

Title # SAT- STA- 20090324- 00036



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File Number: SAT-STA-20090324-00036
Callsign:

* subject to conditions

Call Sign _____ Grant Date 05/13/09
(or other identifier)

From 05/13/09 To: conditions
Term Dates

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

Approved by OMB
3060-0678

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 Operate Two New Low Power Terrestrial Repeaters for 180 Days in Harrisburg, Pennsylvania

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

**Application of Sirius XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT-STA-20090324-00036**

Special temporary authority (STA) is granted to Sirius XM Radio Inc. (Sirius XM) to operate two terrestrial repeaters in Harrisburg, Pennsylvania, for a period of 180-days: one terrestrial repeater having an average Effective Isotropically Radiated Power ("EIRP") of up to 1000 watts for use on the Sirius network (2320-2332.5 MHz); and one terrestrial repeater having an average EIRP of up to 2000 watts for use on the XM network (2332.5-2345 MHz). 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+ 10log(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. Sirius 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

File # SAT-STA-20090324-00036

Call Sign _____ Grant Date 05/13/09

(or other identifier) Term Dates See conditions

From 05/13/09 To: _____

Approved: Stephen J. Duall

Stephen J. Duall
Chief Policy Branch

2. Contact

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

- 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.)

Sirius XM Radio Inc. requests Special Temporary Authority to operate two new low power terrestrial repeaters (less than 2000 watts EIRP) for 180 days in Harrisburg, Pennsylvania 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
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12. Please supply any need attachments.

Attachment 1: STA Request	Attachment 2:	Attachment 3:
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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

March 24, 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 180-Day Special Temporary Authority to Operate
Two New Low Power Repeaters in Harrisburg, Pennsylvania**

Dear Ms. Dortch:

Pursuant to Section 25.120(b)(2) of the Commission's rules, 47 C.F.R. § 25.120(b)(2), Sirius XM Radio Inc. ("Sirius XM"),¹ a satellite radio licensee in the Satellite Digital Audio Radio Service, hereby requests 180-Day Special Temporary Authority ("STA") to operate in its licensed frequency band one low power terrestrial repeater having average Effective Isotropically Radiated Power ("EIRP") of up to 1000 watts for use on the Sirius network (2320-2332.5 MHz) and one low power terrestrial repeater having average EIRP of up to 2000 watts for use on the XM network (2332.5-2345 MHz). The two low power repeaters would be co-located at 301 Chestnut Street in Harrisburg, Pennsylvania.²

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.

² The repeater that will be used on the Sirius network replaces a repeater that Sirius discontinued operating on October 13, 2006. See File No. SAT-STA-20061013-00121 and SAT-STA-20061013-0012.

The Commission has recognized that SDARS operators require terrestrial repeaters to provide high-quality service nationwide.³ Consistent with this policy, in September 2001, the Bureau granted STAs to Sirius XM to operate a nationwide network of terrestrial repeaters.⁴ 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.⁵

Public Interest Considerations. Grant of the STA will serve the public interest by enabling Sirius XM to provide quality service to subscribers in the Harrisburg, Pennsylvania area. Without these low power terrestrial repeaters, Sirius XM cannot provide the signal quality that its subscribers expect.

³ 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).

⁴ 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*”).

⁵ 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 before the Commission.

Technical Information for the New Low Power Repeaters. The following technical information pertaining to the repeaters, one of which will operate on the XM network (with one sector) and the other on the Sirius network (with two sectors), is provided in Exhibit A: (1) antenna type; (2) antenna orientation; (3) average EIRP; (4) height above ground level (“AGL”); and (5) antenna mechanical downtilt. Exhibits B and C consist respectively, of a Google™ satellite image and a topographic map showing the location of the proposed facilities. The specification sheet for the antenna to be used by both repeaters is attached as Exhibit D.

Interference Considerations. The new low power repeater on the Sirius network will operate at up to 1000 watts average EIRP and the new low power repeater on the XM network will operate at up to 2000 watts average EIRP. Because Sirius XM has exclusive use of its licensed band, it is highly unlikely that these new low power repeaters will create interference to other licensees. Moreover, as the Bureau acknowledged in granting Sirius XM’s original repeater STA requests, the WCS licensees have confirmed that operation of terrestrial repeaters at an EIRP of 2 kW or less is not an interference concern.⁶ However, if prohibited interference does occur, Sirius XM will cease operation of the new repeaters until such interference can be eliminated.⁷

Ownership and Control of Repeaters. Sirius XM will own the new low power repeaters and it will be responsible for their installation and operation.

Certifications. Sirius XM certifies that it will operate the new low power repeaters 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:

⁶ *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.

⁷ Both repeaters’ 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.

- (1) Sirius XM will operate these repeaters 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 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 $75+10\log$ (EIRP) dB less than the transmitter EIRP;
- (8) Sirius XM will operate these repeaters according to the technical parameters provided in this application;
- (9) Sirius XM will maintain full ownership and operational control of these repeaters; and
- (10) Sirius XM will immediately shut down these repeaters 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).

Ms. Marlene H. Dortch
March 24, 2009
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Sirius XM is submitting payment to the Federal Communications Commission in the amount of Two Thousand Seven Hundred Twenty-Five Dollars (\$2725.00) -- the filing fee applicable to requests for STAs for non-geostationary ("NGSO") satellites.⁸

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

⁸ See International and Satellite Services Fee Filing Guide (October 2006).

Exhibit A

Technical parameters for repeaters

CITY	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)
Harrisburg, Pennsylvania	Sirius 61-05 (Sector 1)	40-15-36	76-52-42	HMD8V360-R05-H	0	307	0.5	1000
	Sirius 61-05 (Sector 2)	40-15-36	76-52-42	HMD8V360-R05-H	0	307	0.5	1000
Harrisburg, Pennsylvania	XM HAB006E	40-15-36	76-52-42	TA2350-DAB-T6	0	308	6	2000

Exhibit B

Google™ Satellite Image of Repeater Location



Exhibit C

Topographic Map of Repeater Location

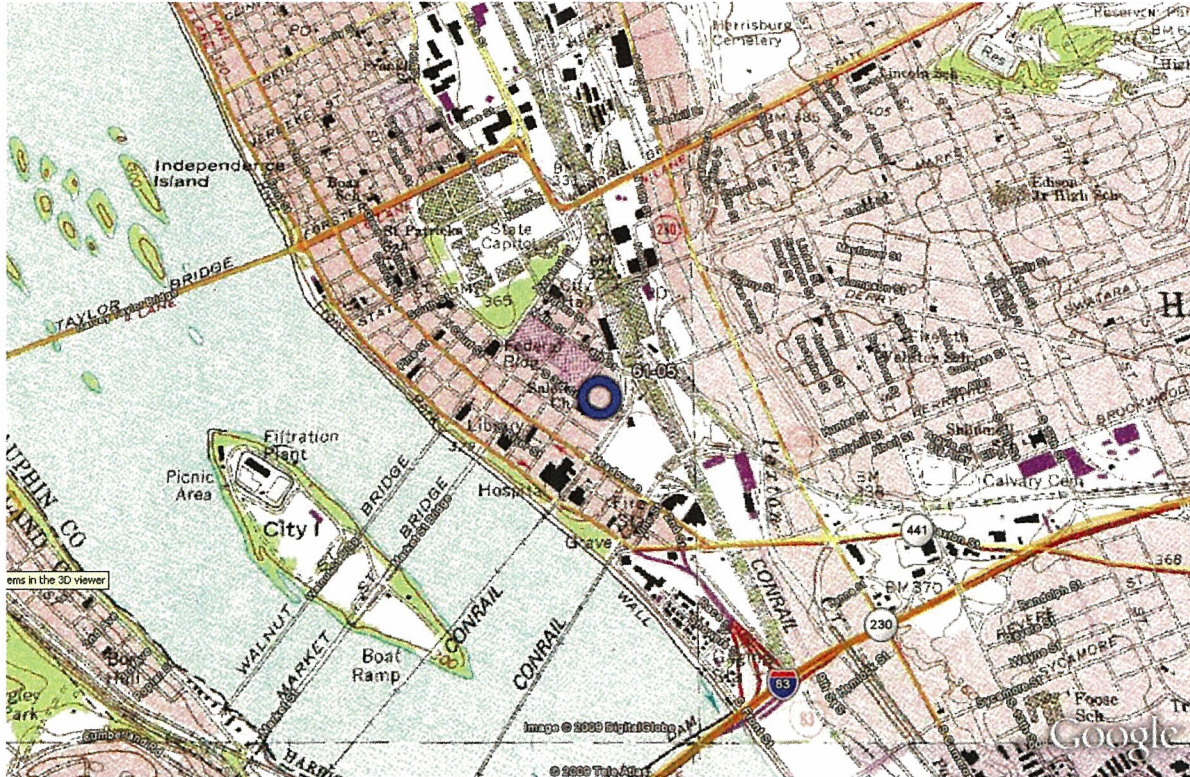


Exhibit D

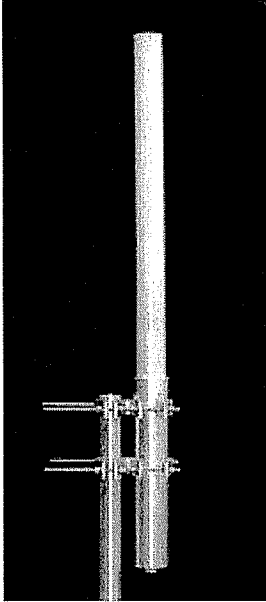
Antenna Specification Sheet for Repeaters



TA-2350-DAB

Medium Power Omnidirectional

2330-2345 MHz



The TA-2350-DAB is a medium 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:** 10 dBi
- VSWR:** 1.4:1 max.
- Polarization:** Vertical
- Power Rating:** 200 W avg., 800 W peak
- H-Plane Beamwidth:** 360 degrees
- E-Plane Beamwidth:** 8 degrees
- Electrical_Downtilt:** 2, 4, 6 degrees
- Cross Pol. Discrimination:** 20 dB min.
- Null Fill:** -20 dB (1st Null)
- Impedance:** 50 ohms nominal
- Termination:** 7/16 DIN female

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

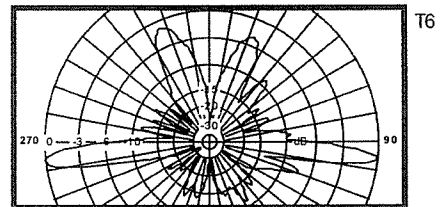
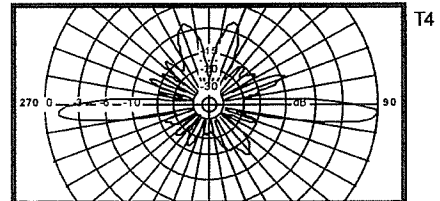
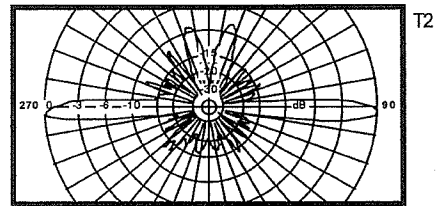
Mechanical Specifications

- Length:** 70 in. (1778 mm)
- Diameter:** 2.25 in. (57 mm)
- Weight (Incl. Clamps):** 15 lb. (6.8 kg)
- Rated Wind Velocity:** 125 mph (200 km/h)
- Hor. Thrust at rated wind:** 31 lb. (14 kg)
- Mounting Pipe:** 1.75 - 4.0 in. (44.5 - 102 mm)

Materials

- Radiating Elements:** Nickel plated copper array
- Radome:** Gray UV stabilized fiberglass
- Clamps:** HDG steel

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	1000 **
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

** Maximum input power derates linearly from 1000 to 750 watts as temperature increases from 25 to 50° C