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

In the Matter of	)	
	)	
EchoStar Satellite Operating Corporation	)	File Nos. SAT-MOD-20140623-00074
	)	Call Sign: S2232
Application for Modification of License for the EchoStar 6 Satellite to Extend Termination Date	)	

ORDER AND AUTHORIZATION

Adopted: May 4, 2015 **Released: May 5, 2015**

By the Chief, International Bureau:

I. INTRODUCTION

1. With this Order, we grant the request of EchoStar Satellite Operating Corporation (ESOC) to extend the term of its license for the EchoStar 6 satellite, operating at the 96.2º W.L. orbital location using the 12.2-12.7 GHz (space-to-Earth) and 17.3-17.8 GHz (Earth-to-space) frequency bands,[1] to January 31, 2019. We conclude that grant of the requested license modification is consistent with our practices concerning granting extensions of license terms and will serve the public interest by continuing to facilitate possible development of new services to the Atlantic Ocean region.

II. BACKGROUND

2. ESOC filed the application to extend its license term, which expired on August 11, 2014, on June 19, 2014.[2] The application was placed on public notice on July 25, 2014.[3] Spectrum Five opposed grant of the application.[4] At the time of the public notice, EchoStar 6 was operating at the 96.2°

[1] *EchoStar Satellite Operating Company*, Order and Authorization, 29 FCC Rcd 9615 (Int'l. Bur 2014) (*EchoStar Grant Order*). This action is without prejudice to any Commission action on Spectrum Five's pending petition for reconsideration of the *EchoStar Grant Order* (filed September 10, 2014). *See also EchoStar Satellite Operating Company*, Order and Authorization, 28 FCC Rcd 4229 (Int'l. Bur 2013) (*STA Grant*), *stay denied*, 28 FCC Rcd 5475 (Int'l. Bur 2013) (*Stay Denial*), *review denied,* 28 FCC Rcd 10412 (2013) (*STA Affirmance*), *appeal dismissed,* Spectrum Five LLC v. FCC, Nos. 13-1231 & 13-1232 (D.C. Cir. July 11, 2014).

[2] IBFS File No. SAT-MOD-20140623-00074. After August 11, 2014, ESOC operations at the 96.2º W.L. orbital location are considered continuing operations and to the extent consistent with the terms of the *EchoStar Grant Order*, are considered authorized. *See* 47 C.F.R. § 1.62; 5 U.S.C. § 558(c).

[3] *See Policy Branch Information, Satellite Space Applications Accepted for Filing*, Public Notice, Report No. SAT-01030 (July 25, 2014).

[4] Spectrum Five did not file a pleading formally captioned as a petition to deny or opposition. However, we are treating the Supplemental Opposition of Spectrum Five, filed July 15, 2014 (Supplemental Opposition), as an opposition to this application. The Supplemental Opposition supplemented oppositions filed in connection with other applications, but included the file number for this application in its caption, along with the file numbers of other applications seeking authorization for EchoStar 6 operations, grant of which Spectrum Five also opposed. The (continued....)

W.L. orbital location under special temporary authority (STA) and a request for regular authority for such operations was pending.[5] Spectrum Five also opposed the application for regular authority based in part on measurement data it submitted which indicated that EchoStar 6 was not operating consistent with the authorized power levels specified in the STA. In the August 11, 2014 *EchoStar Grant Order*, we granted regular authority, stating that we were not in a position at that time to definitively address the power level issue, and instead would address it in the context of ESOC's application to extend the license term for EchoStar 6, or in any enforcement action.[6] We concluded, however, that assuming there was a violation, it would not justify finding ESOC unqualified to hold a license.[7] On September 10, 2014, Spectrum Five filed a petition for reconsideration of the *EchoStar Grant Order*.[8] On September 29, 2014, ESOC submitted its own test measurements, acknowledged errors that led to higher than predicted power levels at points in the United States, and specified steps to ensure compliance with the EchoStar 6 satellite's authorized power limits. In the ensuing months, the parties filed additional pleadings, with Spectrum Five raising questions, to which ESOC responded, about the credibility and adequacy of ESOC's explanation and the adequacy of its corrective actions with regards to power levels.[9]

III. DISCUSSION

3. The Commission and the Bureau in several previous Orders found that authority for operations of the EchoStar 6 satellite at the 96.2º W.L. orbital location would serve the public interest and is warranted.[10] In reaching that conclusion, we examined the various objections raised by Spectrum Five, and for the most part will not further address those issues in this Order. We do, however, further address certain matters, including the matter of power levels, that the *EchoStar Grant Order* specifically identified for further consideration in connection with this license term extension application.[11] Consistent with our practice, we have also reviewed information concerning the "health" of the satellite to determine whether it is and is likely to continue to be capable of utilizing its assigned frequencies, and of completing end-of-life procedures for orbital debris mitigation, as required by FCC rules.[12]

(...continued from previous page)
Supplemental Opposition did not, however, include any arguments uniquely focused on the license extension request.

[5] IBFS File Nos. SAT-MOD-20130227-00026, as amended by SAT-AMD-20130429-00063 and SAT-AMD-20130613-00083.

[6] *EchoStar Grant Order*, 29 FCC Rcd at 9622, ¶ 19.

[7] We also made a similar finding that a violation of an STA condition concerning station-keeping was not disqualifying. *Id.* n.41.

[8] Petition for Reconsideration and Request for Referral of the Petition to the Full Commission, IBFS File Nos. SAT-MOD-20130227-00026, SAT-MOD-201406237-00074, SAT-AMD-20130429-00063, SAT-AMD-20130613-00083 (Sept. 10, 2014) (Spectrum Five Petition for Reconsideration).

[9] *See*, *e.g.* Spectrum Five Letter dated October 7, 2014; ESOC Letter dated November 6, 2014; Spectrum Five Letter dated November 7, 2014; Spectrum Five Letter dated November 17, 2014; ESOC Letter dated November 20, 2014; Spectrum Five Letter dated December 1, 2014; ESOC Letter dated December 3, 2014; ESOC Letter dated December 17, 2014; and Spectrum Five Letter dated January 5, 2015.

[10] *See STA Grant, STA Affirmance*, and *EchoStar Grant Order*.

[11] *ESOC Grant Order*, 29 FCC Rcd at 9621-22, ¶ 19.

[12] The license term for most space stations is 15 years. 47 C.F.R § 25.121. Many satellites continue to be capable of operating at the end of the license term. Requests to extend the license term are processed as requests to modify the license. *See, e.g.*, DISH Operating LLC, IBFS File No. SAT-MOD-20120124-00011, granted Oct. 18, 2012 (extending 10-year license term of EchoStar 7 for ten years); Lightsquared Subsidiary LLC, IBFS File. No. SAT-MOD-20111128-00228, granted March 22, 2012 (extending license term of MSAT-2 for one year).

4. *Radiated Power Levels and Antenna Pointing*. In response to ESOC's request for operations at the 96.2º W.L. orbital location, Spectrum Five argues that the measured power levels exceed the levels authorized in the *STA Grant*.[13] ESOC concedes that, based upon actual test measurements and analysis conducted between August 18 and September 29, the measured equivalent isotropically radiated power ("EIRP") did not match the predicted EIRP, and determined that its initial analysis contained the following two errors: (i) the expected output back-off apparently was not achieved;[14] and (ii) the antenna apparently was pointed more north and west than expected.[15]

5. ESOC reported that on September 10, 2014, it reduced EchoStar 6's EIRP level.[16] ESOC also reported that on October 1, 2014, it completed operations to repoint the EchoStar 6 antenna to match the satellite coverage pattern as filed with the FCC.[17] ESOC stated that other potentially affected satellite operators, including DIRECTV, were apprised of EchoStar 6's power levels and to date have not reported any interference issues to ESOC.[18] Further, ESOC initiated an audit across its fleet in order to confirm no similar situations exist.[19] Based upon the foregoing, ESOC believes that EchoStar 6 is in compliance with applicable power limits and that appropriate measures have been taken to ensure continued compliance with respect to ESOC's satellite fleet.[20]

6. We find that ESOC has taken sufficient steps to rectify the problems identified by Spectrum Five. Further, while the EIRP level errors could give rise to enforcement actions, these errors do not warrant denial of a license extension.[21]

7. *Health of Echostar 6.* In the *EchoStar Grant Order*, we stated that questions concerning the adequacy of current fuel levels with respect to the extended license term ESOC requests would be addressed in connection with this application.[22] As noted in that *Order*, Spectrum Five's allegations rely

[13] *See, e.g.,* Supplemental Opposition of Spectrum Five (dated July 25, 2014); Spectrum Five Letter dated August 6, 2014; Spectrum Five Letter dated November 17, 2014; Spectrum Five Letter dated December 1, 2014.

[14] ESOC states that the output back-off error is the result of payload performance not matching predictions, specifically the achieved level of EIRP back-off versus the commanded level of EIRP back-off at very high back-off levels. ESOC Letter dated September 29, 2014, at 2.

[15] *Id*. *See also* ESOC Letter dated December 17, 2014, at 3.

[16] ESOC Letter dated September 29, 2014. On October 1, 2014, ESOC conducted additional test measurements under proper reference conditions, which confirm that EchoStar 6's EIRP level is at least 1 dB below applicable coordinated power limits. ESOC Letter dated November 20, 2014, at 2, and ESOC Letter dated December 17, 2014, at 3.

[17] ESOC Letter dated November 20, at 3. ESOC explained that the incorrect antenna pointing is the result of compounding errors and circumstances, exacerbated by the history of multiple owners/operators of this spacecraft over its lifetime and by certain antenna alignment details, which are necessary to correctly position the antenna patterns, and which were omitted from the spacecraft operators' handbook.

[18] ESOC Letter dated November 20, 2014, at 3; and ESOC Letter dated December 17, 2014, at 3.

[19] ESOC Letter dated November 20, 2014, at 3.

[20] *Id*.

[21] We stated in the *EchoStar Grant Order*, even if ESOC has operated EchoStar 6 at unauthorized power levels, such a violation would not rise to the level of seriousness to warrant a finding that ESOC is technically or legally unqualified to hold a Commission license. *EchoStar Grant Order*, 29 FCC Rcd at 9622, ¶ 19, n.43. Spectrum Five questions this finding in its petition for reconsideration of the *EchoStar Grant Order*. This Order is not intended to prejudge Spectrum Five's petition. In this Order, we find only that ESOC has taken steps sufficient to rectify the problems identified by Spectrum Five.

[22] *Id*. at 9618-19, ¶ 9, n.21.

primarily on satellite lifetime estimates by ESOC made prior to commencement of fuel-saving inclined orbit operations, or on speculation concerning the amount of fuel expended in satellite maneuvers.[23] On December 3, 2014, ESOC updated its report on the status of EchoStar 6.[24] ESOC reported that the current estimated End-Of-Life (EOL) of EchoStar 6 is February 2019, based on current fuel consumption. This EOL estimate includes fuel for disposal of the spacecraft consistent with the requirements of FCC rules.[25] Spectrum Five also speculated that EchoStar 6 may be incapable of conducting the continuous antenna adjustments necessary to "maintain a stationary spacecraft antenna pattern" in compliance with Section 25.280(b)(1) of the Commission's rules.[26] ESOC responded that EchoStar 6's attitude control system automatically compensates for inclination.[27] We have no factual basis to question ESOC's statements concerning these material facts. We will continue to monitor the status of EchoStar 6 operations through annual reports during the remaining license term.[28]

V. CONCLUSION AND ORDERING CLAUSES

8. Based on the foregoing, we conclude that a grant of this request to extend the term of the EchoStar 6 satellite would serve the public interest.

9. Accordingly, IT IS ORDERED that ESOC's application for a license modification to extend the term of its license through January 31, 2019, File No. SAT- SAT-MOD-20140623-00074 IS GRANTED, and ESOC is authorized to operate the EchoStar 6 satellite (Call Sign S2232) in the 12.2-12.7 GHz (space-to-Earth) and 17.3-17.8 GHz (Earth-to-space) frequency bands at the 96.2º W.L. orbital location, with Telemetry, Tracking, and Command using the following center frequencies: 17.305 GHz (Earth to space), and 12.203 GHz and 12.204 GHz (space to Earth). Operations under this authorization must be in accordance with the technical specifications set forth in ESOC's application and the following conditions:

a. All operations under this authorization are on an unprotected and non-harmful interference basis, *i.e.*, the EchoStar 6 space station shall not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating station. In the event of any harmful interference, ESOC shall cease operations immediately upon notification of such interference, and shall inform the Commission, in writing, immediately of such an event.

b. While at the 96.2º W.L. orbital location, ESOC must maintain the EchoStar 6 spacecraft with an east/west longitudinal station-keeping tolerance of +/- 0.05 degrees.

c. Operations with earth stations located in the land area of the United States shall be limited

[23] *Id*. at ¶ 9.

[24] *See* ESOC Letter dated December 3, 2014, at 2. Over its life, EchoStar 6 has experienced solar array string failures resulting in a 22.7% reduction in solar array power. *Id.* at 3. The EchoStar 6 batteries have had no cell failures. *Id.* The EchoStar 6 power subsystem has had no failures. *Id.* EchoStar 6 has had five transponder failures; backup travelling wave tube amplifiers have replaced these failed transponders. *Id.* at 4.

[25] *Id.* Attachment at 2.

[26] 47 C.F.R. § 25.280(b)(1). *See* Spectrum Five Letter dated October 7, 2014, at 5; Spectrum Five Letter dated December 1, 2014, at 5.

[27] ESOC Letter dated March 20, 2015.

[28] In the *EchoStar Grant Order*, we stated that we were considering EchoStar 6 operations as Fixed Satellite Service and Mobile Satellite Service. This classification triggers annual reporting under Section 25.170 of the rules, which require annual reporting of any space station not performing to specifications.

to FSS uplink and Telemetry, Tracking, and Command operations using three stations.

10. This Order and Authorization is issued without prejudice to any future enforcement action concerning the possible operation of the EchoStar 6 satellite at unauthorized power levels.

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

FEDERAL COMMUNICATIONS COMMISSION

Mindel De La Torre
Chief, International Bureau