

File # SRT- STA- 20061211- 00148



GRANTED
International Bureau

Date & Time Filed: Dec 11 2006 2:51:49:483PM
File Number: SAT-STA-20061211-00148
* subject to attached conditions

Call Sign _____ Grant Date 12 / 19 / 06
(or other identifier)

Term Dates
From 12 / 24 / 06 To: 01 / 23 / 07

Approved by OMB
3060-0678

Approved: Fern J. Jarmulnek

Fern J. Jarmulnek
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:
30-Day Trade Show STA Request

I. Applicant

Name:	XM Radio Inc.	Phone Number:	202-380-4000
DBA Name:		Fax Number:	202-380-4500
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-20061211-00148**

Special temporary authority (STA) IS GRANTED to XM Radio Inc. (XM) to operate terrestrial repeaters with an Effective Isotropically Radiated Power (EIRP) of up to 0.5 watts and 0.0001 watts at the events, and with the technical parameters, specified in the above-captioned application and in an amending letter filed December 18, 2006 for a period of 30 days, commencing on December 24, 2006, 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.
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 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. XM will maintain full ownership and operational control of each repeater.
9. XM will immediately shut down any repeater upon a complaint of interference, upon direction from the Commission, or upon finding that a repeater has not been properly installed.
10. This STA commences on December 24, 2006, and will expire 30 days thereafter, or on the date on which permanent rules governing repeater operations become effective, whichever occurs first.

11. 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.
12. This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within 30 days of the date of the public notice indicating that this action was taken.



*subject to conditions
above

File # SAT-STA-20061211-00148

Call Sign _____ Grant Date 12/19/06
(or other identifier)

Term Dates
From 12/24/06 To: 01/23/07

Approved: Fern J. Jarmulnek

Fern J. Jarmulnek
Deputy Chief, Satellite Division

2. Contact	
Name: Bruce D. Jacobs	Phone Number: 202-663-8000
Company: Pillsbury Winthrop Shaw Pittman LLP	Fax Number: 202-663-8007
Street: 2300 N Street NW	E-Mail: bruce.jacobs@pillsburylaw.com
City: Washington	State: DC
Country: USA	Zipcode: 20037 -1128
Attention:	Relationship: Legal Counsel
(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

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.)

XM Radio Inc. (XM) request Special Temporary Authority (STA) to operate very low power terrestrial repeaters (less than 0.5 kW) for thirty days at trade show events listed in Exhibit A and pursuant to the technical parameters listed in Exhibit B attached hereto.

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"; 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.



December 11, 2006

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 30-Day Special Temporary Authority to Operate
Very Low Power Repeaters and Signal Boosters at Trade Shows**

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)(4) of the Commission's rules,¹ hereby requests Special Temporary Authority ("STA") to operate in its licensed frequency band (2332.5-2345 MHz) (i) very low power terrestrial repeaters with an Effective Isotropically Radiated Power ("EIRP") of up to 0.5 watts; and (ii) signal boosters with an EIRP of 0.0001 watts that have previously been approved for use in retail stores.² These very low power repeaters and signal boosters will be used at the trade shows during the dates listed on Exhibit A between December 25, 2006 and January 21, 2007. XM intends to operate the very low power repeaters and signal boosters independently – *i.e.*, XM will not operate them in conjunction with Sirius Satellite Radio Inc. ("Sirius"), the other SDARS licensee.

On November 15, 2006, the International Bureau granted a similar STA request filed by Sirius.³ Moreover, the coalition of Wireless Communications Services ("WCS") licensees has stated that they have no objection to the operation of repeaters and boosters at trade shows

¹ 47 C.F.R. § 25.120(b)(4).

² Because XM is requesting STA for only 30 days, the Commission can grant this application without placing it on Public Notice. 47 C.F.R. § 25.120(b)(4). Concurrent with this STA request, XM is filing an application for a 180-day STA to operate very low power repeaters and signal boosters at trade shows from January 21, 2007 to April 15, 2007.

³ See Sirius Satellite Radio Inc., File No. SAT-STA-20061107-00134 (filed November 7, 2006; granted November 15, 2006).

Ms. Marlene H. Dortch

December 11, 2006

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provided that operations are temporary in nature, operations are at low power levels,⁴ the SDARS licensee commits to operate the repeaters and boosters on a non-interference basis, and the SDARS licensee acknowledges that construction of these facilities is at its own risk.⁵ At discussed herein, XM satisfies all of these conditions.

Request for STA. XM will use the very low power repeaters and boosters for which it seeks authority herein to demonstrate equipment and service at trade shows across the United States. These demonstrations at each event will not exceed a period of sixteen days (including operation prior to the official start of each trade show for set-up and testing activities). Due to blockage from walls and ceilings, it is often difficult to provide quality reception of SDARS satellite and even terrestrial signals inside of trade show venues, which may not have line-of-sight views to receive XM's signal. The difficulties with providing coverage inside trade show venues require radios to be displayed with hard wire connections, which limits the locations within a trade show venue that XM can set up its displays, thereby creating difficulties for trade show organizers as well as for XM. Because trade show venues typically consist of a large, often multi-level space, XM anticipates using one or more (but no more than three) very low power repeaters at each event. Depending on the venue, XM may also use one or two strategically placed boosters. The optimal number of very low power repeaters and boosters will be chosen to ensure full coverage of each trade show. Accordingly, grant of this STA to use these very low power repeaters and boosters for the limited periods requested herein will serve the public interest.

Trade Show Locations. Attached as Exhibit A is a list of the locations and dates of the trade shows at which XM will operate the very low power repeaters and boosters pursuant to this STA.

Technical Information for Trade Show Repeaters. Attached as Exhibit B is the following technical information pertaining to the very low power trade show repeaters: (1) antenna type; (2) antenna beamwidth; (3) total EIRP; (4) approximate maximum height AGL; and (5) antenna specification sheets.

Technical Information for Trade Show Boosters. Attached as Exhibit C are the technical parameters for the signal boosters, which are identical to the parameters previously approved by

⁴ While Sirius has been approved to operate repeaters at trade shows at an EIRP up to 200 watts, XM is seeking authority to operate repeaters at trade shows at a maximum EIRP of only 0.5 watts.

⁵ See Letter from Paul Sinderbrand, Counsel for the WCS Coalition, to John Giusti, Acting Chief, International Bureau, FCC, File No. SAT-STA-20061107-00133 (November 22, 2006), at n.1.

the Bureau for use in retail stores.⁶ Specifically, XM has included the following information for these trade show boosters: (1) antenna type; (2) antenna beamwidth; (3) total EIRP; and (4) approximate maximum height AGL.

Interference Considerations. The very low power repeaters and signal boosters will not cause harmful interference to other radio services. Because XM has exclusive use of its licensed frequency band,⁷ there is no potential for in-band interference. In addition, the very low power repeaters will operate at a maximum of 0.5 watts, well below the threshold EIRP of 2000 watts identified by the WCS licensees as a potential interference concern.⁸ The adjacent-band WCS licensees are permitted to operate base stations at a power level of 2000 watts EIRP and therefore must be able to withstand potential interference from such operations. With respect to the trade show boosters, XM has previously demonstrated that the same boosters will not cause adjacent band interference to WCS operations.⁹ In addition, the very low power repeaters and boosters will be operated for at most sixteen days at any individual event, further eliminating any opportunity for interference. Accordingly, XM does not anticipate that these very low power repeaters and boosters will cause interference to any WCS receivers.

Ownership and Control of Repeaters. XM will own each very low power repeater and booster installed at a given venue and will retain full operational control of these very low power repeaters and boosters. XM will also be responsible for installation of each very low power repeater and booster.

Public Interest Considerations. Prompt grant of this STA will promote the continued success of satellite radio and thereby serve the public interest. The demand for SDARS radios

⁶ XM Radio Inc., Request for Special Temporary Authority, File No. SAT-STA-20030409-00076 (filed April 9, 2003; granted June 23, 2003) (“*XM Booster STA*”). In the 2003 application, XM provided an interference analysis for the signal boosters that are the subject of this application. See *id.*, Exhibit C. XM incorporates this interference analysis by reference. On June 5, 2003, XM further supplemented the application with a sample link budget for the signal boosters. See Letter from Lon C. Levin, XM, to Marlene H. Dortch, Secretary, FCC, File No. SAT-STA-20030409-00076 (filed June 5, 2003). The link budget is also incorporated by reference herein.

⁷ 47 C.F.R. § 25.202(a)(6).

⁸ See *supra* note 3; see also 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 ¶ 12 (rel. September 17, 2001) (“*XM Radio STA Order*”) (“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”).

⁹ *XM Booster STA* at Exhibit C.

by the public has continued to increase over time. Accordingly, XM participates in trade shows and conventions where it provides demonstrations of its equipment. Without very low power repeaters and boosters to overcome signal blockage within the venues, however, XM cannot undertake real-time demonstrations of its equipment, especially demonstrations of the full mobility of SDARS service. These very low power repeaters and boosters will provide clear signal reception within these venues for these demonstrations, and will eliminate any need for a hard wire connection.

XM understands that its operation of these very low power repeaters and boosters under STA is on a secondary, non-interference basis. While XM does not anticipate any interference, should interference occur, it will cease operation of the interfering very low power repeater or booster until such interference can be eliminated.

Certifications. XM acknowledges that the conditions imposed in the *XM Radio STA Order* granting XM's request for STA to operate terrestrial repeaters will continue to apply to any repeaters authorized as a result of this application.¹⁰ XM further certifies that its operation of signal boosters at trade shows will comply, as applicable, with the conditions the Bureau imposed on XM in granting XM's 2003 request to operate 5000 in-store signal boosters. Specifically, XM certifies the following:

- (1) XM will operate the very low power repeaters and trade show signal boosters 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 the very low power repeaters and trade show signal boosters on a non-interference basis with respect to all permanently authorized radiocommunication facilities;
- (3) The very low power repeaters and trade show signal boosters will be restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS receivers;

¹⁰ One of the conditions imposed in the original STA grant was the requirement that XM pre-coordinate with WCS licensees any repeater affecting an operational WCS base station. *See XM Radio STA Order* ¶ 14. XM is not aware of any operational WCS base station in any of the locations listed in Exhibit A. In the *XM Radio STA Order*, the Bureau stated 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." *Id.* ¶ 14. To date, XM has not received information from any WCS licensee regarding their plans for WCS deployment.

- (4) Where applicable, coordination of the very low power repeaters and trade show signal boosters 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 very low power repeaters and trade show signal boosters will comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures;
- (6) The very low power repeaters and trade show signal boosters 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 very low power repeaters and trade show signal boosters will be limited to 75+log (EIRP) dB less than the transmitter EIRP;
- (8) XM will operate the very low power repeaters and trade show signal boosters according to the technical parameters provided in this application;
- (9) XM will maintain full ownership and operational control of each very low power repeater and trade show signal booster; and
- (10) XM will immediately shut down any very low power repeater and any trade show signal booster upon a complaint of interference, upon direction from the Commission, or upon finding that a very low power repeater or trade show signal booster has not been properly installed.


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 electronically payment to the Federal Communications Commission in the amount 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 (October 2006).

Ms. Marlene H. Dortch
December 11, 2006
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Please direct any questions regarding this matter to the undersigned.

Very truly yours,



James S. Blitz
Vice President, Regulatory Counsel

cc: Stephen Duall, FCC

Exhibit A

Dates and Locations of Trade Shows

Event	City	Address	Dates
San Diego Auto Show	San Diego	San Diego Convention Center 111 West Harbor Drive San Diego, CA 92101	12/25/06-12/31/06
Consumer Electronics Show	Las Vegas	Las Vegas Convention Center 3150 Paradise Road Las Vegas, NV 89109	12/27/06-1/11/07
Detroit Auto Show	Detroit	Cobo Exhibition Center One Washington Boulevard Detroit, MI 48226	1/10/07-1/21/07

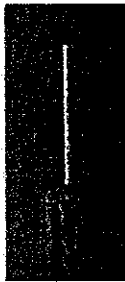
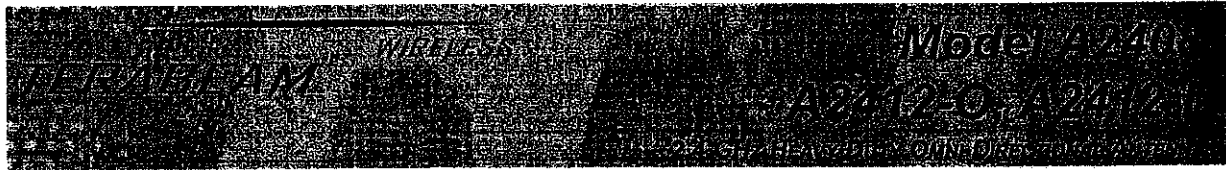
Exhibit B

Technical Parameters for Trade Show Repeaters

Below is the following technical information for the trade show repeaters:

- (1) antenna type;
- (2) antenna beamwidth;
- (3) total EIRP; and
- (4) approximate height Above Ground Level (AGL)
- (5) antenna specification sheets

Antenna Type	Antenna Beamwidth	EIRP Total in Watts	Height AGL
Omni -- YDI Model # A2408	360 degrees	0.05	< 50 feet
Multi-Patch Panel – PCTel Model WISP24018PTNF	18 degrees	0.3	< 50 feet
Omni Antenna and External Amplifier (CPI Model # 01027997-00)	360 degrees	0.5	< 50 feet



Model A2408

- 8 dBi gain
- Wide beamwidth (25°)
- Low profile

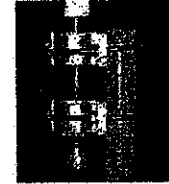


Model A2412-O

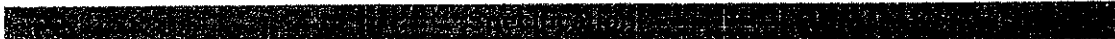
- 12 dBi gain
- No downtilt
- 5° beamwidth

Model A2412-D

- 12 dBi gain
- 3° downtilt
- 5° beamwidth



**Mounting Details
for Model A2412**



Model	A2408 (omni)	A2412-O (omni)	A2412-D (omni)
TBW Part Number	203-900009-001	203-900004-001	203-900003-001
Electrical			
Frequency Range:	2.400 to 2.500 GHz	2.400 to 2.485 GHz	2.400 to 2.485 GHz
Forward Gain:	8 dBi	12 dBi	12 dBi
VSWR:	< 2:1	< 2:1	< 2:1
Polarization:	Vertical	Vertical	Vertical
Beamwidth:	25 degrees	5 degrees	5 degrees with 3 degrees downtilt
Mechanical			
Termination:	N-type Female	N-type Female	N-type Female
Mounting:	U-Bolt bracket mount for 1-2.5 in O.D.	U-Bolt bracket mount for 1-2.5 in O.D.	U-Bolt bracket mount for 1-2.5 in O.D.
Dimensions (Diameter x Length):	1 in / 16 in	1 in / 5 ft, 5 in	1 in / 5 ft, 5 in
Weight:	2 lbs	3 lbs 8 oz	3 lbs 8 oz
Flat Panel Equivalent Area:	0.11 sq ft	0.45 sq ft	0.45 sq ft
Wind Survival:	125 mph	125 mph	125 mph
Radome:	Heavy-duty white UV inhibited fiberglass radome seal with internal copper elements		

Specifications subject to change without notice

Apr 2005-01

8000 Lee Highway, Falls Church VA 22042
 Tel: (703) 205-0600 Fax: (703) 205-0610
 Sales: 1-888-297-9090

990 Almanor Avenue, Sunnyvale, CA 94085
 Tel: (408) 617-8150 Fax: (408) 617-8151
 Sales: 1-800-664-7060

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WISPerformance Series Directional Panel Antennas

MAXRAD

Directional Panels

The WISP directional panel antennas are designed to provide maximum gain at 2.4 GHz frequencies. With a VSWR of less than 1.6:1, all models provide efficient and stable performance across the band. These robust antennas are designed for outdoor applications.

General Specifications:

Directional panel antennas

Radome Material:

UV stable plastic

Polarization:

Linear, Vertical/Horizontal

Nominal Impedance:

50 Ohms

VSWR:

<1.6:1

Maximum Power Input:

20 Watts

Cable:

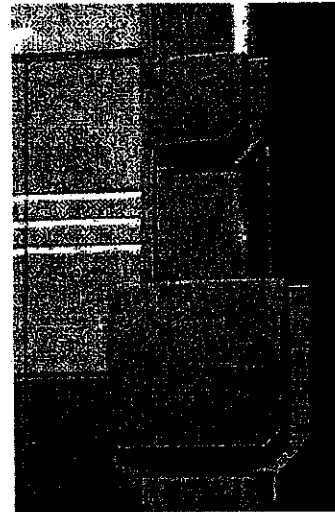
12" RG58/U with attached female N connector

Mounting Method:

Mast mount included

Temperature Range:

-40°C to +70°C



Directional Panels

Features and Benefits:

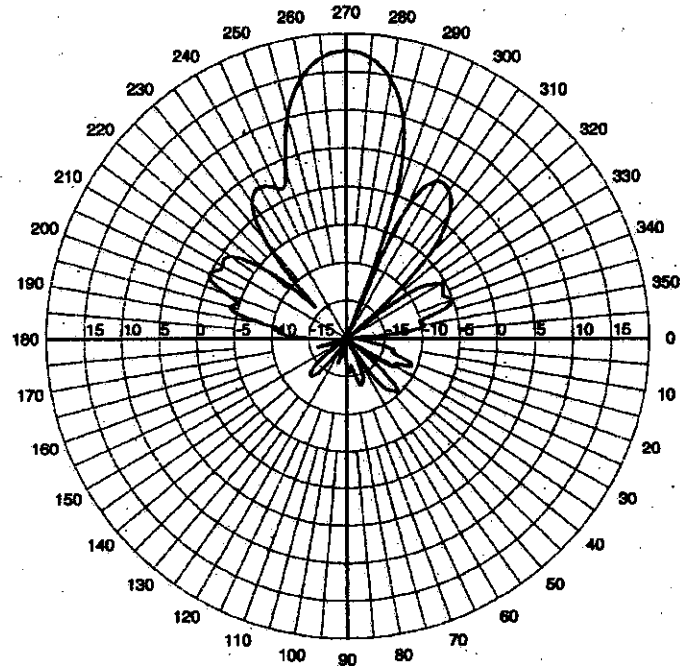
- Patented printed circuit board design. Best performance-to-price ratio.
- Attractive, low profile UV stable housing. Blends well with indoor and outdoor environments where aesthetic considerations are important.
- Corner exit RG-58/U pigtail design. Permits the panel to be mounted in vertical or horizontal polarity.
- Adjustable mounting brackets for outdoor mounting. Provide maximum flexibility for outdoor installations.

Electrical Specifications

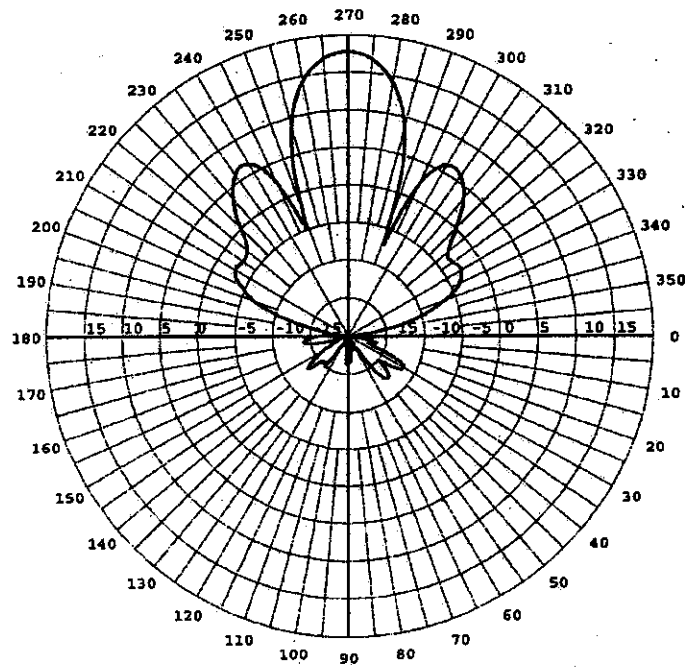
Model #	Frequency Range	Gain	Front-to-Back- Ratio	3 dB Horizontal Beamwidth	3 dB Vertical Beamwidth	VSWR	Maximum Power Input
WISP24009PTNF	2.3-2.5 GHz	9.0 dBi	> 15 dB	60°	60°	< 1.6:1	20 Watts
WISP24013PTNF	2.3-2.5 GHz	13.0 dBi	> 18 dB	35°	35°	< 1.6:1	20 Watts
→ WISP24018PTNF	2.3-2.5 GHz	18.0 dBi	> 25 dB	18°	19°	< 1.6:1	20 Watts

Mechanical Specifications

Model #	Frontal Wind Loading @100 mph	Dimensions	Weight	Included Mount	Cable
WISP24009PTNF	9.3 lbs.	5.1" x 4.7" x 1.5"	0.5 lbs.	Indoor/outdoor articulating mount	12" RG58/U
WISP24013PTNF	27.9 lbs.	8.8" x 8.1" x 1.6"	1.2 lbs.	Heavy duty outdoor adjustable mount	12" RG58/U
→ WISP24018PTNF	85 lbs.	15.1" x 13.9" x 1.9"	3.9 lbs.	Heavy duty outdoor adjustable mount	12" RG58/U



WISP24018PTNF Elevation Cut



WISP24018PTNF Azimuth Cut

Exhibit C

Technical Parameters for Trade Show Boosters

Below is the following information for the trade show signal boosters.

- (1) antenna type;
- (2) antenna beamwidth;
- (3) total EIRP; and
- (4) approximate height Above Ground Level (AGL)

Antenna Type	Antenna Beamwidth	EIRP Total in Watts	Height AGL
Antenna Specialists XMSSR923WR	75 degrees	.0001	< 50 feet

The transmitted carriers have a center frequency and frequency stability identical to the received SDARS satellite or terrestrial carriers. Frequency accuracy is controlled by the satellite or terrestrial repeater and not by the booster.