

SAT-STA-20101026-00225

IB2010003333

Sirius XM Radio Inc.

Date & Time Filed: Oct 26 2010 1:44:57:546PM
File Number: SAT-STA-20101026-00225
Callsign:

File # SAT-STA-20101026-00225

Call Sign Grant Date 12/15/10

(or other identifier) Term Dates see conditions
From 12/15/10 To:

Approved by OMB
3060-0678

Approved: *Stephen J. Duall*

Stephen J. Duall
Chief, Satellite 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 Operate Six New Terrestrial Repeaters at Various Locations for 180 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-20101026-00225

Special temporary authority (STA) is granted to Sirius XM Radio Inc. (Sirius XM) to operate, for a period of 180-days, three Satellite Digital Audio Radio Service (SDARS) terrestrial repeaters having an average Effective Isotropically Radiated Power (EIRP) of up to 12,000 watts for use on the Sirius network (2320-2332.5 MHz) and three SDARS terrestrial repeaters having an average EIRP of up to 12,000 watts for use on the XM network (2332.5-2345 MHz), at various locations throughout the United States, 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.
2. SDARS terrestrial repeaters are restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the SDARS licensee's satellite(s) directly to the SDARS licensee's subscribers' receivers, and may not be used to distribute any information not also transmitted to all subscribers' receivers.
3. 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.
4. The terrestrial repeaters shall comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures.
5. 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.
6. Any SDARS terrestrial repeater operating at a power level greater than 2-watt average EIRP is required to attenuate its out-of-band emissions below the transmitter power P by a factor of not less than $90 + 10 \log (P)$ dB in a 1-megahertz bandwidth outside the 2320-2345 MHz band, where P is average transmitter output power in watts. Any SDARS terrestrial repeater operating at a power level equal to or less than 2-watt average EIRP is required to attenuate its out-of-band emissions below the transmitter power P by a factor of not less than $75 + 10 \log (P)$ dB in a 1-megahertz bandwidth outside the 2320-2345 MHz band, where P is average transmitter output power in watts.
7. This STA expires after 180 days, or on the date that permanent authority to operate the covered repeater operations becomes effective, whichever occurs first.
8. 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.
9. 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.

 GRANTED * International Bureau *with conditions	File # SAT-STA-20101026-00225
	Call Sign _____ Grant Date 12/15/10
	(or other identifier) _____ Term Dates see
	From 12/15/10 To: conditions
Approved: <u>Stephen J. Duall</u> Stephen J. Duall Chief, Satellite 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 checked="" type="radio"/> Change Station Location	<input type="radio"/> Extend Expiration Date <input checked="" type="radio"/> Other
6. Temporary Orbit Location	
7. Requested Extended Expiration Date	

<p>8. Description (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)</p> <div style="border: 1px solid black; padding: 5px;"> <p>Sirius XM Radio Inc. requests Special Temporary Authority to operate six new terrestrial repeaters at various locations for 180 days pursuant to the technical parameters listed in Exhibit A.</p> </div>					
<p>9. By checking Yes, the undersigned certifies that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application"; for these purposes.</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%;"> <tr> <td style="width: 50%;">Attachment 1: STA Request</td> <td style="width: 50%;">Attachment 2:</td> </tr> <tr> <td></td> <td>Attachment 3:</td> </tr> </table>		Attachment 1: STA Request	Attachment 2:		Attachment 3:
Attachment 1: STA Request	Attachment 2:				
	Attachment 3:				
<p style="text-align: center;"> 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>					

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember – You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

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

October 26, 2010

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
For Six New Repeaters at Various Locations**

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"), a satellite radio licensee in the Satellite Digital Audio Radio Service ("SDARS"), hereby requests 180-Day Special Temporary Authority ("STA") to operate six terrestrial repeaters at various locations throughout the United States. Sirius XM seeks authority to operate these repeaters for a period of 180 days or until the Commission issues a blanket license for these repeaters pursuant to 47 C.F.R. § 25.144(e), whichever occurs first.¹ Specifically, this application seeks authority to operate three repeaters in the former Sirius Satellite Radio Inc. ("Sirius") frequency band (2320-2332.5 MHz) and three repeaters in the former XM Radio Inc. ("XM") frequency band (2332.5-2345 MHz). None of the repeaters will exceed 12 kw average

¹ The Commission adopted formal rules for satellite radio terrestrial repeaters in *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band; Establishment of Rules and Polices for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, 25 FCC Rcd 45058 (2010) (the "Order"). The *Order* authorizes the Bureau "to continue to grant STAs for new or modified repeaters ... [until] any permanent authorization to operate SDARS repeaters becomes effective." See Para. 264. However, no such permanent authorization can become effective until after the new rules have been approved by the Office of Management and Budget, which has not yet occurred. See 75 Fed. Reg. 45058, 45058 (Aug. 2, 2010).

EIRP, which is the maximum power level the Commission permits in its new rules for satellite radio terrestrial repeaters.²

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 throughout the United States. Without these low power terrestrial repeaters, Sirius XM cannot provide the signal quality that its subscribers expect.

² 47 C.F.R. § 25.214(d)(1). The Commission concluded in the *Order* “that SDARS terrestrial repeaters can operate at an average EIRP of 12 kw with maximum PAPR of 13 dB without causing harmful interference to WCS base station receivers.” *Id.* at Para. 243.

³ See *Order*; see also *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 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). 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 File No. SAT-STA-20031112-00371, effective Sept. 15, 2004); *Public Notice*, 2002 FCC Lexis 5670 (rel. Oct. 30, 2002) (granting XM an STA, File No. SAT-STA-20020815-00153, effective Sept. 30, 2002); *Public Notice*, 2003 FCC Lexis 4803 (rel. Aug. 29, 2002) (granting File No. SAT-STA-20030409-00076, effective June 26, 2003). The Commission has renewed all of these STA authorizations. See Report No: SAT-00722, DA No. 10-1756 (rel. Sept. 17, 2010).

Technical Information for the New 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.⁶ Exhibits B and C consist respectively, of Google™ satellite images and topographic maps showing the location of the proposed facilities. The specification sheets for the antennas to be used by the repeaters are attached as Exhibit D.

Interference Considerations. As proposed in this STA, the repeaters will operate with an average EIRP of well below 12 kw. Because Sirius XM has exclusive use of its licensed band, it is highly unlikely that these repeaters will create interference to other licensees. The WCS licensees have confirmed that operating terrestrial repeaters at an EIRP of 2 kW or less is not an interference concern⁷ and the Commission found in the *May 20 Order* that “repeaters operating at average 12-kW EIRP and a maximum PAPR of 13 dB will not cause substantially more interference to actual WCS operations than repeaters operating at 2-kw EIRP.”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, Sirius XM is sending a copy of this STA application to Comcast WCS ME19, Inc. (“Comcast”) in satisfaction of this coordination requirement.⁹ However, if

⁶ For purposes of Sirius XM’s repeater STA applications, “antenna downtilt” refers to an antenna’s mechanical downtilt, without reference to any electrical downtilt built into the antenna.

⁷ *XM STA Order* ¶ 12 (“The comments from WCS licensees express concern about blanketing interference from DARS repeaters that operate with an Equivalent Isotropically Radiated Power (EIRP) above 2 kW.”). Moreover, in March 2007, the WCS Coalition said that it will defer from objecting to STA requests that propose operations of no more than 2,000 watts EIRP, even if they do not specify peak or average EIRP, provided that grant of the STA (i) is conditioned on operation on a non-interference basis; and (ii) is subject to the condition that the issue of peak versus average EIRP will be addressed in the pending DARS rulemaking (IB Docket No. 95-91). See Letter from Paul J. Sinderbrand, Counsel to the WCS Coalition, to Ms. Helen Domenici, FCC, File No. SAT-STA-20061207-00145 (March 19, 2007). XM agrees to these conditions.

⁸ See *Order*, Para. 241 and 47 C.F.R. § 25.214(d)(1).

⁹ 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 Comcast has certified that it operates three WCS stations serving the Kokomo, IN area, Call Signs KNLB281, KNLB280, and WPQL633. It is not clear from Comcast’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 Comcast base station is not an issue. In any event, Sirius XM has reviewed the interference environment and determined that these repeaters will not create interference to Comcast’s operating WCS sites.

prohibited interference does occur, Sirius XM will cease operation of the repeaters until such interference can be eliminated.¹⁰

Ownership and Control of Repeaters. Sirius XM will own the repeaters and it will be responsible for the repeaters' installation and operation.

Certifications. Sirius XM certifies that it will operate the 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:

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

¹⁰ The design of these repeaters 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.

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

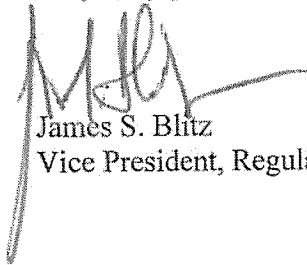
Granting this request will not alter Sirius XM's obligation to protect authorized radio-communications facilities from interference, nor will it prejudice the outcome of the Commission's ongoing rulemaking pertaining to the deployment and operation of terrestrial repeaters.

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.¹¹

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

David Don, Comcast Corp (david_don@comcast.com)

¹¹ See International and Satellite Services Fee Filing Guide (February 2009).

Exhibit A

Technical parameters for repeaters

CITY	NETWORK AND ANTENNA NUMBER	SITE LATITUDE (N)	SITE LONGITUDE (W)	ANTENNA TYPE	ANTENNA ORIENTATION (AZIMUTH)	ANTENNA HEIGHT (FT. AGL)	ANTENNA DOWNTILT (DEGREES)	TOTAL AVERAGE EIRP(W)
Atlanta, GA	XM ATL056A	33-42-09	84-19-47	TA2304-2-DAB (120)	120	240	0	2000
Kokomo, IN	Sirius IND 17-03	40-27-17	86-06-08	TA-2350-DAB	0	95	0	2000
Kokomo, IN	XM IND201A	40-27-17	86-06-08	TA-2350-DAB	0	95	0	2000
Las Vegas, NV	Sirius LVX004B	36-06-58	115-11-12	TA2304-2-DAB (45)	140	438	10	1000
Las Vegas, NV	Sirius 48-01 (Sector 1)	36-08-09	115-09-06	EMS-FR90-17-00NNVL	180	350	2	3200
Las Vegas, NV	Sirius 48-01 (Sector 2)	36-08-09	115-09-06	EMS-FR65-18-00NNVL	240	355	2	4000
Las Vegas, NV	XM LVX010A (Sector 1)	36-08-09	115-09-06	EMS-FR90-17-00NNVL	180	350	2	3200
Las Vegas, NV	XM LVX010A (Sector 2)	36-08-09	115-09-06	EMS-FR65-18-00NNVL	240	355	2	4000

Exhibit B

**Google™ Satellite Image of Repeater Location:
Atlanta, Georgia**



Exhibit B

Google™ Satellite Image of Repeater Location:
Kokomo, Indiana

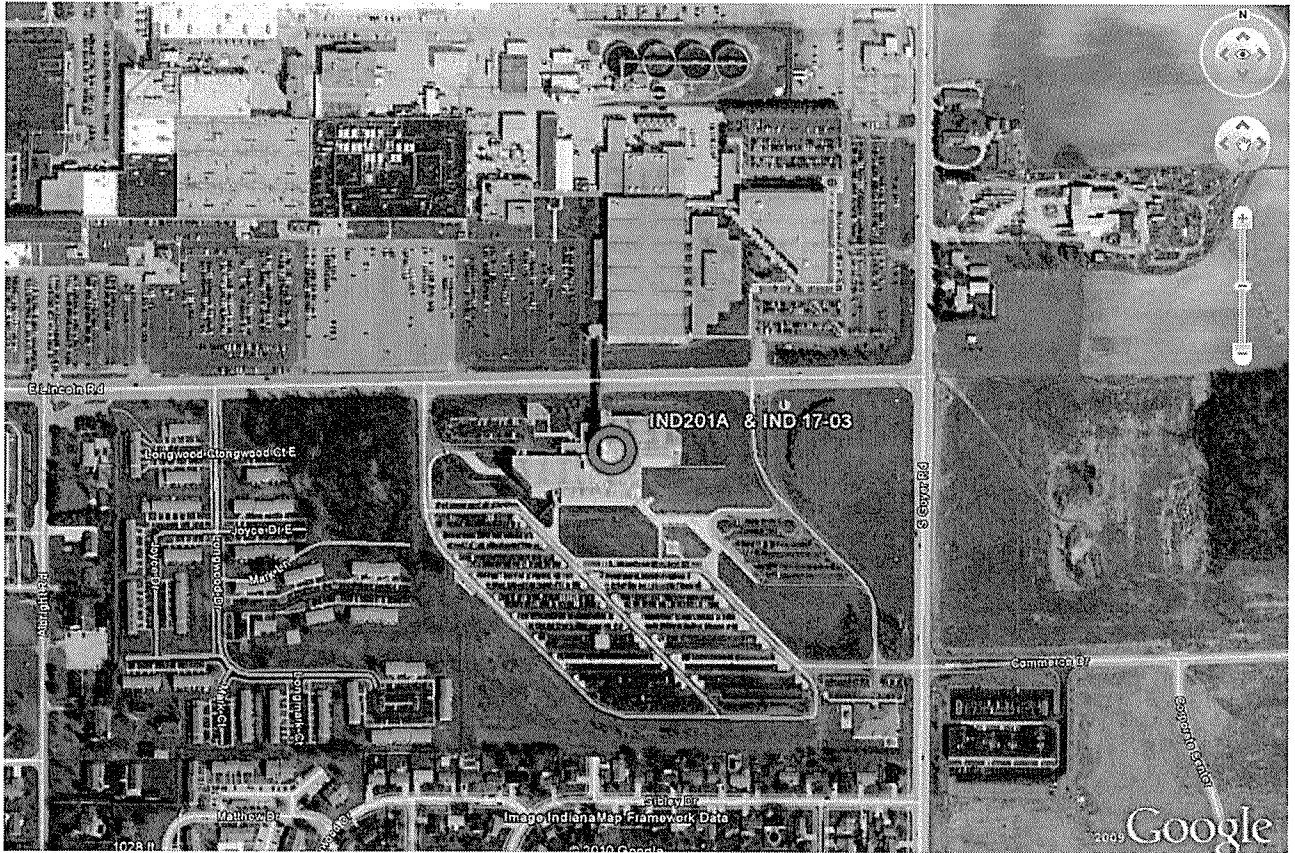


Exhibit B

Google™ Satellite Image of Repeater Location:
Las Vegas, Nevada

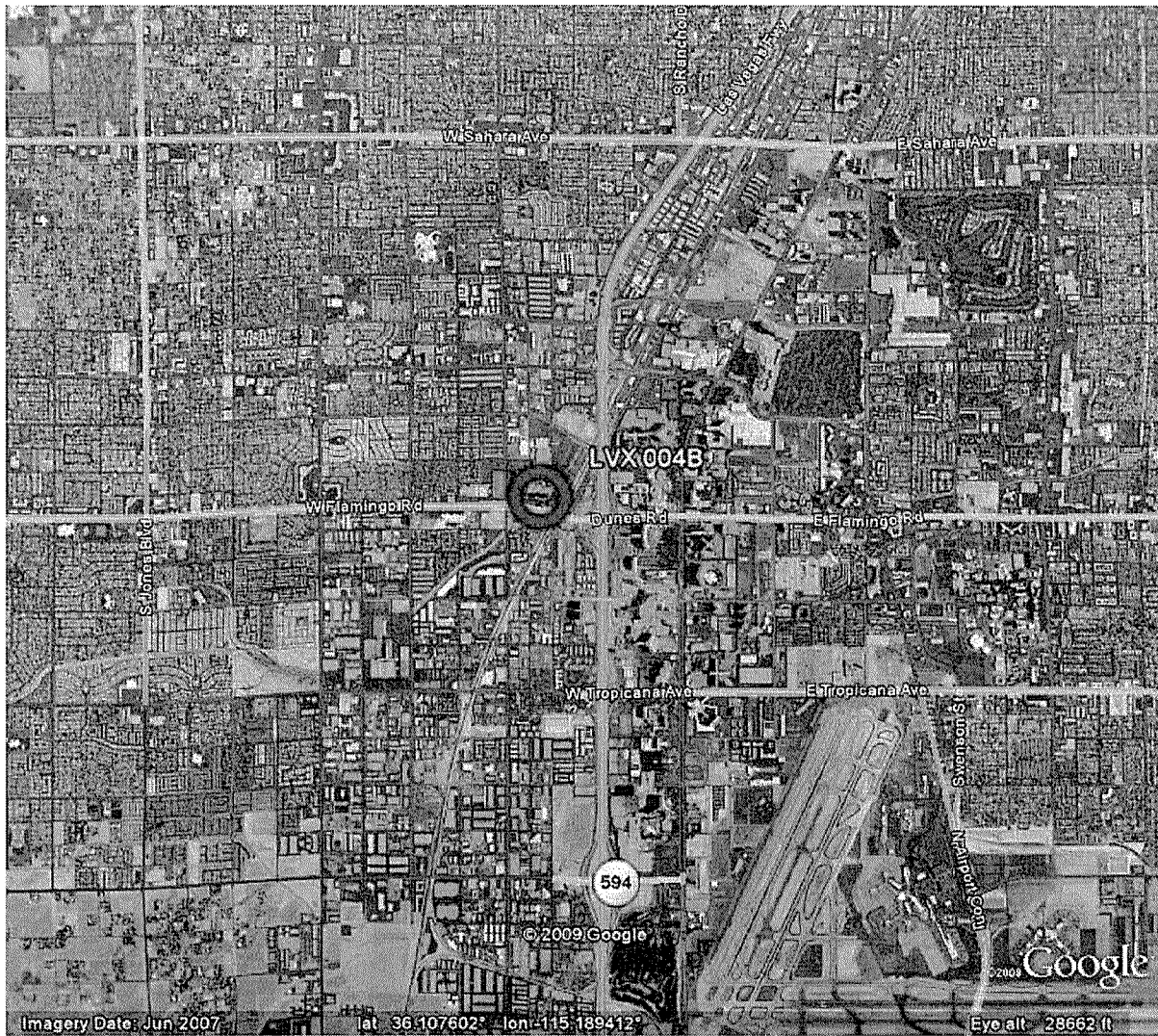


Exhibit C

Topographic Map of Repeater Location:
Atlanta, Georgia

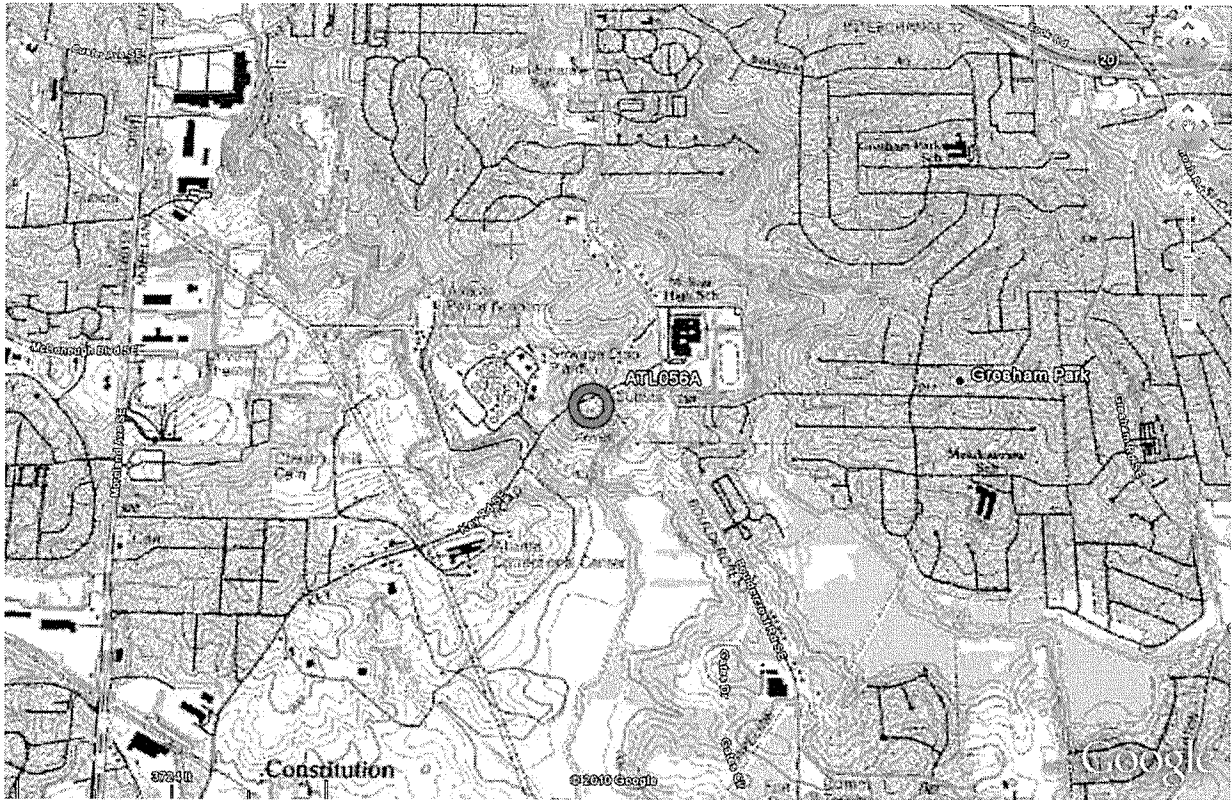


Exhibit C

Topographic Map of Repeater Location:
Kokomo, Indiana

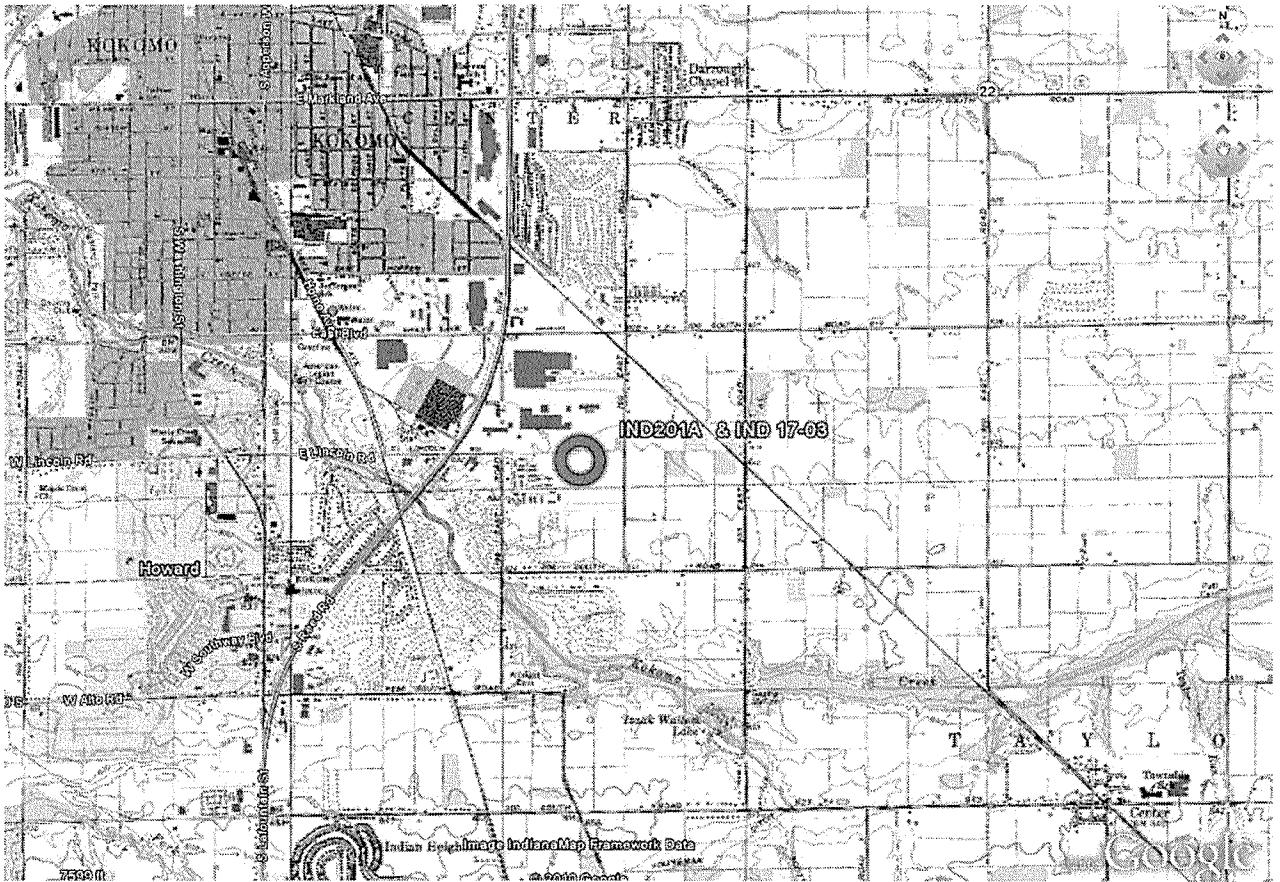


Exhibit C

Topographic Map of Repeater Location:
Las Vegas, Nevada

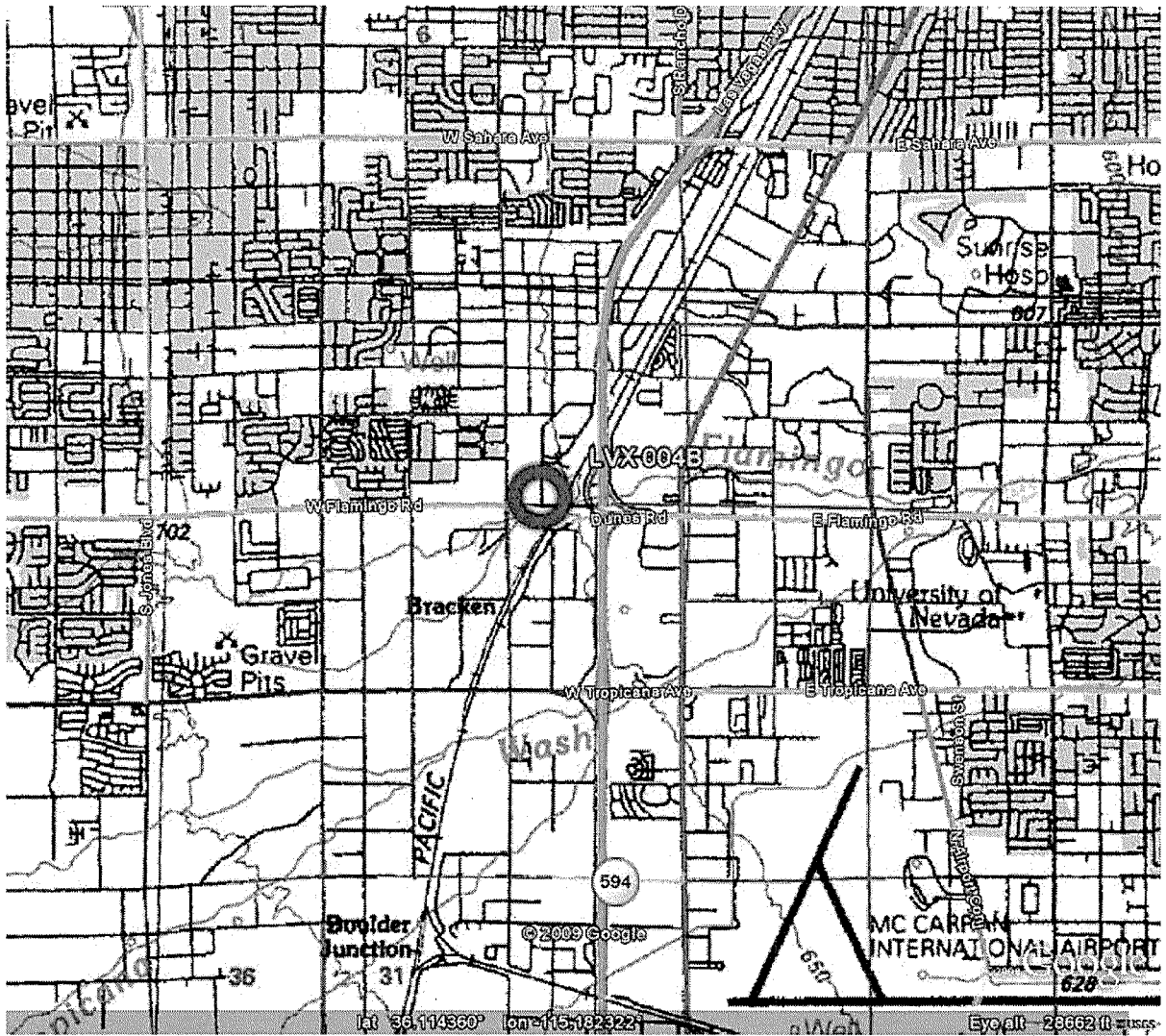


Exhibit D

Antenna Specification Sheets for Repeaters



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

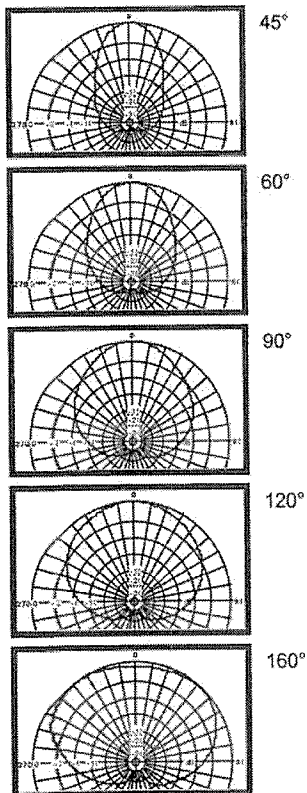
Length: 39.5 in. (1003 mm)
Width: 6.5 in. (165 mm) with 45° side panels
 5.0 in. (127 mm) without 45° side panels
Depth: 3.5 in. (89 mm)
Weight (incl. Clamps): 8 lb. (3.6 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 86 lb. (39 kg)
 with 45° side panels: 113 lb. (51 kg)
Mechanical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

Materials

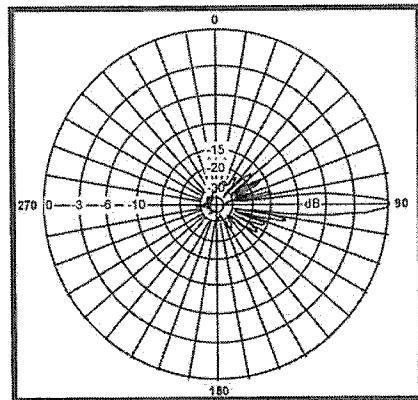
Radiating Elements: Tin Plated copper on PCB
Reflector: Irridited aluminum
Radome: Gray UV stabilized ASA
Clamps: Aluminum and HDG steel

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

H-Plane



E-Plane

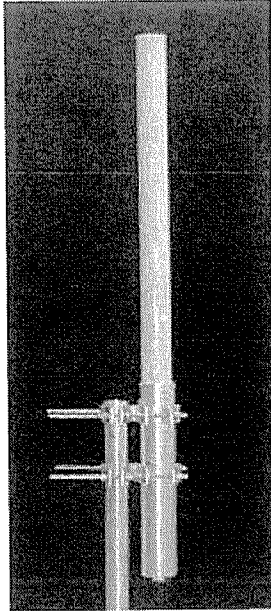




TA-2350-DAB

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)

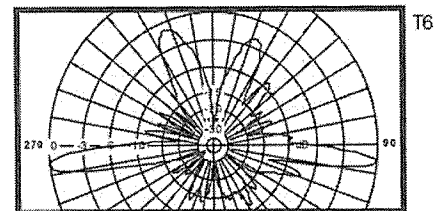
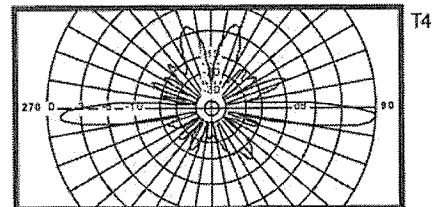
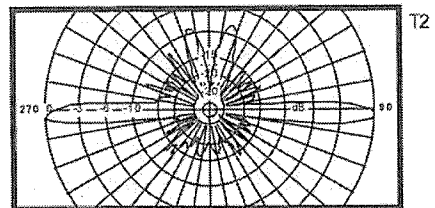
Mechanical Specifications

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)

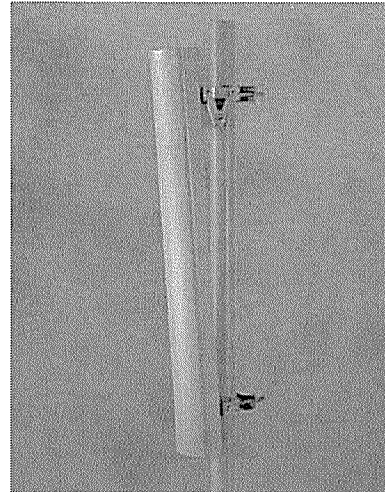
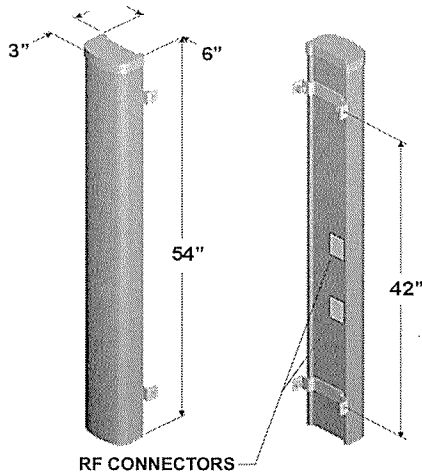
Materials

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

E-Plane



2305 MHz - 2360 MHz (V)



- 65° beamwidth
- 17.8 dBi gain
- DualPol
- 54 inch

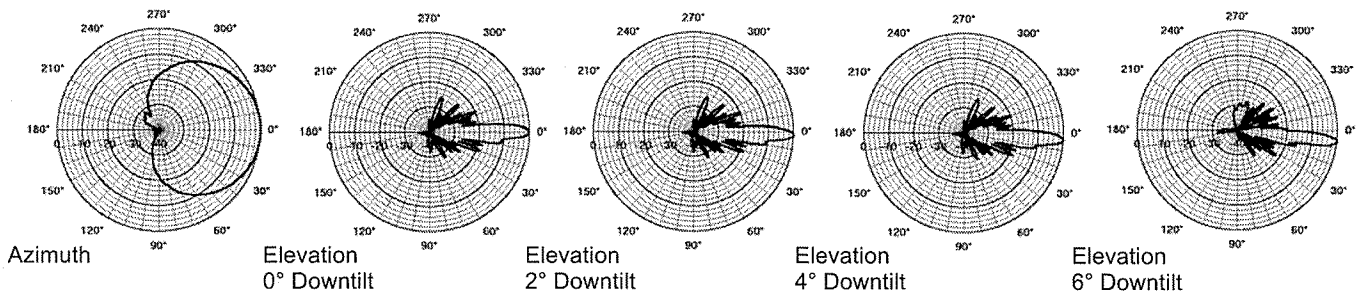
SPECIFICATIONS

Electrical		Mechanical	
Azimuth Beamwidth (-3 dB)	65°	Dimensions (L x W x D)	54in x 6in x 3in (137.2 cm x 15.2 cm x 7.6 cm)
Elevation Beamwidth (-3 dB)	5.7°	Rated Wind Velocity	150 mph (241 km/hr)
Elevation Sidelobes (Upper)	>20 dB	Equivalent Flat Plate Area	2.3ft ² (.21 m ²)
Gain	17.8 dBi (15.7 dBd)	Front Wind Load @ 100 mph (161 kph)	65 lbs (288 N)
Polarization	Slant, ±45°	Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Front-to-Back Ratio	>25 dB (≥30 dB Typ.)	Weight	11 lbs (5.0 kg)
Electrical Downtilt Options	0°, 2°, 4°, 6°	Note: Patent Pending and US Patent number 5, 757, 246 & 5, 844, 529. Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.	
VSWR	1.33:1 Max (1.22:1 Typ)		
Connectors	2; 7-16 DIN (female)		
Power Handling	250 Watts CW		
Passive Intermodulation	-147 dBc [2x20W (+43 dBm)]		
Lightning Protection	Chassis Ground		

MOUNTING OPTIONS

Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-Bolt Cluster Mount Kit	3 antennas 120° apart, 4.5" O.D. pole.
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"

* Model number shown represents a series of products. See mounting options section for specific model number.





FR90-17-XXXVL

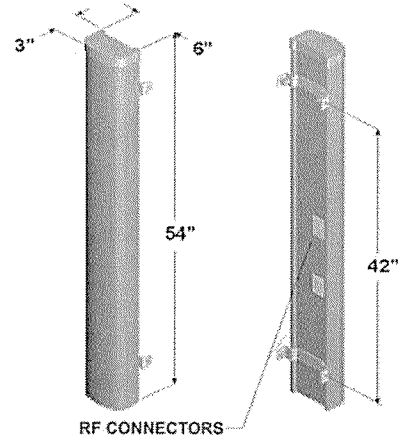
DualPol® Polarization

2305 MHz - 2360 MHz

OptiFill™
Suppressor™

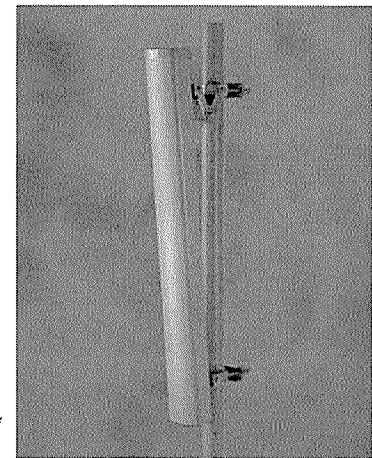
Electrical Specifications

Azimuth Beamwidth (-3 dB)	90° ± 5°
Elevation Beamwidth (-3 dB)	5.6°
Elevation Sidelobes (Upper)	> 20 dB
Gain	16.6 dBi (14.5 dBd)
Polarization	Slant, ±45°
Front-to-Back Ratio	> 25 dB (> 30 dB Typ.)
Electrical Downtilt Options	0°
VSWR	1.33:1 Max (1.22:1 Typ)
Connectors	2; 7-16 DIN (female), or Type N
Power Handling	250 Watts CW
Passive Intermodulation	< -147 dBc [2 x 20 W (+ 43 dBm)]
Lightning Protection	Chassis Ground



Mechanical Specifications

Dimensions (L x W x D)	54 in x 6 in x 3 in (137.2 cm x 15.2 cm x 7.6 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	2.3 ft² (.21 m²)
Front Wind Load @ 100 mph (161 kph)	66 lbs (294 N)
Side Wind Load @ 100 mph (161 kph)	33 lbs (147 N)
Weight (Without Mounting Options)	13 lbs (6.0 kg)

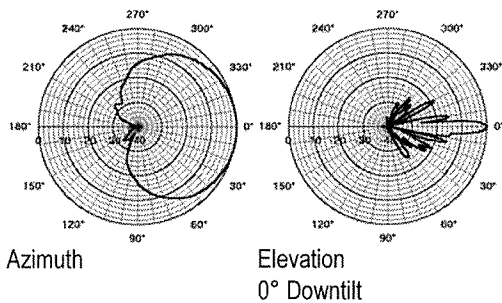


Mounting Options

MTG-P00-10, MTG-S02-10, MTG-DXX-20*, MTG-CXX-10*, MTG-C02-10, MTG-TXX-10*

Note: *Model number shown represents a series of products. See Mounting Options section for specific model number.

Patterns



Revised 09/03/04

EMS' antennas are protected by one or more of the following U.S. patents: 5,844,529; 6,067,053; 6,462,710; 6,392,600; 6,069,590; 5,966,102; 5,757,246. EMS' antenna designs may also be covered by pending U.S. patent applications and by pending & awarded international patents.