

SAT-STA-20090612-00069

IE2009001594

Sirius XM Radio Inc.

Date & Time Filed: Jun 12 2009 11:42:38:433AM
File Number: SAT-STA-20090612-00069
Callsign:

File # SAT-STA-20090612-00069

Call Sign Grant Date 07/09/09

Approved by OMB
3060-0678

From 07/09/09 To: 60 days
Term Dates period of

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



FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY
FOR OFFICIAL USE ONLY

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

Request for Special Temporary Authority to Modify Low Power Terrestrial Repeaters in Cincinnati, Ohio for 60 Days

1. Applicant

Name:	Sirius XM Radio Inc.	Phone Number:	212-584-5100
DBA Name:		Fax Number:	212-584-5353
Street:	1221 Avenue of the Americas 36th Floor	E-Mail:	
City:	New York	State:	NY
Country:	USA	Zipcode:	10020
Attention:	Patrick L. Donnelly		-

Application of Sirius XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT-STA-20090612-00069

Special temporary authority (STA) is granted to Sirius XM Radio Inc. (Sirius XM) to operate, for a period of 60 days, four terrestrial repeaters having an average Effective Isotropically Radiated Power (EIRP) of up to 2000 watts for use on the XM network (2332.5-2345 MHz) and one terrestrial repeater having an average EIRP of up to 2000 watts for use on the Sirius network (2320-2332.5 MHz) in Cincinnati, Ohio, as set forth in Sirius XM's application. This authorization is granted according to the technical parameters specified in Sirius XM's application and is subject to the conditions below.

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 repeaters is authorized pursuant to this STA on a non-interference basis with respect to all permanently authorized radiocommunication facilities. Sirius 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 repeaters are restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS subscribers' receivers.
4. Coordination of the operations of the terrestrial repeaters 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 repeaters shall comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures.
6. The terrestrial repeaters 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. Each terrestrial repeater's out-of-band emissions shall be limited to $75 + 10\log(\text{EIRP})$ dB less than the transmitter EIRP.
8. This grant of authority is without prejudice to any action that the Commission may take regarding the pending Sirius XM application in IBFS File No. SAT-STA-20090701-00071.
9. This STA expires after 60 days, or on the date on which permanent rules governing repeater operations become effective, whichever occurs first.
10. Sirius XM is granted 30 days from the date of the release of this authorization to

**Application of Sirius XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT-STA-20090612-00069**

decline the authorization as conditioned. Failure to respond within that period will constitute formal acceptance of the authorization as conditioned.

11. 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

File # SAT-STA-20090612-00069
Call Sign _____ Grant Date 07/09/09
(or other identifier)
Term Dates period of
From 07/09/09 To: 60 days
Approved: Stephen J. Duall
Stephen J. Duall
Chief, Policy Branch

2. Contact	
Name:	James S. Blitz
Company:	Sirius XM Radio Inc.
Street:	1500 Eckington Place NE
City:	Washington
Country:	USA
Attention:	
Phone Number:	202-380-4000
Fax Number:	202-380-4981
E-Mail:	james.blitz@siriusxm.com
State:	DC
Zipcode:	20002
Relationship:	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 CXW – Space Station (Non-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	

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.)

Sirius XM Radio Inc. requests Special Temporary Authority to modify several low power terrestrial repeaters (less than 2000 watts EIRP) in Cincinnati, Ohio for 60 days pursuant to the technical parameters listed in Exhibit A.

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
Vice President, 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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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.

SIRIUS XM

RADIO INC.

1500 Eckington Place, N.E.
Washington, D.C. 20002
Tel: 202-380-4000
Fax: 202-380-4500
www.sirius.com www.xmradio.com

June 12, 2009

Via IBFS

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

**Re: Sirius XM Radio Inc.
Request for 60-Day Special Temporary Authority to Modify Terrestrial
Repeaters in Cincinnati, Ohio**

Dear Ms. Dortch:

Pursuant to Section 25.120(b)(3) of the Commission's rules, 47 C.F.R. § 25.120(b)(3), Sirius XM Radio Inc. ("Sirius XM"),¹ a satellite radio licensee in the Satellite Digital Audio Radio Service, hereby requests 60-Day Special Temporary Authority ("STA") to operate in its licensed frequency band five low power terrestrial repeaters, each of which has average Effective Isotropically Radiated Power ("EIRP") of up to 2000 watts, in the area of Cincinnati, Ohio. Specifically, this application seeks authority to operate four low power repeaters in the former XM Radio Inc. ("XM") frequency band (2332.5-2345 MHz) and one low power repeater in the former Sirius Satellite Radio Inc. ("Sirius") frequency band (2320-2332.5 MHz).

This application seeks emergency authority to operate the terrestrial repeaters identified herein for 60 days or until such time as the underlying 180 STA request is granted, in order to minimize

¹ Pursuant to the merger to which the Commission consented in *Applications of XM Satellite Radio Holdings Inc. and Sirius Satellite Radio Inc. for Consent to Transfer Control of Licenses*, Memorandum Opinion and Order and Report and Order, 23 FCC Rcd 12348 (2008), Sirius XM is the parent company of XM Radio Inc. Satellite CD Radio Inc., the corporate entity holding Sirius's satellite authorizations, is also a subsidiary of Sirius XM.

disruption of service to subscribers in Cincinnati, Ohio.² On April 26, 2009, Sirius XM became aware of severe damage to the XM network repeater identified as CIN025C, disabling the repeater's operation. Since that time, Sirius XM has been evaluating the damage to the site and conducting testing of alternate sites to determine the best way to reestablish service in the area.

Prior to the loss of service on CIN025C, this repeater had operated as a critical site providing service to over 171,000 people in and traveling through downtown Cincinnati. The impact of losing the CIN025C site has been to deprive a large portion of the downtown Cincinnati area of the ability to receive reliable satellite radio service.

After a full inspection of the site, our engineers determined there had been a catastrophic failure of the EW20 wave-guide cabling running up the 800 ft tower. While the engineers are uncertain what caused this failure, they suspect it was due to a weakening of the cable or a loosening of supports that ultimately gave way following wind damage from severe weather.

Based on multiple factors -- the prohibitive cost to repair the damaged wave guide, the urgent need to modify the repeater in compliance with the *XM Consent Decree*,³ the tower's potentially overstressed status, and the difficulties of negotiating a lease modification with the tower owner -- Sirius XM has now decided to permanently discontinue operations at the CIN025C site. As an alternative, the company believes it can mitigate the service disruption to the impacted subscribers by reconfiguring our existing repeater network in the Cincinnati market to restore service to much of the area originally covered prior to the loss of CIN025C. The instant application would implement that reconfiguration, by modifying three existing XM network repeater sites, adding a new XM site, and modifying a Sirius network repeater to be collocated with the new XM site.

² In the near future, Sirius XM plans to file a request for Special Temporary Authority to operate these same repeaters for 180 days pursuant to 47 C.F.R. § 25.120(b)(2). Due to the urgency of the instant request, Sirius XM proposes to operate all of the repeaters requested herein at no more than 2000 watts ERP. However, the request for 180 day STA may seek higher power for one or more of the repeaters sought herein, due to the need to fully restore repeater coverage for Cincinnati area subscribers.

³ The *XM Consent Decree* had identified the CIN025C repeater as one that was to be turned off or modified by October 4, 2008. See 23 FCC Rcd. 12327, at Attachment C (2008). Sirius XM intended to modify this repeater, but instead had to request STA to allow it to continue operating at existing parameters while the company resolved leasing issues with the landlord and obtained an updated structural analysis. See FCC File No. SAT-STA-20081002-00198 (gtd. Oct. 3, 2008) (authorizing CIN025C's continued operation at variance from its authorized parameters); SAT-STA-20081029-00212 (gtd. Nov. 10, 2008) (extending authority through Dec. 10, 2008), and SAT-STA-20081205-00224 (subsequent extension which remains pending).

The Commission has recognized that SDARS operators require terrestrial repeaters to provide high-quality service nationwide.⁴ Consistent with this policy, in September 2001, the Bureau granted STAs to Sirius XM to operate a nationwide network of terrestrial repeaters.⁵ In the years since, the Bureau has granted Sirius XM additional STAs to operate terrestrial repeaters, pending issuance of final rules governing the deployment and use of repeaters.⁶

Public Interest Considerations. In light of the history described above, grant of the STA will serve the public interest by enabling Sirius XM to resume the provision of service and minimize disruption to residents of the Cincinnati, Ohio area. Damage to the CIN025C site was sudden, unforeseen, unpreventable given standard engineering practices, and served to deprive service to existing customers. The STA grant sought herein will allow Sirius XM to again provide the signal quality that its subscribers expect.

⁴ 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).

⁵ See *Sirius Satellite Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complimentary Terrestrial Repeaters, Order and Authorization*, 16 FCC Rcd. 16773 ¶ 18 (2001) (“*Sirius STA Order*”). *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*”).

⁶ See, e.g., *Sirius Satellite Radio Inc.; Request to Modify Special Temporary Authority to Operate Additional Satellite Digital Audio Radio Service Terrestrial Repeaters, Order and Authorization*, 19 FCC Rcd. 18140 (2004) (granting Sirius an STA in File No. SAT-STA-20031106-00370, effective Sept. 15, 2004). Since that time, the Commission has extended the STA several times, pending the issuance of final rules governing the use of satellite DARS terrestrial repeaters. In September 2004, the Commission granted Sirius a new STA to operate for 180 days or until the Commission issues final rules governing the use of satellite DARS terrestrial repeaters. See *Sirius Satellite Radio Inc. Request to Modify Special Temporary Authority to Operate Satellite DARS Terrestrial Repeaters, Order and Authorization*, 19 FCC Rcd 18149 (2004) (“*2004 STA Grant Order*”). Sirius timely filed an application for renewal of this STA on March 1, 2005. See File No. SAT-STA-20050301-00053. To date, the Commission has not acted on this application. See also., *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 remain pending.

Technical Information for the Low Power Repeaters. The following technical information pertaining to the repeaters is provided in Exhibit A: (1) antenna type; (2) antenna orientation; (3) average EIRP; (4) height above ground level (“AGL”); and (5) antenna downtilt.⁷ Exhibits B and C consist of respectively, Google™ satellite images and topographic maps showing the location of the proposed facilities. The specification sheet for the antennas to be used by the repeaters is attached as Exhibit D.

Interference Considerations. The low power repeaters will each operate at an average EIRP of less than 2000 watts. Because Sirius XM has exclusive use of its licensed band and because the requested STA would represent a decrease in power for several existing repeaters, it is highly unlikely that these changes will create interference to other licensees.⁸ To the extent Sirius XM’s original 2001 STAs require it to coordinate with affected Wireless Communications Services (“WCS”) licensees prior to operating any repeater,⁹ Sirius XM is sending a copy of this STA application to Horizon Wi-Com LLC (“Horizon”) in satisfaction of this coordination requirement.¹⁰ Moreover, as the Bureau acknowledged in granting Sirius XM’s original repeater STA requests, the WCS licensees have confirmed that operating terrestrial repeaters at an EIRP of 2 kW or less is not

⁷ For purposes of this and future Sirius XM and XM Radio repeater STA applications, “antenna downtilt” refers to an antenna’s mechanical downtilt, without reference to any electrical downtilt built into the antenna.

⁸ Ending operations at the CIN025C site means that as part of the changes requested in this STA, Sirius XM has already turned off a repeater authorized for up to 6000 watts. In addition, this application seeks 2000 watt facilities to replace repeaters on the XM network currently authorized for 19300 watts and 7200 watts and on the Sirius network, a repeater with two 2000 watt antennas will replace a repeater with two antennas authorized at 5000 watts. This STA would increase the power of another repeater authorized for the XM network from 1100 watts to 2000 watts, but the net effect of these changes will be to significantly lessen the likelihood of any interference from these Sirius XM facilities to WCS.

⁹ See *Sirius STA Order* at ¶ 14 and *XM STA Order* at ¶ 14.

¹⁰ Despite the Bureau’s statement in the *XM STA Order* (at ¶ 14) and *Sirius STA Order* (at ¶ 14) that 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,” Sirius XM has not received information directly from any WCS licensee regarding plans for WCS deployment in these markets. However, Sirius XM’s own review of Commission files show that Horizon has certified that it operates one WCS station serving the Cincinnati, Ohio area, Call Sign KNLB318. It is not clear from Horizon’s certification whether its base stations are receiving transmissions from CPE or whether they are engaged in transmit-only operations. If only the latter, potential interference to the Horizon base station is not an issue. In any event, XM has conducted an interference analysis and determined that these repeaters will not create interference to Horizon’s operating WCS sites.

an interference concern.¹¹ However, if prohibited interference does occur, Sirius XM will cease operation of the repeater or repeaters until such interference can be eliminated.¹²

Ownership and Control of Repeaters. Sirius XM will continue to own the repeater in question and it will be responsible for its modifications and operation.

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

- (1) Sirius 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) Sirius XM will operate these facilities on a non-interference basis with respect to all permanently authorized radiocommunication facilities;
- (3) The facilities will be restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS receivers;
- (4) Where applicable, coordination of the facilities 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 facilities will comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures;
- (6) The facilities 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

¹¹ *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). Sirius XM agrees to these conditions.

¹² The repeater's design includes several automated shutdown mechanisms that are triggered in the event of equipment major malfunctions. The transmit chain also includes a transmit output coupler which feeds a self-monitoring system detecting any transmission anomalies. Any such anomalies are automatically reported back to Sirius XM's National Repeater Control Center (202-380-4725), which is available on a continuous basis to receive any reports of any suspected interference and take immediate corrective action.

human exposure to radio frequency electromagnetic fields as defined in Sections 1.1307(b) and 1.1310 of the Commission's rules;

(7) The out-of-band emissions of the facility will be limited to 75+10log (EIRP) dB less than the transmitter EIRP;

(8) Sirius XM will operate this repeater according to the technical parameters provided in this application;

(9) Sirius XM will maintain full ownership and operational control of this repeater; and

(10) Sirius XM will immediately shut down this repeater upon a complaint of interference, upon direction from the Commission, or upon finding that a facility has not been properly installed.

Granting this request will not alter Sirius 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.

Sirius 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).

Sirius XM is submitting payment to the Federal Communications Commission in the amount of Two Thousand Eight Hundred Sixty Dollars (\$2860.00) -- the filing fee applicable to requests for STAs for non-geostationary ("NGSO") satellites.¹³

Please direct any questions regarding this matter to the undersigned.

Very truly yours,



James S. Blitz
Vice President, Regulatory Counsel

cc: Stephen Duall, FCC International Bureau
Jay Whaley, FCC International Bureau
Sankar Persaud, FCC International Bureau

Rajendra Singh, Horizon Wi-Com LLC (rsingh@tvllc.com)
Thomas Gutierrez, Lukas, Nace, Gutierrez & Sachs (tgutierrez@fcclaw.com)

¹³ See International and Satellite Services Fee Filing Guide (February 2009).

Exhibit A

Technical parameters for repeaters

CITY	ANTENNA NUMBER	SITE LATITUDE (N)	SITE LONGITUDE (W)	ANTENNA TYPE	ANT ORIENTATION (DEGREES AZIMUTH)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEGREES)	TOTAL AVERAGE EIRP (W)
Cincinnati, Ohio	XM CIN037A	39-12-01	84-31-22	TA-2350-DAB-H	0	767	0	2000
Cincinnati, Ohio	XM CIN029B	39-08-26	84-27-13	TA-2304-2-DAB(90)	120	215	0	2000
Cincinnati, Ohio	XM CIN042E	39-09-21	84-36-45	TA-2335-DAB-H	240	155	0	2000
Cincinnati, Ohio	XM CIN525A*	39-06-24	84-30-51	HMD8V360-R05-H	0	330	0	2000
Cincinnati, Ohio	Sirius 08-02 (Sector 1)*	39-06-24	84-30-51	HMD8V360-R05-H	0	330	0	2000
	Sirius 08-02 (Sector 2)	39-06-24	84-30-51	HMD8V360-R05-H	0	330	0	2000

* The XM and Sirius network repeaters will be collocated at this location, with two repeaters sharing a single antenna.

Exhibit B

Google™ Satellite Image of Repeater Location

XM CIN037A



Google™ Satellite Image of Repeater Location

XM CIN029B



Google™ Satellite Image of Repeater Location

XM CIN042E



Google™ Satellite Image of Repeater Location

**XM CIN525A
SIRIUS 08-02**



Exhibit C

Topographic Map of Repeater Location

XM CIN037A



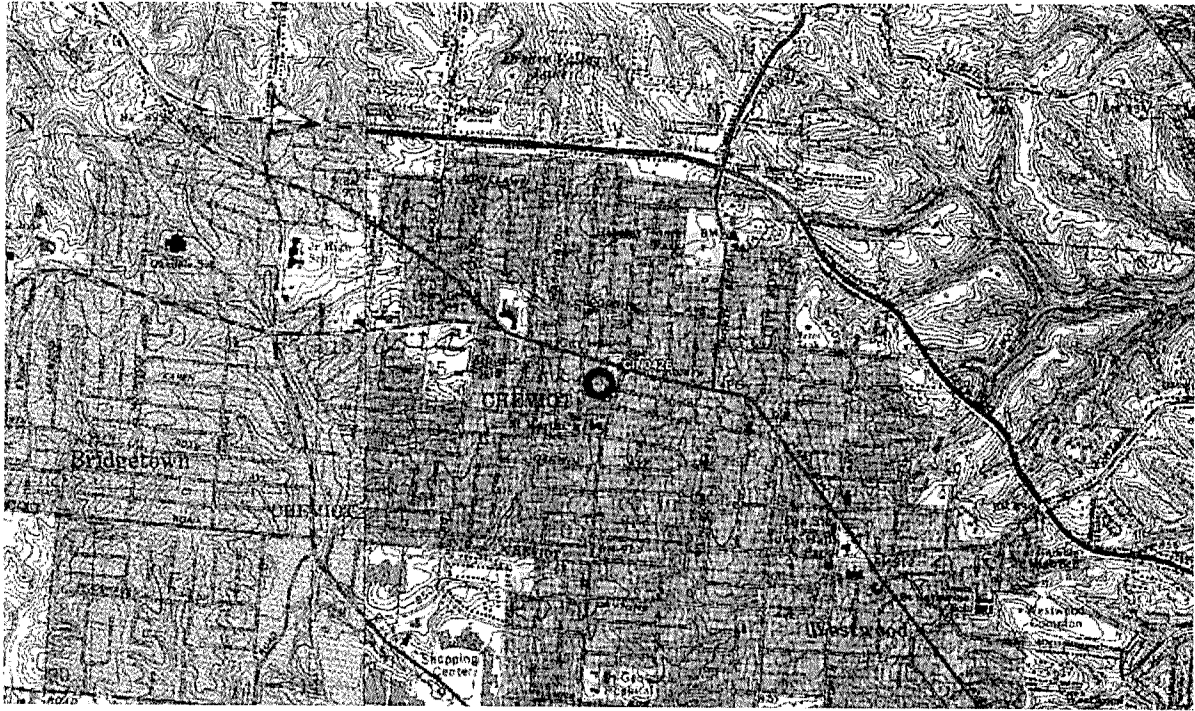
Topographic Map of Repeater Location

XM CIN029B



Topographic Map of Repeater Location

XM CIN042E



Topographic Map of Repeater Location

XM CIN525A
SIRIUS 08-02

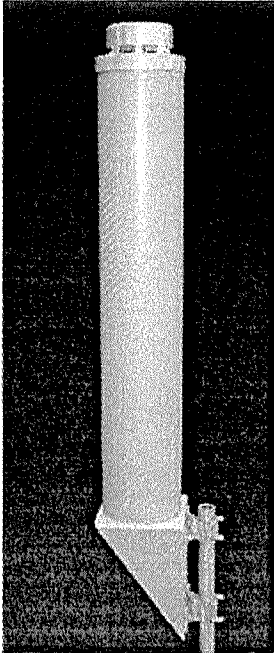


Exhibit D

Antenna Specification Sheet for Repeaters



TA-2350-DAB-H High Power Omnidirectional 2330 - 2345 MHz



The TA-2350-DAB-H is a high power vertically polarized omnidirectional antenna specifically designed for Digital Audio Broadcast transmission. The antenna consists of a phased corporately fed broadband dipole array which is configured to provide electrical beam downtilt and null fill. The antenna elements are at DC ground to aid in lightning protection.

Electrical Specifications

Frequency Range: 2330-2345 MHz
Gain: (dBi) 10
VSWR: 1.3:1 min.
Polarization: Linear Vertical
Power Rating: 2000 Watts avg. 8000 peak
H-Plane Beamwidth: 360 degrees
E-Plane Beamwidth: 8 degrees
Cross Pol. Discrimination: 15 dB
Electrical Downtilt: 2 degrees
Null Fill: -20 dB (1st Null)
Impedance: 50 ohms nominal
Termination: 7/8" EIA Flange

Typical Mid band values. (For details, contact factory)

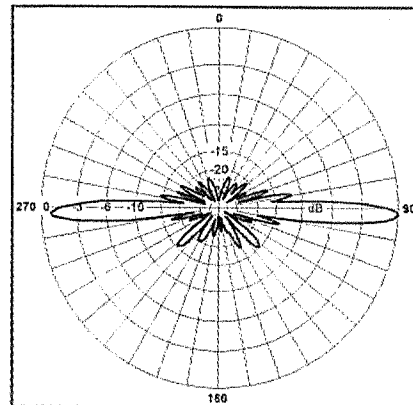
Mechanical Specifications

Length: 64 in. (1625 mm)
Diameter: 8 in. (203 mm)
Weight (Incl. Clamps): 49 lb. (22.3 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 148 lb. (67 kg)
Mounting Pipe: 1.75 - 4.0 in. (44.5 - 102 mm)

Materials

Radiating Elements: Tin-plated copper on PCB
Reflector: Irridited aluminum
Radome: Gray Fiberglass
Clamps: HDG steel

E-Plane





TA-2304-2-DAB

Medium Power Adjustable Sector

2330-2345 MHz



The TA-2304-2-DAB is a medium 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: 17 dBi @ 45°, 16 dBi @ 60°, 14 dBi @ 90°
 13 dBi @ 120°, 11.5 dBi @ 160°
VSWR: 1.3:1 max.
Front to Back Ratio: 15 dB @ 180° +/- 35°
Polarization: Vertical
Power Rating: 200 W avg., 800 W peak
H-Plane Beamwidth: 45°, 60°, 90°, 120°, 160°
E-Plane Beamwidth: 7.5 degrees
Cross Pol. Discrimination: 15 dB
Impedance: 50 ohms nominal
Termination: 7/16 DIN female

Mechanical Specifications

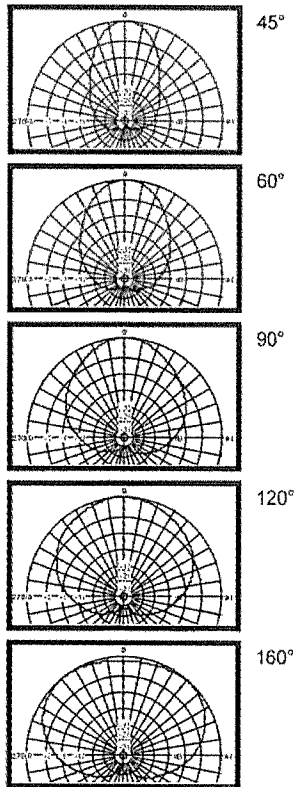
Length: 39.5 in. (1003 mm)
Width: 6.5 in. (165 mm) with 45° side panels
 5.0 in. (127 mm) without 45° side panels
Depth: 3.5 in. (89 mm)
Weight (incl. Clamps): 8 lb. (3.6 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 86 lb. (39 kg)
 with 45° side panels: 113 lb. (51 kg)
Mechanical Tilt: +5° to -15°
Mounting Pipe: 0.75 - 3.0 in. (19 - 76 mm)

Materials

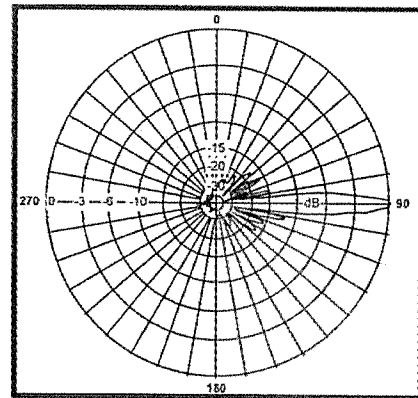
Radiating Elements: Tin Plated copper on PCB
Reflector: Irridited aluminum
Radome: Gray UV stabilized ASA
Clamps: Aluminum and HDG steel

Typical mid band values. (For details, contact factory)

H-Plane



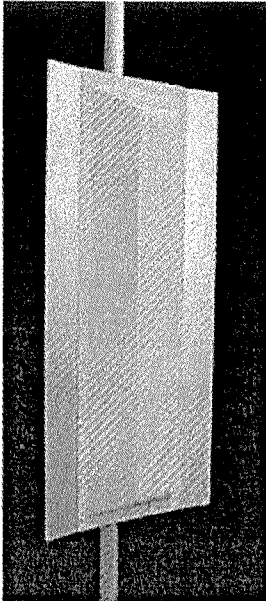
E-Plane





TIL-TEK

TA-2335-DAB-H High Power Sector 2330-2345 MHz



The TA-2335-DAB-H is a high power vertically polarized sectoral antenna specifically designed for Digital Audio Broadcast transmission. The antenna is also designed to provide a shaped azimuth beamwidth of 95 degrees by use of shaped reflector phasing enabling multi-sector applications. The antenna elements are at DC ground to aid in lightning protection.

Electrical Specifications

Frequency Range: 2330-2345 MHz
Gain: 15 dBi
VSWR: 1.4:1 min.
Front to Back Ratio: 20 dB
Polarization: Vertical
Power Rating: 1000 W avg, 4000 W peak
H-Plane Beamwidth: 95° @ -3dB, 120° @ -10dB
E-Plane Beamwidth: 7 degrees
Cross Pol. Discrimination: 20 dB
Impedance: 50 ohms nominal
Termination: 7/16 DIN female

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

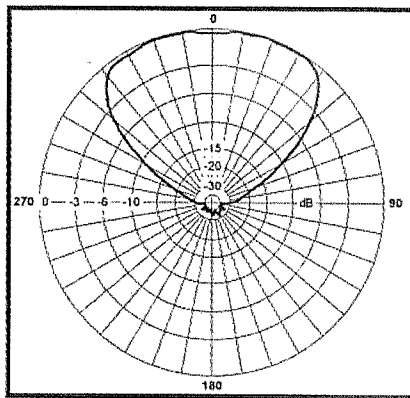
Mechanical Specifications

Length: 38 in. (965 mm)
Width: 21 in. (533 mm)
Depth: 8 in. (203 mm)
Weight (incl. Clamps): 33 lb. (15 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 344 lb. (156 kg)
Mechanical Tilt: +5° to -15°
Mounting (O.D.): 0.75 - 3.0 in. (19 - 76 mm)

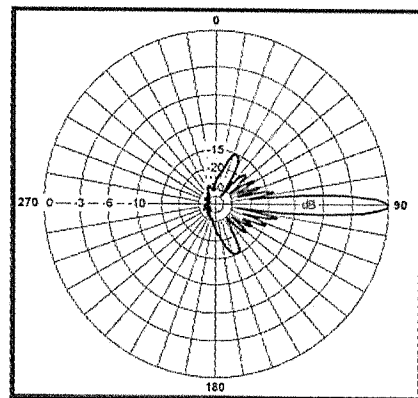
Materials

Radiating Elements: Gold-plated copper on PCB
Reflector: Iridited aluminum
Radome: Gray UV stabilized ASA
Clamps: HDG steel

H-Plane



E-Plane



Antenna Type: HMD8V360-R05-H



Description: HMD Antenna, R Band Narrow, 8 Bay, Vertical Polarization, Omnidirectional Pattern, High Power, 0.5 Degrees Beamtilt

Electrical Specifications

Frequency Designation	R Band Narrow
Frequency Band, MHz	2320 - 2345
Number of Bays	8
Gain, dBi	11.0
Azimuth Pattern Type	Omnidirectional
Elevation Beamwidth, degrees	7
Polarization Type	Single, Vertical
Beamtilt, degrees	0.5
Impedance, nominal ohms	50
Return Loss, dB (VSWR)	> 14 (< 1.5)
Maximum Input Power, Watts	750
Lightning Protection	Top Mounted Finial Included
Connector	7/8 " EIA
Connector Position	Bottom

Mechanical Specifications

Dimensions H x Radome Diameter, mm (in)	1118 (44.0) x 127 (5.0)
Weight, kg (lb)	25.0 (55.0)
Radome Material	Fiberglass, Pressurizable
Radome Color	White
Pressurization, kPa (lb / sq in)	70 (10)

Environmental Specifications

Survival Wind Speed, km/h (mph)	180 (112)
Wind Shear, N (lbf)	614 (138)
Overturning Moment, N.m (ft-lb)	495 (367)
Temperature Range	- 40° C to + 50° C
Humidity	Up to 100%

Mounting Information

Mount Type *	A Type Special With Adjustment
Mount Description	Side Mounted at Top of Tower
Mounting Pipe Diameter, mm (in)	76 (3.0)

* See Catalog 38, pp 305 to 310 for further information

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Specifications nominal and subject to change without notice