operations at any of the specific operating locations.[25]

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[18] *See* 47 C.F.R. § 25.112(b)(2).

[19] Spectrum Five, LLC, Petition for Declaratory Ruling to Extend or Waive Construction Milestone, *Memorandum Opinion and Order*, 26 FCC Rcd 10448 (Int'l Bur. 2011) (*Spectrum Five Order*), petition for reconsideration pending. Our action here is without prejudice to action on Spectrum Five's petition for reconsideration. EchoStar's authorization is subject to further conditions or modifications in the event of favorable action on that petition.

[20] *Id.* at 10455.

[21] Spectrum Five's ITU filing for its SF_BSS5 satellite network indicates that its satellite network has more than a 20 dB signal power advantage into the Netherlands Antilles compared to EchoStar 7, so the slight move of EchoStar 7 would result in negligible increased interference to Spectrum Five's proposed earth stations in the Netherlands Antilles.

[22] 47 C.F.R. § 25.111(c).

[23] *Spectrum Five Petition to Dismiss or Deny Application*, at 11.

[24] *See* ITU Radio Regulations Appendix 30, Article 10.1, Col. 2. *See also* ITU Radio Regulations Appendix 30A, Annex 3, 4.13.1 and Figure 9 (depicting "nominal" satellite positions, based on polarization, as offset by up to .2 degrees from a central location).

[25] *See* ITU Radio Regulations Appendix 30A, Annex 3, 4.13.1 and Figure 9 (depicting possible satellite operations from locations offset by up to .2 degrees from the central location). In order to facilitate transparency and debris mitigation planning, the Commission now routinely specifies in licenses the specific station-keeping location at (continued....)

Under the circumstances, we consider the operations of EchoStar 7 to have been fully consistent with the express terms of the satellite authorization.

10. *Waiver of Section 25.283.* We grant, in part, DISH's request for a waiver of Section 25.283(c) of the Commission's rules, which requires that all stored energy be discharged at the end of life of the spacecraft.[26] EchoStar 7 is a Lockheed Martin A2100AX spacecraft launched before the adoption of this rule. DISH states that there are four tanks on EchoStar 7 that will not be vented to depletion at the spacecraft's end-of-life – two oxidizer tanks and two helium tanks. The two oxidizer tanks were sealed using pyrotechnic valves upon completion of in-orbit testing on March 7, 2002, prior to the adoption of Section 25.283(c).[27] Compliance with the rule for the oxidizer tanks would require direct retrieval of the spacecraft, which is impracticable. Accordingly, DISH has provided information justifying waiver of the rule with respect to the oxidizer tanks.[28] DISH also states that two helium tanks will retain residual pressure at end of life.[29] The information DISH submitted is insufficient to determine whether a waiver is warranted. Accordingly, we dismiss that portion of the waiver request involving the helium tanks. This action, however, is without prejudice to DISH seeking a waiver concerning the helium tanks, supported by additional information, at a later date.

IV. CONCLUSION AND ORDERING CLAUSES

11. We find that granting DISH's application to operate the EchoStar 7 space station (Call Sign S2740) at the 118.8° W.L. orbital location is in the public interest. Accordingly, IT IS ORDERED, that the applications of DISH Operating L.L.C., IBFS File Nos. SAT-MOD-20100329-00058 and SAT-AMD-20100610-00127 to operate using DBS channels 1-21 at the 118.8° W.L. orbital location are GRANTED. This authorization is subject to the terms, conditions and technical specifications set forth in DISH's application, its initial authorization (IBFS File Nos. SAT-A/O-20010810-00073 and SAT-MOD-20010810-00071), and the Commission's rules, except as waived herein.

12. IT IS FURTHER ORDERED that DISH Operating L.L.C. must maintain the EchoStar 7

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which operations are authorized within the BSS cluster. *See* 47 C.F.R. § 25.114(d)(14)(iii)(requiring applicants for geostationary satellites to identify satellites with potentially overlapping station-keeping volumes).

[26] 47 C.F.R § 25.283(c).

[27] *DISH Response Letter* at 2. DISH estimates that the two oxidizer tanks each contain approximately 20 kilograms of nitrogen tetroxide and 0.865 kilograms of helium, and that the volume of each oxidizer tank is approximately 328 liters (20,016 cubic inches). *DISH Response Letter,* at 2, as supplemented by *DISH Supplement* at 1.

[28] As we have indicated in prior cases (*See* File No. SAT-STA-20110627-00122), this determination for an on-orbit satellite does not constitute a finding that the operating procedure followed for the oxidizer tank, which involves maintaining potentially reactive chemical energy sources, and maintaining gases in a pressurized state, is safe. The waiver request was not supported by any analysis of potential failure scenarios or risks associated with post-mission long-term exposure to the space environment.

[29] *DISH Response Letter* at 2. DISH estimates that the two helium tanks will each contain approximately 0.279 kg of helium, and that the volume of each tank is approximately 69.45 liters (4.238 cubic inches). *DISH Response Letter,* at 2, as supplemented by *DISH Supplement* at 2.

space station at 118.8° W.L. with ± 0.05 degree longitudinal station keeping. DISH may not operate the space station outside of these station keeping limits without further authorization.

13. IT IS FURTHER ORDERED that DISH Operating L.L.C's request for partial waiver of 47 C.F.R. § 25.283(c) is GRANTED to the extent indicated herein, and is otherwise DISMISSED, without prejudice to re-filing at a later date.

14. IT IS FURTHER ORDERED, that the Petition to Dismiss or Deny, and the Petition to Dismiss or Deny Amendment to Application and Application, filed by Spectrum Five LLC is DISMISSED in part, and DENIED in part.

15. Pursuant to Section 25.111(c) of the Commission's rules, 47 C.F.R. § 25.111(c), DISH Operating L.L.C. must provide the Commission with all information it requires in order to modify the Appendix 30 Region 2 Broadcasting-Satellite Service Plan and associated Appendix 30A Region 2 feeder-link Plan to incorporate the characteristics of the Direct Broadcast Satellite Service satellite network EchoStar 7 at 118.8° W.L., USABSS-14M, in accordance with the ITU Radio Regulations. DISH Operating L.L.C. will be held responsible for all cost recovery fees associated with these ITU filings. No protection from interference caused by radio stations authorized by other Administrations is guaranteed until the agreement of all affected Administrations is obtained and the frequency assignment becomes a part of the appropriate Region 2 BSS and feeder-link Plans. If coordination has not been completed and/or for which the necessary agreements under Appendices 30 and 30A have not been obtained, this license may be subject to additional terms and conditions as required to effect coordination or obtain the agreement of other Administrations.

16. DISH Operating L.L.C. must submit to the Commission the information required by No. 4.2.6 of Appendices 30 and 30A of the ITU Radio Regulations for modification of the ITU Region 2 BSS Plans to incorporate the characteristics of EchoStar 7 operating at the 118.8° W.L. orbital location, USABSS-14M, no later than 60 days from the date of this action.

17. DISH Operating L.L.C. is afforded 30 days from the date of the release of this Order to decline the authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

18. This Order is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon release.

FEDERAL COMMUNICATIONS COMMISSION

Cassandra C Thomas for

Robert G. Nelson
Chief, Satellite Division
International Bureau