



File # SAT-STA-20080430-00095

Call Sign \_\_\_\_\_ Grant Date July 1, 2008  
(or other identifier)

Term Dates see attached Approved by OMB  
To: conditions 3060-0678

From \_\_\_\_\_  
Approved: [Signature]

\*subject to conditions

Andrea I. Kelly, Chief  
Satellite Policy Branch

Date & Time Filed: Apr 30 2008 2:26:09:136PM  
File Number: SAT-STA-20080430-00095  
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:

Request for Special Temporary Authority to Operate a Very Low Power Terrestrial Repeater in Torrance, California for 180 Days

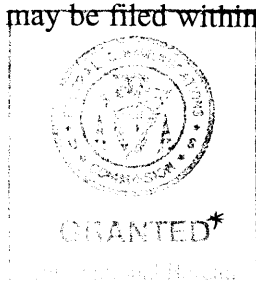
1. Applicant

<b>Name:</b>	XM Radio Inc.	<b>Phone Number:</b>	202-380-4000
<b>DBA Name:</b>		<b>Fax Number:</b>	202-380-4981
<b>Street:</b>	1500 Eckington Place, NE	<b>E-Mail:</b>	james.blitz@xmradio.com
<b>City:</b>	Washington	<b>State:</b>	DC
<b>Country:</b>	USA	<b>Zipcode:</b>	20002 -
<b>Attention:</b>	James S. Blitz		

**Application of XM Radio Inc. for Special Temporary Authority  
IBFS File No. SAT-STA-20080430-00095**

Special temporary authority (STA) is granted to XM Radio Inc. (XM) to operate a terrestrial repeater with an Effective Isotropically Radiated Power (EIRP) of up to 2000 watts (average) in Torrance, CA, for a period of 180 days. This authorization is granted according to the technical parameters specified in XM's application and is subject to the following conditions:

1. Any actions taken as a result of this STA are solely at the applicant's own risk. This STA shall not prejudice the outcome of the final rules adopted by the Commission in IB Docket No. 95-91. The issue concerning EIRP raised by the WCS Coalition will be addressed in that proceeding. Operations prior to such action will be subject to condition 2 below;
2. Operation of the terrestrial repeater authorized pursuant to this STA is on a non-interference basis with respect to all permanently authorized radiocommunication facilities. XM shall provide the information and follow the process set forth in paragraphs 14 and 17 in 16 FCC Rcd 16773 (Int'l Bur. 2001) and 16 FCC Rcd 16781 (Int'l Bur. 2001), as modified by 16 FCC Rcd 18481 (Int'l Bur. 2001) and 16 FCC Rcd 18484 (Int'l Bur. 2001);
3. The terrestrial repeater is restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS subscriber's receivers.
4. Coordination of the operations of the terrestrial repeater shall be completed with all affected Administrations prior to operation, in accordance with all applicable international agreements including those with Canada and Mexico.
5. The terrestrial repeater shall comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures.
6. The terrestrial repeater shall comply with Part 1 of the Commission's rules, Subpart I – Procedures Implementing the National Environmental Policy Act of 1969, including the guidelines for human exposure to radio frequency electromagnetic fields as defined in Sections 1.1307(b) and 1.1310 of the Commission's rules.
7. The terrestrial repeater's out-of-band emissions shall be limited to 75+log(EIRP) dB less than the transmitter EIRP;
8. This STA expires after 180 days, or on the date on which permanent rules governing repeater operations become effective, whichever occurs first;
9. XM is granted 30 days from the date of the release of this authorization to decline the authorization as conditioned. Failure to respond within that period will constitute formal acceptance of the authorization as conditioned;
10. This action is taken on delegated authority pursuant to 47 C.F.R. § 0.261 and is effective upon release. Petitions for reconsideration under 47 C.F.R. § 1.106 or applications for review under 47 C.F.R. § 1.115 may be filed within 30 days of the date of the Public Notice announcing this action.



\* subject to conditions

SAT-STA-20080430-00095  
Call Sign \_\_\_\_\_ Grant Date July 1, 2008  
(or other identifier) Term Dates  
From \_\_\_\_\_ To see above  
Approved: Andrea I. Kelly  
Andrea I. Kelly, Chief  
Satellite Policy Branch

2. Contact	
<b>Name:</b> James S. Blitz	<b>Phone Number:</b> 202-380-4000
<b>Company:</b> XM Satellite Radio Inc.	<b>Fax Number:</b> 202-380-4981
<b>Street:</b> 1500 Eckington Place NE	<b>E-Mail:</b> james.blitz@xmradio.com
<b>City:</b> Washington	<b>State:</b> DC
<b>Country:</b> USA	<b>Zipcode:</b> 20002 -
<b>Attention:</b>	<b>Relationship:</b> Same
(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?	
<input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114). <input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee <input type="radio"/> Other (please explain):	
4b. Fee Classification    CRY - Space Station (Geostationary)	
5. Type Request	
<input type="radio"/> Change Station Location <input type="radio"/> Extend Expiration Date <input checked="" type="radio"/> Other	
6. Temporary Orbit Location	7. Requested Extended Expiration Date

<p>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.)</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>XM Radio Inc. (XM) requests Special Temporary Authority (STA) to operate one very low power terrestrial repeater (less than 2kW EIRP) in Torrance, California for 180 days pursuant to the technical parameters listed in Exhibit A.</p> </div>					
<p>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. <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span></p>					
<p>10. Name of Person Signing James S. Blitz</p>	<p>11. Title of Person Signing Vice President, Regulatory Counsel</p>				
<p>12. Please supply any need attachments.</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">Attachment 1: STA Request</td> <td style="width: 33%;">Attachment 2:</td> <td style="width: 33%;">Attachment 3:</td> </tr> </table>			Attachment 1: STA Request	Attachment 2:	Attachment 3:
Attachment 1: STA Request	Attachment 2:	Attachment 3:			
<p><b>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).</b></p>					

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**THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.**



## **XM SATELLITE RADIO**

James S. Blitz  
Vice President, Regulatory Counsel  
XM SATELLITE RADIO  
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Washington, DC 20002  
[jim.blitz@xmradio.com](mailto:jim.blitz@xmradio.com)  
P: 202-380-1383  
F: 202-380-4981

April 30, 2008

### **Via IBFS**

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

**Re: XM Radio Inc.  
Request for Special Temporary Authority to Operate  
A New Low Power Repeater in Torrance, California for 180 Days**

Dear Ms. Dortch:

Pursuant to Section 25.120(b)(2) of the Commission's rules, 47 C.F.R. § 25.120(b)(2), XM Radio Inc. ("XM"), a Satellite Digital Audio Radio Service ("SDARS") licensee, hereby requests 180-Day Special Temporary Authority ("STA") to operate in its licensed frequency band (2332.5-2345 MHz) a new low power repeater with an average Effective Isotropically Radiated Power ("EIRP") of 2000 watts in Torrance, California.

XM seeks authority to operate this new low power repeater at the North American Operations Headquarters facility for Toyota Motor Sales, in Torrance, California. This facility extends eleven city blocks and houses Toyota employees who are involved in product development, product planning, marketing, and related activities. Toyota, along with other leading automobile manufacturers including General Motors and Honda, offers XM radios as a factory-installed option in many of its automobiles. XM and Toyota have determined there is a need for improved reception of XM throughout the Torrance facility for purposes such as monitoring the XM signal, developing dealer kits, and assisting in planning of integrating XM services in the next generation Toyota vehicles. XM proposes to serve this need through a single new low power repeater, which will also provide coverage to the surrounding area of Torrance.

The Commission has recognized that SDARS operators require terrestrial repeaters to provide high-quality service nationwide.<sup>1</sup> Consistent with this policy, in September 2001, the Bureau

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<sup>1</sup> See *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, Report and Order, Memorandum Opinion and Order, and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 5754, 5770 ¶ 37 (1997).

granted XM an STA to operate a nationwide network of terrestrial repeaters.<sup>2</sup> In the years since, the Bureau has granted XM additional STAs to operate its terrestrial repeaters, pending issuance of final rules governing the deployment and use of repeaters.<sup>3</sup>

*Public Interest Considerations.* Grant of the STA will serve the public interest by providing quality service to Toyota employees at the facility and improved reception to the surrounding areas. Due to the Torrance facility's size and physical limitations, it would be impractical for XM to provide adequate service to these employees within the facility using other existing STA authorizations that XM holds or through hard-wire connections, without causing significant physical disruption to the multiple buildings on the campus. Accordingly, without this repeater, XM cannot provide the signal quality Toyota employees in this location require.

*Technical Information for the New Low Power Repeater.* The following technical information pertaining to the repeater is provided in Exhibit A: (1) antenna type; (2) antenna orientation; (3) average EIRP; (4) height above ground level ("AGL"); and (5) antenna downtilt. The specification sheet for the antenna is attached as Exhibit B.

*Interference Considerations.* The new low power repeater will operate at 2,000 watts average EIRP. Because XM has exclusive use of its licensed band, it is highly unlikely that the new low power repeater will create interference to other licensees. To the extent XM's original 2001 STA requires it to coordinate with affected Wireless Communications Services ("WCS") licensees prior to operating any repeater,<sup>4</sup> XM is not aware of any operational WCS facilities in the Los Angeles area.<sup>5</sup> Moreover, as the Bureau acknowledged in granting XM's original repeater STA

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<sup>2</sup> See *XM Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complimentary Terrestrial Repeaters, Order and Authorization*, 16 FCC Rcd. 16781 ¶ 18 (2001) ("*XM STA Order*").

<sup>3</sup> See, e.g., *XM Radio, Inc.; Request for Special Temporary Authority to Operate Additional Satellite Digital Audio Radio Service Terrestrial Repeaters, Order and Authorization*, 19 FCC Rcd. 18140 (2004) (granting XM an STA in File No. SAT-STA-20031112-00371, effective Sept. 15, 2004); *Public Notice*, 2002 FCC Lexis 5670 (rel. Oct. 30, 2002) (granting XM an STA in File No. SAT-STA-20020815-00153, effective Sept. 30, 2002); *Public Notice*, 2003 FCC Lexis 4803 (rel. Aug. 29, 2002) (granting XM an STA in File No. SAT-STA-20030409-00076, effective June 26, 2003). XM has filed applications to renew its STAs, and those renewal applications are pending before the Commission.

<sup>4</sup> See *XM STA Order* ¶ 14.

<sup>5</sup> In the *XM STA Order* (at ¶ 14), the Bureau said it expects "WCS licensees to provide a schedule or as much advance notice as possible of when their stations are to be placed in operation." XM has not received information from any WCS licensee regarding plans for

request, the WCS licensees have confirmed that operation of terrestrial repeaters at an EIRP of 2 kW or less is not an interference concern.<sup>6</sup> However, if prohibited interference does occur, XM will cease operation of the new repeater until such interference can be eliminated.<sup>7</sup>

*Ownership and Control of Repeaters.* XM will own the new low power repeater and it will be responsible for its installation and operation.

*Certifications.* XM certifies that it will operate the new low power repeater subject to the conditions and certifications set forth in the *XM STA Order* granting XM's September 2001 request for STA to operate terrestrial repeaters. Specifically, XM certifies the following:

- (1) XM will operate this repeater at its own risk, and such operation shall not prejudice the outcome of the final rules adopted by the Commission in GEN Docket 95-91;
- (2) XM will operate this facility on a non-interference basis with respect to all permanently authorized radiocommunication facilities;
- (3) The facility will be restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS receivers;

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Footnote continued from previous page

WCS deployment in this market. Moreover, XM's own review of "substantial service" filings do not show any operational WCS stations in this market.

<sup>6</sup> *XM STA Order* ¶ 12 ("The comments from WCS licensees express concern about blanketing interference from DARS repeaters that operate with an Equivalent Isotropically Radiated Power (EIRP) above 2 kW."). Moreover, in March 2007, the WCS Coalition said that it will defer from objecting to STA requests that propose operations of no more than 2,000 watts EIRP, even if they do not specify peak or average EIRP, provided that grant of the STA (i) is conditioned on operation on a non-interference basis; and (ii) is subject to the condition that the issue of peak versus average EIRP will be addressed in the pending DARS rulemaking (IB Docket No. 95-91). See Letter from Paul J. Sinderbrand, Counsel to the WCS Coalition, to Ms. Helen Domenici, FCC, File No. SAT-STA-20061207-00145 (March 19, 2007). XM agrees to these conditions.

<sup>7</sup> XM's Repeater Control Center (202-380-4725) is available on a continuous basis to receive any such reports of any suspected interference and take immediate corrective action.



- (4) Where applicable, coordination of the facility will be completed with all affected Administrations prior to operation, in accordance with all applicable international agreements including those with Canada and Mexico;
- (5) The facility will comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures;
- (6) The facility will comply with Part 1 of the Commission's rules, Subpart I - Procedures Implementing the National Environmental Policy Act of 1969, including the guidelines for human exposure to radio frequency electromagnetic fields as defined in Sections 1.1307(b) and 1.1310 of the Commission's rules; and
- (7) The out-of-band emissions of the facility will be limited to  $75 + \log(\text{EIRP})$  dB less than the transmitter EIRP.

XM plans to employ an anti-feedback mechanism to assure it will not become a broadband noise source if the coupling between the receiver and retransmit antennas is not sufficient to avoid oscillation. Upon installing this repeater, the installer will optimize the antenna placement to avoid any feedback that may create oscillation.

Granting this request will not alter XM's obligation to protect authorized radiocommunications facilities from interference, and it will not prejudice the outcome of the Commission's ongoing rulemaking pertaining to the deployment and operation of terrestrial repeaters.

XM hereby certifies that no party to this application is subject to a denial of Federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 853(a).

XM is submitting payment to the Federal Communications Commission in the amount of Seven Hundred Ninety Dollars (\$790.00) -- the filing fee applicable to requests for STAs for geostationary ("GSO") satellites.<sup>8</sup>


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<sup>8</sup> See International and Satellite Services Fee Filing Guide (October 2006).

Ms. Marlene H. Dortch  
April 30, 2008  
Page 5

Please direct any questions regarding this matter to the undersigned.

Very truly yours,



James S. Blitz  
Vice President, Regulatory Counsel

cc: Stephen Duall, FCC  
Shabnam Javid, FCC

Exhibit A

Technical parameters for repeater

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (N)	SITE LONGITUDE (W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Los Angeles	LAX	145A	Tx1	33-51-27	118-18-38	TA-2304-2-DAB-H(60)	195	66' 8"	0	2000
Los Angeles	LAX	145A	Tx2	33-51-27	118-18-38	TA-2304-2-DAB-H(45)	270	66' 8"	3	2000

**Exhibit B**

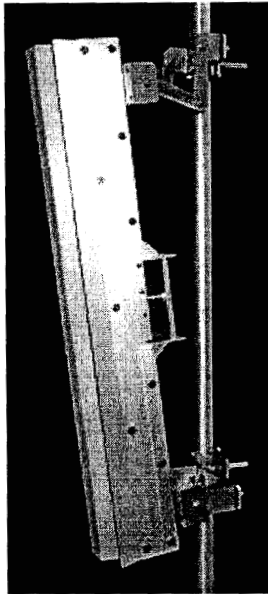
**Antenna Specification Sheet for repeater**



# TA-2304-2-DAB-H

## High Power Adjustable Sector

### 2330-2345 MHz



The TA-2304-2-DAB-H is a high power vertically polarized sectoral antenna specifically designed for Digital Audio Broadcast transmission. The antenna is designed to provide field adjustable azimuth beamwidths of 45, 60, 90, 120, or 160 degrees by use of side panels. The antenna elements are at DC ground to aid in lightning protection.

#### Electrical Specifications

**Frequency Range:** 2330-2345 MHz  
**Gain:** 18 dBi @ 45°, 17 dBi @ 60°, 15 dBi @ 90°  
 14 dBi @ 120°, 13 dBi @ 160°  
**VSWR:** 1.3:1 max.  
**Front to Back Ratio:** 15 dB min.  
**Polarization:** Vertical  
**Power Rating:** 2000 W avg., 8000 W peak  
**H-Plane Beamwidth:** 45°, 60°, 90°, 120°, 160°  
**E-Plane Beamwidth:** 7 degrees  
**Cross Pol. Discrimination:** 20 dB  
**Impedance:** 50 ohms nominal  
**Termination:** 7/8" EIA Flange

#### Mechanical Specifications

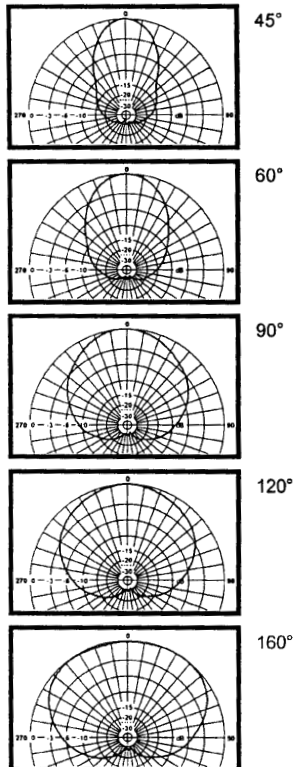
**Length:** 39.4 in. (1001 mm)  
**Width:** 6.5 in. (165 mm) with 45° side panels  
 5.0 in. (127 mm) without 45° side panels  
**Depth:** 9.0 in. (228.6 mm)  
**Weight (incl. Clamps):** 31 lb. (14.1 kg)  
**Rated Wind Velocity:** 125 mph (200 km/h)  
**Hor. Thrust at rated wind:** 86 lb. (39 kg)  
 with 45° side panels: 111 lb. (50.4 kg)  
**Mechanical Tilt:** 0° +/- 11.5°  
**Mounting (O.D.):** 0.75 - 3.0 in. (19 - 76 mm)

#### Materials

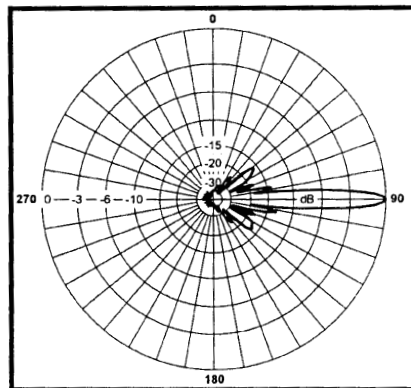
**Radiating Elements:** Tin Plated copper on PCB  
**Reflector:** Irridited aluminum  
**Radome:** Gray UV stabilized ASA  
**Clamps:** Stainless and HDG steel

Typical mid band values. (For details, contact factory)  
 Specifications subject to change without notice

#### H-Plane



#### E-Plane



Rev. 1.1

2002-03-27

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 Kemptonville, ON K0G 1J0  
 Canada



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