

**DESCRIPTION OF REQUEST FOR EXPERIMENTAL LICENSE**

By this application, Sirius XM Radio Inc. (“Sirius XM”) respectfully requests an experimental license pursuant to Sections 5.3(d), 5.3 (i) and 5.53 of the Commission’s rules, 47 C.F.R. §§ 5.3(d), 5.3(i) and 5.53 (2008), to conduct tests needed to evaluate the acceptability of potential sites to support its terrestrial repeater operations in the Commonwealth of Puerto Rico. A request for expedited treatment is being filed concurrently with this request under a separate attachment.

Sirius XM notes that this application seeks authorization that is similar to the license its subsidiary XM Radio Inc. holds under call sign WB2XCA. A separate license is required here, however, because the authority granted under call sign WB2XCA is limited to operations at locations designated as “Nationwide (US),” a reference that encompasses all of the 50 states and the District of Columbia, but excludes the Commonwealth of Puerto Rico and other U.S. territories. In response to comments in the Sirius XM merger proceeding asking the Commission to ensure the provision of satellite radio service to Puerto Rico, Sirius XM committed to offer service to the Commonwealth using its terrestrial repeater network. *See generally Applications for Consent to the Transfer of Control of Licenses, XM Satellite Radio Holdings Inc., Transferor, To Sirius Satellite Radio Inc., Transferee*, 23 FCC Rcd 12348, at ¶ 147 (2008). On September 11, 2009, the Commission granted Special Temporary Authority allowing Sirius XM to operate the initial terrestrial repeaters needed to serve Puerto Rico. *See Sirius XM Radio Inc., File No. SAT-STA-20081027-00210, Order and Authorization, DA 09-2039* (rel. Sept. 11, 2009). The instant application will facilitate Sirius XM’s ability to provide that service.

**Background**

In 1999, the Commission granted XM Radio Inc, a limited experimental license under call sign WB2XCA to operate non-permanent terrestrial repeaters in the licensed spectrum (2332.5-2345 MHz) to assist in the planning and deployment of XM Radio’s permanent terrestrial repeater network. *See OET File No. 0199-EX-PL-1999* (granted Aug. 17, 1999). In 2000, the Commission broadened the license to permit XM Radio to operate experimental terrestrial repeaters nationwide. *See OET File No. 0160-EX-ML-2000* (granted Aug. 23, 2000). The license was renewed for a second five-year term in September 2005. *See OET File No. 0094-EX-RR-2005* (granted Sept. 1, 2005).

In 2008, XM Radio merged with Sirius Satellite Radio Inc. (“Sirius”) and control of the license was transferred to Sirius, the name of which was changed to “Sirius XM Radio Inc.” *See OET File No. 0005-EX-TU-2007* (granted August 15, 2008). The license was then modified to include both the frequency band licensed to XM Radio (2332.5-2345 MHz) and the band licensed to Sirius (2320-2332.5 MHz). *See OET File No. 0032-EX-ML-2000* (granted May 14, 2009).

**Application on FCC Form 442  
For Experimental License  
ELS File No. 0326-EX-PL-2009  
Attachment 1**

In the course of the Commission's consideration of the Sirius and XM merger application,<sup>1</sup> numerous commenters raised issues relating to the importance of providing satellite radio service in the Commonwealth of Puerto Rico. Significantly, these commenters included elected legislators who are in the best position to understand the need for satellite radio in the Commonwealth, including two United States Congressmen, the Senate of Puerto Rico, and an organization of legislators from outlying U.S. territories.<sup>2</sup> While these commenters approached the issue from different perspectives, they each stressed the need for the merged company to treat Puerto Rico comparably to the contiguous United States for purposes of providing satellite radio service, emphasizing that satellite radio "access by all consumers in the United States [should] be a central tenet of the Commission's merger review."<sup>3</sup>

Responding to these concerns, Sirius and XM jointly sent the Commission a letter on June 13, 2008 which included the following commitment:

Within three months of the consummation of the merger, the combined company will file the necessary applications to provide the Sirius satellite radio service to the Commonwealth of Puerto Rico using terrestrial repeaters and will, upon grant of the necessary permanent authorizations, promptly introduce such satellite radio service to the Commonwealth.<sup>4</sup>

The Commission ultimately consented to the merger "subject to the condition that Applicants fulfill the voluntary commitments as set forth in Appendix B," which includes the commitment on service to Puerto Rico quoted above.<sup>5</sup> On October 27, 2007, Sirius

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<sup>1</sup> Consolidated Application for Authority to Transfer Control of XM Radio Inc. and Sirius Satellite Radio Inc., XM Satellite Radio Holdings Inc., Transferor, and Sirius Satellite Radio Inc., Transferee (Mar. 20, 2007).

<sup>2</sup> See Letter from U.S. Rep. Luis G. Fortuño, to Kevin J. Martin, Chairman, FCC, MB Docket No. 07-57 (Jan. 18, 2008); Letter from U.S. Rep. Luis G. Fortuño, to Kevin J. Martin, Chairman, FCC, MB Docket No. 07-57 (July 8, 2008); Letter from Chairman José E. Serrano of the Subcommittee on Finance Services and General Gov't Communications on Appropriations, to Kevin J. Martin, Chairman, FCC, MB Docket No. 07-57 (Sept. 19, 2007); Senate Resolution 3392, Commonwealth of Puerto Rico (Oct. 1, 2007); Letter from Members of the Outlying Areas Senate Presidents Caucus, to Kevin J. Martin, Chairman, FCC, MB Docket No. 07-57 (May 19, 2008) at 1-2.

<sup>3</sup> *Applications for Consent to the Transfer of Control of Licenses; XM Satellite Radio Holdings, Inc., Transferor, To Sirius Satellite Radio, Inc.*, Memorandum Opinion and Order and Report and Order, 23 FCC Rcd 12,348, 12,416 (¶ 148) (2008) ("*Merger Order*").

<sup>4</sup> *Id.* at 12,435 (Appendix B).

<sup>5</sup> *Id.*

XM applied for authority to construct its initial terrestrial repeaters in Puerto Rico, and the Commission granted the application on September 11, 2009. *See Sirius XM Radio Inc.*, File No. SAT-STA-20081027-00210, *Order and Authorization*, DA 09-2039 (rel. Sept. 11, 2009)(“Puerto Rico Terrestrial Repeater Authority”).

Thus, Sirius XM is now ready to commence experimental tests to evaluate the acceptability of potential sites to support the operations it will conduct pursuant to the *Puerto Rico Terrestrial Repeater Authority*. As noted above, however, Sirius XM’s current experimental license (call sign WB2XCA) is limited to operations at locations designated as “Nationwide (US),” a reference that encompasses all of the 50 states and the District of Columbia, but excludes the Commonwealth of Puerto Rico and other U.S. territories. Sirius XM understands that the designation “Nationwide (USP)” includes Puerto Rico and other U.S. territories. *See Manual of Regulations and Procedures for Federal Radio Frequency Management (Redbook)*, at Section G.2.2. (rev. Jan. 2009), <http://www.ntia.doc.gov/osmhome/redbook/G.pdf> (visited 9/17/2009).

The authorization requested herein will allow Sirius XM to conduct tests in the Commonwealth of Puerto Rico in the band 2320-2332.5 MHz. This application does not request authority to operate in the band 2332.5-2345 MHz, which is licensed to XM Radio, Inc.

### **Purpose of Experimentation and Justification**

As a provider of satellite radio services in the United States, Sirius XM is continually involved in efforts to advance the technologies and applications of its satellite service and to improve consumers’ reception of its service. The grant of this application will facilitate Sirius XM’s ability to provide satellite radio service to Puerto Rico, by allowing it to optimize the design and development of its terrestrial repeater network prior to commencing commercial operation of new repeaters. Under this experimental license, Sirius XM plans to conduct on-site equipment demonstrations, field-test measurements of installed system performance, and testing of the initial repeaters and other potential repeater locations prior to final installation. Grant of the license will therefore enhance performance of the terrestrial repeater network and improve the quality of service to satellite radio listeners in the Commonwealth of Puerto Rico. Granting this authorization is also consistent with the desires expressed in the merger and STA proceedings by federal and territorial legislators to bring satellite radio service to Puerto Rico<sup>6</sup> as well as the merger commitment of Sirius XM to provide that service.

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<sup>6</sup> *See* note 2, *supra*. *See also* “Puerto Rico to Begin Receiving Satellite Radio Service,” Press Release of Cong. José Serrano (D.NY)( Sept. 15, 2009), <http://serrano.house.gov/NewsDetail.aspx?ID=633> (visited Sept. 17, 2009); Letter from Kenneth D. McClintock, Secretary of State of Puerto Rico to The Honorable Julius Genachowski (Aug. 13, 2009)(filed in FCC File No. SAT-STA-20081027-00210).

**Location of Tests and Number of Units**

Sirius XM proposes to conduct tests at various fixed locations on the island of Puerto Rico. It is unable to indicate specific coordinates, however, as the exact locations of the tests will vary depending on the RF conditions or characteristics under review and the need to conduct field trials at multiple locations on the island with different operating environments. Accordingly, Sirius XM has indicated in the accompanying application on FCC Form 442, under the question regarding “Station Location,” that its tests will be conducted within 160 kilometers of the city of Utuado located in central part of Puerto Rico so that its licensed authority will cover the entire island. Sirius XM anticipates that it will be able to conduct such tests with a maximum of 20 repeater sites, but will use the minimum number necessary.

**Antenna Information**

*Antenna Orientation.* Sirius XM has indicated in the accompanying application under Form 442, under the Question regarding “Station Location,” that directional antennas will be used during its tests. In fact, Sirius XM will use both directional and omnidirectional antennas as shown in Exhibit A hereto, which provides technical details for directional and omnidirectional antennas that are representative of those Sirius XM seeks to use in connection with this experimental license. Although newer or similar models of antennas or other equipment may be deployed during the tests, in no case would the power levels at any given azimuth exceed the maximum effective radiated power (ERP) it has requested in this application.

*Antenna Heights.* Sirius XM proposes to deploy transmitting antennas located at various heights to permit accurate evaluation of the propagation and reliability of its terrestrial signals. All antennas will be mounted in compliance with FAA and FCC rules and regulations, however, including those that require antenna structure registration. Unless antenna structure registration is required and completed, in no case will the antennas: (1) extend 6 meters above the height of an existing building, (2) increase the overall height of a registered antenna structure, or (3) if mounted on the ground, exceed 30 meters above ground level.

*RF Exposure.* Sirius XM will conduct its experimental operations in compliance with the FCC’s rules and regulations governing human exposure to radiofrequency radiation.

**Operational Safeguards**

Sirius XM recognizes that its tests under this license must not cause harmful interference to authorized facilities or operations. It does not anticipate that such interference will occur, however. Sirius XM has never caused interference under XM Radio's current experimental license WB2XCA, and it does not anticipate receiving complaints here should the Commission grant the license as requested. Moreover, the proposed tests will be conducted using only Sirius XM's licensed spectrum, will be of limited duration, and will be completed under the supervision of Sirius XM personnel so as to minimize any potential for interference.

Nevertheless, Sirius XM personnel will promptly address any instances of interference, in the unlikely event such interference should occur, including if necessary discontinuing operation under the license.

As a final matter, Sirius XM notes that it has coordinated with the Arecibo Observatory in Puerto Rico about proposed operations under the *Puerto Rico Terrestrial Repeater Authority* that are materially similar to those proposed in this application. Attached as Exhibit B for the staff's convenience is a copy of the correspondence Sirius XM exchanged with the Observatory.

**Contacts for Inquiries**

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**REPRESENTATIVE SIRIUS XM TERRESTRIAL REPEATER ANTENNAS**

(As of 9/17/2009)

<b>Manufacturer</b>	<b>Model No.</b>	<b>Horizontal BW (°)</b>	<b>Vertical BW (°)</b>	<b>Gain (dBi)</b>
Andrew	HMD8PV180-R05-H	180	7.5	14
Andrew	HMD8V120-R05-H	120	7.5	15
Andrew	HMD8V360-R05-H	Omni	7.5	11.5
Andrew	HMD8V90-R05-H	90	7.5	16
Andrew	SA2500-065X-18	65	5.6	17.6
Andrew	SA2500-090X-16	90	5.6	16.6
Antenna Specialists	KSX2988S	75	50	7
Decibel Products	DB992HG28N-S	28	28	16
EMS	FR65-18-00NVL	65	5.7	18
EMS	FR90-16-00NVL	90	7.1	16
EMS	FR90-17-00NVL	90	5.6	17
EMS	RV80-18-00NV	80	4.9	18
MAXRAD	WISP24013PTNF	35	35	13
Mobile Mark	OD12-2400	Omni	7	12
Mobile Mark	OD9-2400	Omni	14	9
MAXRAD	WISP24018PTNF	18	19	18
Til-Tek	TA2304-2-DAB(120)	120	7.5	13
Til-Tek	TA2304-2-DAB(160)	160	7.5	11.5
Til-Tek	TA2304-2-DAB(45)	45	7.5	17
Til-Tek	TA2304-2-DAB(60)	60	7.5	16
Til-Tek	TA2304-2-DAB(90)	90	7.5	14
Til-Tek	TA2304-2-DAB-H(120)	120	7	14
Til-Tek	TA2304-2-DAB-H(160)	160	7	13
Til-Tek	TA2304-2-DAB-H(45)	45	7	18
Til-Tek	TA2304-2-DAB-H(60)	60	7	17
Til-Tek	TA2304-2-DAB-H(90)	90	7	15
Til-Tek	TA2304-DAB(120)	120	15	12
Til-Tek	TA2304-DAB(160)	160	15	10.5
Til-Tek	TA2304-DAB(45)	45	15	15
Til-Tek	TA2304-DAB(60)	60	15	14
Til-Tek	TA2304-DAB(90)	90	15	12.5
Til-Tek	TA-2305-2-DAB-H(45)	45	7	18
Til-Tek	TA-2305-2-DAB-H(60)	60	7	17
Til-Tek	TA-2305-2-DAB-H(90)	90	7	15
Til-Tek	TA-2305-2-DAB-H(120)	120	7	14
Til-Tek	TA-2305-2-DAB-H(160)	160	7	13
Til-Tek	TA2335-DAB-H	95	7	15
Til-Tek	TA2350-DAB	Omni	8	10
Til-Tek	TA2350-DAB-T2	Omni	8	10

**Application on FCC Form 442**  
**For Experimental License**  
**ELS File No. 0326-EX-PL-2009**  
**Attachment 1, Exhibit A, Page 2**

<b>Manufacturer</b>	<b>Model No.</b>	<b>Horizontal BW (°)</b>	<b>Vertical BW (°)</b>	<b>Gain (dBi)</b>
Til-Tek	TA2350-DAB-T4	Omni	8	10
Til-Tek	TA2350-DAB-T6	Omni	8	10
Til-Tek	TA2350-DAB-H	Omni	8	10
Til-Tek	TA2350-DAB-H-T2	Omni	8	10
Til-Tek	TA2350-DAB-H-T4	Omni	8	10
Til-Tek	TA2350-DAB-H-T6	Omni	8	10
Translight	XMTRANRPTR	60	60	8
YDI	A2.45FP12	35	35	12
YDI	A2.45FP18	18	19	18
YDI	A2408	Omni	25	8

# SIRIUS XM

RADIO INC.

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June 30, 2009

By E-mail (prez@naic.edu) and U.S. Mail:

Interference Office  
Arecibo Observatory  
HC3 Box 53995  
Arecibo, Puerto Rico 00612

Dear Sir or Madam:

By this letter, Sirius XM Radio Inc. ("Sirius XM") hereby notifies the Arecibo Observatory that we have applied to the Federal Communications Commission ("FCC") for Special Temporary Authority to operate 20 terrestrial transmitters in one of our licensed frequency bands (2320-2332.5 MHz) at various locations within the Commonwealth of Puerto Rico. While we are aware of no FCC rule requiring that we formally provide notification to the Arecibo Observatory in connection with this type of application, as a courtesy to the Observatory, Sirius XM encloses its pending FCC application (FCC File No. SAT-STA-20081027-00210), providing full technical details of each proposed antenna site. Should the FCC grant this application, all antennas will operate in the 2320-2332.5 MHz band pursuant to Section 25.120 of the Commission's Rules.

Please direct any questions regarding this matter to the undersigned.

Very truly yours,



James S. Blitz  
Vice President, Regulatory Counsel

Enclosure



NATIONAL ASTRONOMY AND IONOSPHERE CENTER  
ARECIBO OBSERVATORY



August 3, 2009

Mr. James S. Blitz  
Vice President, Regulatory Counsel  
1500 Eckington Place N.E.  
Washington DC 20002

Re: Sirius XM Radio Inc.  
For Special Temporary Authority to operate 20 terrestrial transmitters

Dear: James S. Blitz:

Thank you very much for the notification on minor equipment changes of your FCC application sent to us in accordance with the Puerto Rico Coordination zone agreements. We have considered the technical aspects of your application and find that your installation is unlikely to cause harmful interference to the passive use of the Radio Astronomy bands at the Observatory. We therefore have no objection to your proposed installation.

Sincerely yours,

Reinaldo Vélez  
Spectrum Manager

RV:ws

Cc: FCC  
PRCZ files [File #009080026]