



File # SAT-STA-20080522-00111

Call Sign _____ Grant Date 07/15/08
(or other identifier)

Term Dates see attached conditions

From: _____ To: _____

Approved by OMB
3060-0678

Date & Time Filed: May 22 2008 2:49:00:256PM
File Number: SAT-STA-20080522-00111
Callsign:

* subject to attached conditions

Approved: Cassandra C Thomas
Deputy Chief, Satellite Division

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 a Low Power Terrestrial Repeater at PGA Tour Events

I. Applicant

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

**Application of XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT-STA-20080522-00111**

XM Radio Inc. (XM Radio) is granted special temporary authority (STA) to operate one terrestrial repeater at a power level of 2 kW EIRP (average) or less for a period of 180 days at weekly Professional Golfers' Association (PGA) Tour events occurring at various locations, as set forth in Exhibit A to its application, subject to the technical parameters specified in its application, the Commission's rules, and the following conditions:

1. Any actions taken as a result of this STA are solely at XM Radio'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 all SDARS repeaters authorized pursuant to this STA is on a non-interference basis with respect to all permanently authorized radiocommunication facilities. XM Radio 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. SDARS repeaters are 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 SDARS repeater operations shall be completed with all affected Administrations prior to operation, in accordance with all applicable international agreements including those with Canada and Mexico;
5. SDARS repeaters shall comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures;
6. SDARS 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. SDARS repeater out-of-band emissions shall be limited to $75 + \log(\text{EIRP})$ 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 Radio 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;

**Application of XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT-STA-20080522-00111**

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.

SAT-STA-20080522-00111

07/15/08

see attached conditions

Cassandra C Thomas
Deputy Chief, Satellite Division

GRANTED*

* subject to attached conditions

2. Contact	
Name: James S. Blitz	Phone Number: 202-380-4000
Company: XM Satellite Radio Inc.	Fax Number: 202-380-4981
Street: 1500 Eckington Place NE	E-Mail: james.blitz@xmradio.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?	
<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

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<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 a low power terrestrial repeater (less than 2kW EIRP) at the PGA Tour events occurring at the locations and during the dates listed in Exhibit A and pursuant to the technical parameters listed in Exhibit B attached hereto.</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.</p> <p style="text-align: right;"> <input checked="" type="radio"/> Yes <input type="radio"/> No </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%; border-collapse: collapse;"> <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>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).</p>					

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XM SATELLITE RADIO

May 22, 2008

Via IBFS

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

James S. Blitz
Vice President, Regulatory Counsel
XM SATELLITE RADIO
1500 Eckington Place, NE
Washington, DC 20002
jim.blitz@xmradio.com
P: 202-380-1383
F: 202-380-4981

**Re: XM Radio Inc.
Request for Special Temporary Authority to Operate
Low Power Terrestrial Repeater at PGA Tour Events**

Dear Ms. Dortch:

XM Radio Inc. ("XM"), one of the two Satellite Digital Audio Radio Service ("SDARS" or "satellite radio") licensees in the United States, pursuant to Section 25.120(b)(2) of the Commission's rules, 47 C.F.R. § 25.120, hereby requests Special Temporary Authority ("STA") to operate one low power terrestrial repeater at the Professional Golfers' Association ("PGA") Tour events occurring at the locations and during the dates listed in Exhibit A and pursuant to the technical parameters listed in Exhibit B hereto.¹ The Commission's International Bureau (the "Bureau") has previously granted XM seven similar STAs for coverage of PGA events, the latest of which it granted on January 24, 2008, and which covers events occurring through July 6, 2008.²

Because this repeater will transmit at a low power level and will be limited to coverage of a golf course for a limited duration, there will be no risk of harmful interference to other communications services. The low power repeater authorized under this STA will operate at 2 kW average EIRP, a power level which adjacent band licensees have stated does not present an interference concern.

¹ To the extent a particular tournament involves play at more than one golf course, XM intends to operate a low power repeater at each course.

² See *XM Radio Inc.*, File No. SAT-STA-20050418-00086 (DA 05-1642) (granted June 9, 2005); File No. SAT-STA-20051108-00213 (granted January 4, 2006); File No. SAT-STA-20051109-00214 (granted January 4, 2006); File No. SAT-STA-20060421-00046 (June 9, 2006), File No. SAT-STA-20061114-00138 (granted February 7, 2007), File No. SAT-STA-20070508-00068 (granted June 28, 2007) and File No. SAT-STA-20071211-00172 (granted January 24, 2008).

Background. The Commission has recognized that terrestrial repeaters are critical to satellite radio to overcome the effects of signal blockage and multipath interference.³ Consistent with this policy, in September 2001 the Bureau granted XM an STA to operate terrestrial repeaters while the Commission concludes its rulemaking proceeding regarding final technical rules.⁴ In granting this STA, the Bureau noted that XM “needs to employ terrestrial repeaters to provide adequate service.” See *XM Radio STA Order* ¶ 7. Soon after grant of this STA, XM began providing commercial service. Since that time, satellite radio in general and XM in particular have proven to be a highly attractive service to American consumers, confirming the Commission’s vision in establishing the satellite radio service. As of now, XM serves over 9.3 million subscribers.

In March 2005, XM announced the addition of a PGA Tour Network channel to its channel line-up, to provide coverage of the weekly PGA Tour event along with daily programs designed for golf enthusiasts. Moreover, at many PGA Tour events, XM offers portable, hand-held satellite radios for sale or rental to spectators. By tuning to the XM PGA Tour Network channel, spectators are able to keep track of the leader board and follow real-time action around the course. The portable radios also inform spectators of impending severe weather.

Request for STA. XM requests an STA to operate one terrestrial repeater at the PGA Tour event at the locations and during the dates listed in Exhibit A. XM requests this STA for a period of 180 days after grant⁵ or until the date on which permanent rules become effective for the operation of terrestrial repeaters, whichever occurs first. Grant of this STA will serve the public interest by ensuring that spectators at these PGA Tour event receive adequate satellite radio service. While many areas on a golf course, such as fairways and greens, provide an unobstructed view of XM’s satellites, there are many other areas on a golf course where the view may be obstructed, particularly by trees and foliage. It is in these obstructed areas where spectators at a golf tournament are located so as to avoid interfering with the golfers. By operating one low power repeater, XM will be able to mitigate the potential blockage of its

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 (1997).

⁴ *XM Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complimentary Terrestrial Repeaters, Order and Authorization*, DA 01-2172, at ¶ 18 (rel. September 17, 2001) (“*XM Radio STA Order*”).

⁵ XM requests authority to operate a low power repeater at those events listed in Exhibit A, all of which would occur within 180 days after grant of this request. XM intends to file a new STA request prior to the expiration of this request for authority to operate this repeater at those PGA Tour events that occur following 180 days after grant of this request.

Ms. Marlene H. Dortch
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satellite signal by trees and foliage, thereby providing spectators with adequate satellite radio service.

Interference Considerations. Operation of one low power repeater at the PGA Tour events listed in Exhibit A will not cause harmful interference to adjacent-band Wireless Communications Service ("WCS") licensees or any other communications service.⁶ First, one of the conditions the Commission imposed in its original STA grant was the requirement that XM pre-coordinate with WCS licensees any repeater affecting an operational WCS base station.⁷ To the extent that STA requires such coordination, XM is sending a copy of this application to counsel for Comcast Corporation ("Comcast"), in satisfaction of this requirement.⁸ Second, the repeater will be deployed in a manner intended to allow for coverage primarily of the golf course used for the event. Even where there are WCS operations in the markets listed in Exhibit A, it is extremely unlikely that WCS equipment would be used on a golf course consistent with the current WCS rules. Third, the potential for interference is further minimized by the fact that the average EIRP of the repeater will not exceed 2 kW EIRP. The adjacent-band WCS licensees are permitted to operate base stations at a power level of 2 kW EIRP and therefore must be able to withstand potential interference from such operations. Moreover, as the Bureau acknowledged in granting XM's original repeater STA request, the WCS licensees have confirmed that operation of

⁶ XM previously notified Sirius Satellite Radio Inc. of a similar request, and it did not object.

⁷ See *XM Radio STA Order* ¶ 14.

⁸ Despite the Bureau's statement in the *XM 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," XM has not received information directly from any WCS licensee regarding plans for WCS deployment in these markets. However, XM's own review of Commission files show that Comcast has certified that it operates two WCS stations in the Detroit market (which includes Bloomfield Township) -- Call Signs WPQL632 and KNLB278, File Nos. 0003107370 and 0003107373 respectively, both filed July 12, 2007. It is unclear from these certifications whether these base stations receive transmissions from CPE or are engaged in transmit-only operations; if only the latter, potential interference to the WCS base stations is not an issue. In any event, XM has conducted an interference analysis and determined that this repeater, when used as specified herein, will not create interference to any of these operating WCS sites.

terrestrial repeaters at an EIRP of 2 kW or less is not an interference concern.⁹ The WCS Coalition reiterated this position in March 2007.¹⁰

Technical Information. Attached as Exhibit B is the following technical information for the low power repeater XM seeks to operate pursuant to this STA: (1) maximum EIRP; (2) maximum antenna height; (3) possible antenna types; (4) range of antenna beamwidth; and (5) range of orientation. XM has also attached as Exhibit C the specification sheets for omni and panel antennas. Because the terrain and foliage of each golf course will vary, XM is unable to specify in advance whether it will use the omni or the panel antenna and how it will orient the antenna at each golf course.¹¹ XM accordingly requests the flexibility to operate one low power repeater at the events listed in Exhibit A within the range of technical parameters listed in Exhibit B.

XM certifies that its operation of the low power repeater will comply with the same conditions the Bureau imposed on XM in granting its current STA to operate a low power repeater at PGA Tour events. *See XM Radio PGA STA Order.* Specifically, XM certifies the following:

⁹ *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”).

¹⁰ The WCS Coalition has expressly said that it will defer from objecting to STA requests that propose operations of no more than 2 kW 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 (filed March 19, 2007). XM agrees to these conditions.

¹¹ For this reason, to the extent necessary, XM requests a waiver of Section 25.120(a) of the Commission’s rules which requires an STA request to include the “full particulars of the proposed operation.” 47 C.F.R. § 25.120(a). The good cause for this waiver is that requiring XM to file for and receive an STA for each individual PGA Tour event will require both the Commission and XM to expend significant resources with no concomitant benefit. This is especially the case because the Bureau has acknowledged that the interference concerns of adjacent-band WCS licensees are limited to repeaters operating with an EIRP greater than 2 kW. *XM STA Order* ¶ 12. Such a waiver is also consistent with precedent. In granting XM’s original repeater STA, the Bureau said that XM was not required to provide the full particulars of operation for the repeaters it proposed to operate with an EIRP of 2 kW or less because these repeaters would not impact adjacent-band WCS licensees. *Id.* ¶ 9.

Ms. Marlene H. Dortch
May 22, 2008
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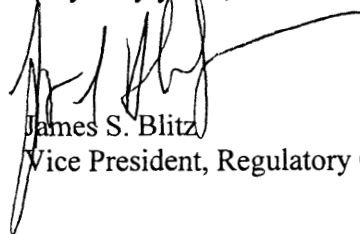
- a) Any actions taken as a result of this STA are solely at XM's own risk. This STA will not prejudice the outcome of the final rules adopted by the Commission in GEN Docket 95-91.
- b) Operation of the low power repeater authorized pursuant to this STA is on a non-interference basis with respect to all permanently authorized radiocommunication facilities. XM will provide the information and follow the process set forth in paragraphs 14 and 17 in 16 FCC Rcd 16781 (Int'l Bur. 2001) as modified by 16 FCC Rcd 18484 (Int'l Bur. 2001).
- c) The low power repeater is restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS receivers.
- d) Where applicable, coordination of the low power repeater shall be completed with all affected Administrations prior to operation, in accordance with all applicable international agreements including those with Canada and Mexico.
- e) The low power repeater will comply with Part 17 of the Commission's Rules regarding antenna structures.
- f) The low power repeater 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.
- g) The out-of-band emissions of the low power repeater will be limited to $75 + \log(\text{EIRP})$ dB less than the transmitter EIRP.

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 will provide payment to the Federal Communications Commission for the sum of Seven Hundred Ninety Dollars (\$790.00). This filing fee amount is applicable to requests for STAs for geostationary ("GSO") satellites. See International and Satellite Services Fee Filing Guide (September 2006).

Please direct any questions regarding this matter to the undersigned.

Very truly yours,



James S. Blitz
Vice President, Regulatory Counsel

Ms. Marlene H. Dortch
May 22, 2008
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cc: Stephen Duall, FCC
Shabnam Javid, FCC
David Don (Comcast Corporation)

Exhibit A

XM requests Special Temporary Authority to operate one low power repeater with an average EIRP of 2 kW at the locations and during the dates listed below.¹

Event	Course	Location	Dates (All are 2008)
WGC Bridgestone Invitational	Firestone Country Club	Akron, OH	July 23 – August 3
PGA Championship	Oakland Hills Country Club	Bloomfield Township, MI	August 4-10
Wyndham Championship	Sedgefield Country Club	Greensboro, NC	August 11-17
The Tour Championship	East Lake Golf Course	Atlanta, GA	September 8-14
Ryder Cup	Valhalla Golf Club	Louisville, KY	September 16-21
Valero Texas Open	LaCantera Golf Course	San Antonio, TX	October 7-12

¹ To the extent a particular tournament involves play at more than one golf course, XM intends to operate the low power repeater at each course.

Exhibit B

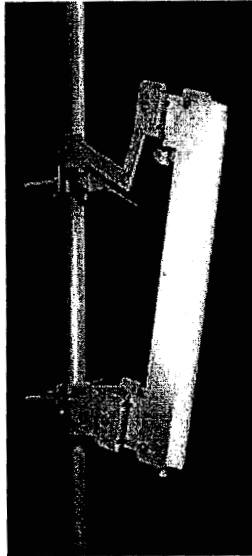
Maximum EIRP:	2 kW average
Maximum antenna height:	25 meters
Possible antenna types:	Omni (TA-2350-DAB) or Panel (TA-2304-DAB)
Range of antenna beamwidth:	360, 160, 120, 90, 60, or 45
Range of orientation:	any point from 0 to 359

Exhibit C

Antenna Specification Sheets



TA-2304-DAB
Medium Power Adjustable Sector
2330-2345 MHz



The TA-2304-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: 15dBi @45°, 14dBi @60°, 12.5dBi @90°
 12dBi @120°, 10.5dBi @160°
VSWR: 1.4:1 max.
Front to Back Ratio: 20 dB @ 180° +/- 35°
Polarization: Vertical
Power Rating: 200 W avg., 800 W peak
H-Plane Beamwidth: 45°, 60°, 90°, 120°, 160°
E-Plane Beamwidth: 15 degrees
Cross Pol. Discrimination: 15 dB
Impedance: 50 ohms nominal
Termination: 7/16 DIN female

Mechanical Specifications

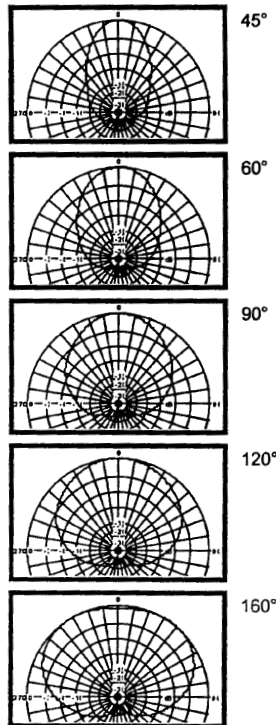
Length: 20.5 in. (521 mm)
Width: 6.5 in. (165 mm) with 45° side panels
 4.9 in. (124 mm) without 45° side panels
Depth: 3.5 in. (89 mm)
Weight (incl. Clamps): 6 lb. (2.7 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 44 lb. (20 kg)
 with 45° side panels: 56 lb. (25 kg)
Mechanical Tilt: +5° to -15°
Mounting Pipe: 0.75 - 3.0 in. (19 - 76 mm)

Materials

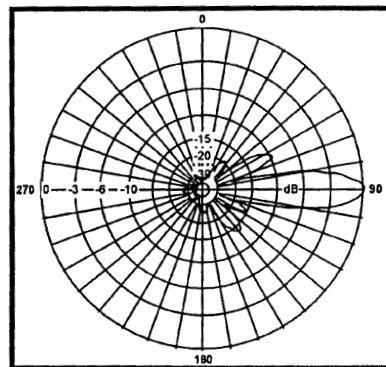
Radiating Elements: Tin plated copper on PCB
Reflector: Iridited aluminum
Radome: Gray UV stabilized ASA
Clamps: Iridited aluminum and HDG steel

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

H-Plane



E-Plane

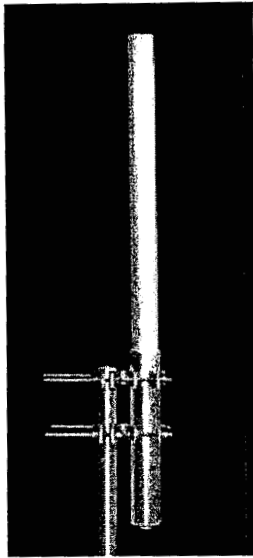




TA-2350-DAB

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

