

S2105 SAT-STA-20160822-00085
Satellite CD Radio LLC

IB2016001909



File # SAT-STA-20160822-00085

Call Sign S2105 Grant Date 09/29/16

(or other identifier)

From 08/27/16 Term Dates period of 180 days To: 180 days

Approved by OMB
3060-0678

Approved: Stephen J. Duall
Stephen J. Duall
Chief, Satellite Policy Branch

Date & Time Filed: Aug 22 2016 4:06:55:206PM
File Number: SAT-STA-20160822-00085
Callsign:

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY

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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Satellite CD Radio LLC, Request for Extension of Special Temporary Authority for an Additional 180 Days, Call Sign S2105

1. Applicant			
Name:	Satellite CD Radio LLC	Phone Number:	202-380-1383
DBA Name:		Fax Number:	202-380-4981
Street:	1221 Avenue of the Americas 36th Floor	E-Mail:	james.blitz@siriusxm.com
City:	New York	State:	NY
Country:	USA	Zipcode:	10020 -
Attention:	James S. Blitz		

2. Contact

Name:	Jennifer Hindin	Phone Number:	202-719-4975
Company:	Wiley Rein LLP	Fax Number:	202-719-7049
Street:	1776 K Street, NW	E-Mail:	jhindin@wileyrein.com
City:	Washington	State:	
Country:	USA	Zipcode:	20006 -
Attention:		Relationship:	Legal Counsel

(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)

3. Reference File Number or Submission ID

4a. Is a fee submitted with this application?

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity Noncommercial educational licensee
- Other (please explain):

4b. Fee Classification CXW – Space Station (Non-Geostationary)

5. Type Request

- Change Station Location Extend Expiration Date Other

6. Temporary Orbit Location

7. Requested Extended Expiration Date

8. Description (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

Satellite CD Radio LLC, a wholly-owned subsidiary of Sirius XM Radio Inc., requests an extension of Special Temporary Authority for an additional 180-days, beginning August 27, 2016, to operate the FM-1 non-geostationary satellite orbit spacecraft (call sign S2105) with relaxed orbital parameters as a result of suspension of certain station-keeping

9. By checking Yes, the undersigned certifies that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application"; for these purposes. Yes No

10. Name of Person Signing
James S. Blitz

11. Title of Person Signing
V.P., Regulatory Counsel

12. Please supply any need attachments.

Attachment 1: STA Request

Attachment 2:

Attachment 3:

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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8. Description

Satellite CD Radio LLC, a wholly-owned subsidiary of Sirius XM Radio Inc., requests an extension of Special Temporary Authority for an additional 180-days, beginning August 27, 2016, to operate the FM-1 non-geostationary satellite orbit spacecraft (call sign S2105) with relaxed orbital parameters as a result of suspension of certain station-keeping maneuvers.

Sirius XM Radio Inc.
Request for Extension of Special Temporary Authority

Satellite CD Radio LLC, a wholly-owned subsidiary of Sirius XM Radio Inc. (“Sirius XM”), herein requests an extension of Special Temporary Authority (“STA”) for an additional 180-days, beginning August 27, 2016, to operate the FM-1 non-geostationary satellite orbit (“NGSO”) spacecraft (call sign S2105) with relaxed orbital parameters as a result of suspension of certain station-keeping maneuvers.¹ Sirius XM will continue operations consistent with the terms and conditions of its existing STA pending action on this request.²

Grant of this STA is in the public interest because it will allow Sirius XM to continue to conserve the propellant necessary to comply with end-of-life maneuvers previously approved by the Commission.³ The suspension of certain station-keeping maneuvers for the FM-1 satellite is similar to inclined orbit operations for geostationary satellites: there will be a gradual growth of some of the orbital parameters but the orbit variations will not increase physical or radio interference with other satellite operators. Because the Commission has no inclined orbit rule for NGSO satellites,⁴ Sirius XM files the instant STA request out of an abundance of caution.

The following table details the revised orbital parameters for the FM-1 satellite:

	As Listed on 1998 FCC Application ⁵	Typical Parameters as Listed on the 2009 Application for Modification ⁶	Parameters with Relaxed SK Requirements
Perigee Altitude	24,469 km	-	24,469 ± 1200 km
Apogee Altitude	47,102 km	-	47,102 ± 1200 km

¹ Sirius XM is currently operating with relaxed operating parameters pursuant to STA. *See Policy Branch Information; Actions Taken*, Report No. SAT-01105, DA 15-1000, SAT-STA-20150722-00051 (Sept. 11, 2015). Sirius XM was authorized to operate pursuant to these relaxed operating parameters for all three satellites in the NGSO constellation, FM-1, FM-2, and FM-3. Sirius XM recently completed the de-orbit of the FM-2 and FM-3 satellites. Sirius XM plans to commence de-orbit of the FM-1 satellite in September 2016.

² 47 C.F.R. § 1.62.

³ *See* Satellite CD Radio, Inc., Application for Modification to Extend License Term and to De-Orbit the FM-1, FM-2 and FM-3 Satellites, File No. SAT-MOD-20091119-00123 (stamp grant Feb. 4, 2010).

⁴ *Compare* 47 C.F.R. § 25.280 (inclined orbit operations rule for geostationary satellites).

⁵ Satellite CD Radio, Inc., Application to Launch and Operate a Digital Audio Radio Satellite Service in the 2320.0-2332.5 MHz Frequency Band, File No. SAT-MOD-19981211-00099 (filed Dec. 11, 1998).

⁶ Satellite CD Radio, Inc., Application for Modification to Extend License Term and to De-Orbit the FM-1, FM-2 and FM-3 Satellites, File No. SAT-MOD-20091119-00123 (filed Nov. 19, 2009).

Ascending Equatorial Crossing	65.6 W $\pm 2^\circ$	-	60.0 W $\pm 7.6^\circ$
Descending Equatorial Crossing	126.4 W $\pm 2^\circ$	-	122.4 W $\pm 6^\circ$
Perigee Radius	-	30,847 ± 211 km	30,847 ± 1200 km
Apogee Radius	-	53,841 ± 211 km	53,841 ± 1200 km
Eccentricity	0.2684	0.2684 ± 0.005	0.2684 ± 0.03
Inclination	63.4 $\pm 7^\circ$	63.4 $\pm 2^\circ$	63.4 $\pm 7^\circ$
Argument of Perigee	-	270 $\pm 2^\circ$	267 $\pm 5^\circ$
Right Ascension of Ascending Node (RAAN)	X, X+120°, X+240°	120 $\pm 0.5^\circ$	X, X+120°, X+240°
Nominal Apogee Longitude	96° W	-	96° W

The revised orbital parameters will not increase the risk of collision with geostationary satellite orbit (“GSO”) satellites. Although eccentricity will drift beyond its nominal station-keeping range resulting in variation of the nominal apogee and perigee altitudes, the apogee and perigee altitude changes do not coincide with the equatorial crossings and thus will not impact safe physical separation distances with GSO satellite operators. The relaxation of the eccentricity and argument of perigee control will result in the equatorial crossings drifting from the nominal 65.6° and 126.4° W longitude, but the altitudes of the equatorial crossings will not change significantly and will remain a safe distance below the GSO altitude. GSO satellite operators are typically concerned at proximities of less than 10 km and the FM-1 satellite will remain at least 1300 km below the GSO altitude at the equatorial crossings. There is no increase in risk of collision with a geostationary satellite because the FM-1 satellite altitude at the equatorial crossings will be more than two orders of magnitude higher than a typical “close approach” threshold defined by a geostationary satellite operator. Moreover, the inclination, Right Ascension of the Ascending Node (RAAN), and nominal apogee longitude will not change from the currently licensed limits.

In addition, there is no increase in risk of radio frequency interference with a GSO satellite because the FM-1 satellite will continue to coordinate the 4 GHz and 6 GHz telemetry and command transmissions with all potentially affected geostationary satellite operators within 10° of the equatorial crossing. Furthermore, the FM-1 satellite does not transmit S-band payload service near the equatorial crossings. Sirius XM will continue to coordinate and communicate with other satellite operators and will increase the frequency of its fleet coordination letter from bi-annually to quarterly. These notifications will cover U.S. operators within $\pm 5^\circ$ and non-U.S. operators within $\pm 10^\circ$ of FM-1 satellite’s equatorial crossing. Sirius XM will continue to monitor close approach limits and should the FM-1 satellite get inside those limits, Sirius XM will notify any affected operator and take necessary corrective actions.

In light of the above, Sirius XM respectfully requests Commission approval of this STA extension request.