

File # SAT-STA-20090721-00074

Call Sign (or other identifier) Grant Date 10/07/09

Term Dates period of 180 days (see conditions) Approved by OMB 3060-0678

From 10/07/09 To: Stephen J. Duall Chief, Policy Branch

Date & Time Filed: Jul 21 2009 4:39:50:833PM
File Number: SAT-STA-20090721-00074
Callsign:



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 Low Power Terrestrial Repeaters at Various Locations for 180 Days

I. Applicant

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

Application of Sirius XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT–STA–20090721–00074

Special temporary authority (STA) is granted to Sirius XM Radio Inc. (Sirius XM) to operate, for a period of 180-days, five terrestrial repeaters having an average Effective Isotropically Radiated Power (EIRP) of up to 2000 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) in the following locations: Akron, OH; Atlanta, GA; Conshohocken, PA; Melrose, MA; and Palo Alto, CA. This authorization is granted according to the technical parameters specified in Sirius XM's application and is subject to the conditions below.

1. Any actions taken as a result of this STA are solely at the applicant's own risk. This STA shall not prejudice the outcome of the final rules adopted by the Commission in IB Docket No. 95-91. The issue concerning EIRP raised by the WCS Coalition will be addressed in that proceeding. Operations prior to such action will be subject to condition 2 below.
2. Operation of the terrestrial repeaters is authorized pursuant to this STA on a non-interference basis with respect to all permanently authorized radiocommunication facilities. Sirius XM shall provide the information and follow the process set forth in paragraphs 14 and 17 in 16 FCC Rcd 16773 (Int'l Bur. 2001) and 16 FCC Rcd 16781 (Int'l Bur. 2001), as modified by 16 FCC Rcd 18481 (Int'l Bur. 2001) and 16 FCC Rcd 18484 (Int'l Bur. 2001).
3. The terrestrial repeaters are restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS subscribers' receivers.
4. Coordination of the operations of the terrestrial repeaters shall be completed with all affected Administrations prior to operation, in accordance with all applicable international agreements including those with Canada and Mexico.
5. The terrestrial repeaters shall comply with Part 17 of the Commission's rules – Construction, Marking, and Lighting of Antenna Structures.
6. The terrestrial repeaters shall comply with Part 1 of the Commission's rules, Subpart I – Procedures Implementing the National Environmental Policy Act of 1969, including the guidelines for human exposure to radio frequency electromagnetic fields as defined in Sections 1.1307(b) and 1.1310 of the Commission's rules.
7. Each terrestrial repeater's out-of-band emissions shall be limited to $75 + 10\log(\text{EIRP})$ dB less than the transmitter EIRP.
8. This 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.

**Application of Sirius XM Radio Inc. for Special Temporary Authority
IBFS File No. SAT-STA-20090721-00074**

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-20090721-00074

Call Sign _____ Grant Date 10/07/09
(or other identifier)

Term Dates period of
From 10/07/09 To: 180 days (see conditions)

Approved: *Stephen J. Dual*
Stephen J. Dual
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? | |
| <input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114). | |
| <input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee | |
| <input type="radio"/> Other (please explain): | |
| 4b. Fee Classification CXW - Space Station (Non-Geostationary) | |
| 5. Type Request | |
| <input type="radio"/> Change Station Location | <input type="radio"/> Extend Expiration Date |
| <input type="radio"/> | <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 low power 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> | |
| <p>Attachment 1: STA Request</p> | <p>Attachment 2:</p> |
| <p>Attachment 3:</p> | <p>Attachment 3:</p> |
| <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> | |

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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

July 21, 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
Six New Low Power 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"),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 multiple low power terrestrial repeaters, each of which has average Effective Isotropically Radiated Power ("EIRP") of up to 2000 watts. Specifically, this application seeks authority to operate five new low power repeaters in the former Sirius Satellite Radio Inc. ("Sirius") frequency band (2320-2332.5 MHz) and two new low power repeaters in the former XM Radio Inc. frequency band (2332.5-2345 MHz).

The Commission has recognized that SDARS operators require terrestrial repeaters to provide high-quality service nationwide.² Consistent with this policy, in September 2001, the Bureau granted

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 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).

STAs to Sirius XM to operate a nationwide network of terrestrial repeaters.³ 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.⁴

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.⁵

Technical Information for the New Low Power Repeaters. The following technical information pertaining to the repeaters is provided in Exhibit A: (1) antenna type; (2) antenna orientation; (3) average EIRP; (4) height above ground level (“AGL”); and (5) antenna downtilt.⁶ Exhibits B

³ 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*”).

⁴ 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.

⁵ The sites designated on Exhibit A as Sirius 57-03, Sirius 02-40, and Sirius 29-02 replace repeaters that Sirius discontinued operating in October 2006. See File No. SAT-STA-20061013-00121 and SAT-STA-20061013-0012

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

and C consist respectively, of Google™ satellite images and topographic maps showing the location of the proposed facilities. The specification sheet for the antennas to be used by the repeaters is attached as Exhibit D. As noted on Exhibit A, many of these repeaters will operate with two sectors.

Interference Considerations. The new low power repeaters will each operate at an average EIRP of less than 2000 watts. Because Sirius XM has exclusive use of its licensed band, it is highly unlikely that these new low power repeaters will create interference to other licensees. 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,⁷ Sirius XM is sending a copy of this STA application to Horizon Wi-Com LLC ("Horizon") in satisfaction of this coordination requirement.⁸ Moreover, as the Bureau acknowledged in granting Sirius XM's original repeater STA requests, the WCS licensees have confirmed that operating terrestrial repeaters at an EIRP of 2 kW or less is not an interference concern.⁹ However, if prohibited interference does occur, Sirius XM will cease operation of the new repeaters until such interference can be eliminated.¹⁰

⁷ See *Sirius STA Order* ¶ 14 and *XM STA Order* ¶ 14.

⁸ 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 shows that Horizon has certified that it operates one WCS station serving the Conshohocken, Pennsylvania area, Call Sign KNLB314, and one WCS station serving the Melrose, Massachusetts area, Call Sign KNLB210. It is not clear from the certifications whether these base stations are receiving transmissions from CPE or whether they are engaged in transmit-only operations. If only the latter, potential interference to the base station is not an issue. In any event, Sirius XM has conducted an interference analysis and determined that these repeaters will not create interference to Horizon's operating WCS sites.

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."). 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.

¹⁰ These 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

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:

- (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

(202-380-4725), which is available on a continuous basis to receive any reports of any suspected interference and take immediate corrective action.

Ms. Marlene H. Dortch
July 21, 2009
Page 5

(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).

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

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

Exhibit A

Technical parameters for repeaters

| CITY | ANTENNA NUMBER | SITE LATITUDE (N) | SITE LONGITUDE (W) | ANTENNA TYPE | ANTENNA ORIENTATION (AZIMUTH) | ANTENNA HEIGHT (FT. AGL) | ANTENNA DOWNTILT (DEGREES) | TOTAL AVERAGE EIRP(W) |
|---------------------|----------------------------|-------------------|--------------------|-------------------|-------------------------------|--------------------------|----------------------------|-----------------------|
| Akron, OH | Sirius 57-03 (Sector 1) | 41-04-54 | 81-31-10 | HMD8PV180-R05-H | 0 | 329 | 0 | 2000 |
| | Sirius 57-03 (Sector 2) | 41-04-54 | 81-31-10 | HMD8PV180-R05-H | 180 | 328 | 0 | 2000 |
| Atlanta, GA | Sirius 02-37 (Sector 1) | 33-53-24 | 84-27-55 | EMS FR65-18-00NVL | 100 | 252 | 8 | 2000 |
| | Sirius 02-37 (Sector 2) | 33-53-24 | 84-27-55 | EMS FR65-18-00NVL | 315 | 252 | 0 | 2000 |
| Atlanta, GA | Sirius 02-40 (Sector 1) | 33-39-36 | 84-25-55 | EMS FR65-18-00NVL | 160 | 118 | 0 | 2000 |
| | Sirius 02-40 (Sector 2) | 33-39-36 | 84-25-55 | EMS FR65-18-00NVL | 230 | 118 | 0 | 2000 |
| Conshohocken, PA | Sirius 29-02 (Sector 1) | 40-04-06 | 75-19-32 | SA2500-065X-18 | 30 | 51 | 0 | 2000 |
| | Sirius 29-02 (Sector 2) | 40-04-06 | 75-19-32 | SA2500-090X-16 | 315 | 51 | 0 | 2000 |
| Melrose, MA | XM BOS135A | 42-27-36 | 71-03-39 | TA-2350-DAB-T2 | 0 | 97 | 0 | 2000 |
| Palo Alto, CA | Sirius 40-07 (Sector 1) | 37-25-33 | 122-6-10 | SA2500-065X-18 | 180 | 80 | 0 | 2000 |
| | Sirius 40-07 (Sector 2) | 37-25-33 | 122-6-10 | SA2500-065X-18 | 225 | 80 | 0 | 2000 |
| | Sirius 40-07 (Sector 3) | 37-25-33 | 122-6-10 | SA2500-065X-18 | 320 | 34 | 0 | 2000 |

Exhibit B

Google™ Satellite Image of Repeater Location

Sirius 57-03



Exhibit B

Google™ Satellite Image of Repeater Location

Sirius 02-37



Exhibit B

Google™ Satellite Image of Repeater Location

Sirius 02-40



Exhibit B

Google™ Satellite Image of Repeater Location

Sirius 29-02



Exhibit B

Google™ Satellite Image of Repeater Location

Sirius 40-07



Exhibit C

Topographic Map of Repeater Location

Sirius 57-03

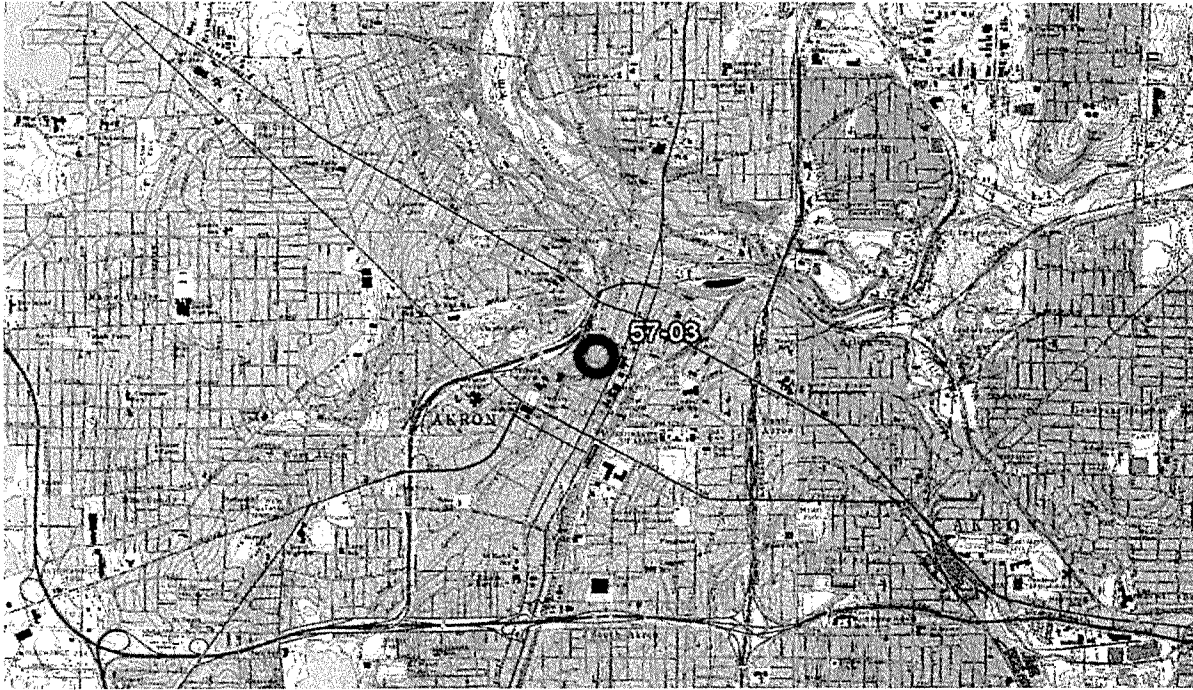


Exhibit C

Topographic Map of Repeater Location

Sirius 02-40

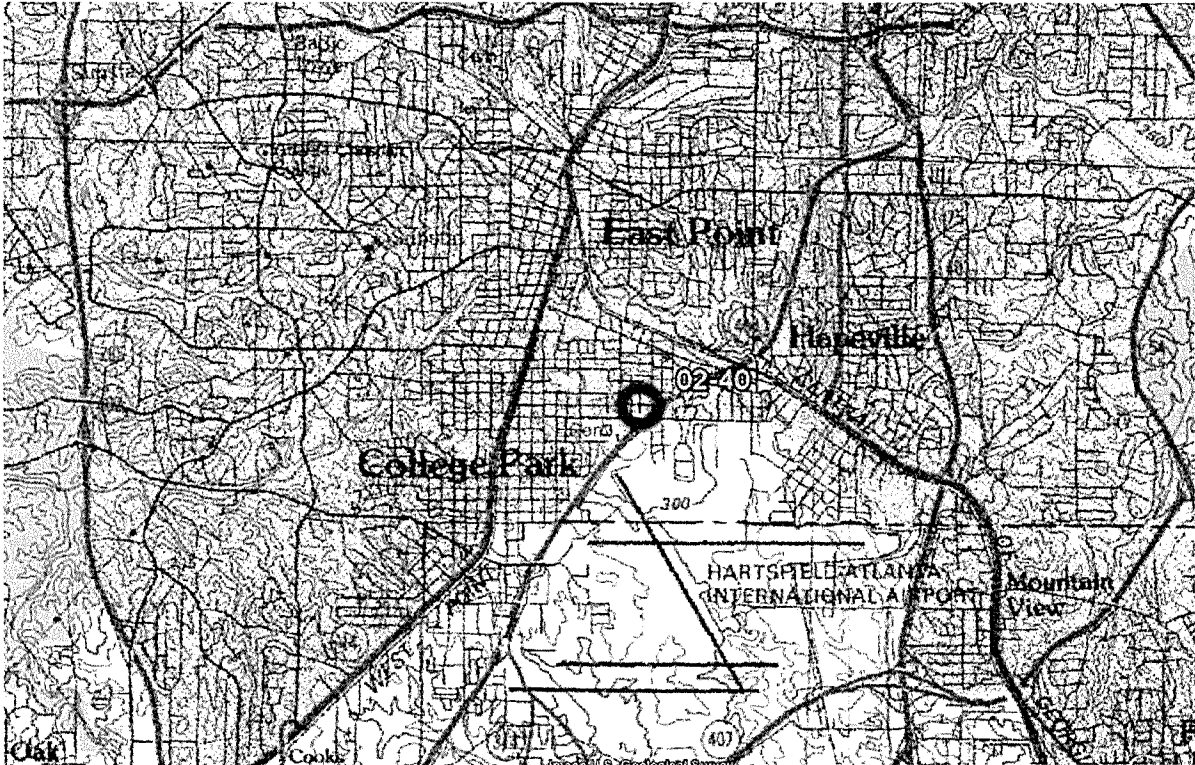


Exhibit C

Topographic Map of Repeater Location

Sirius 29-02

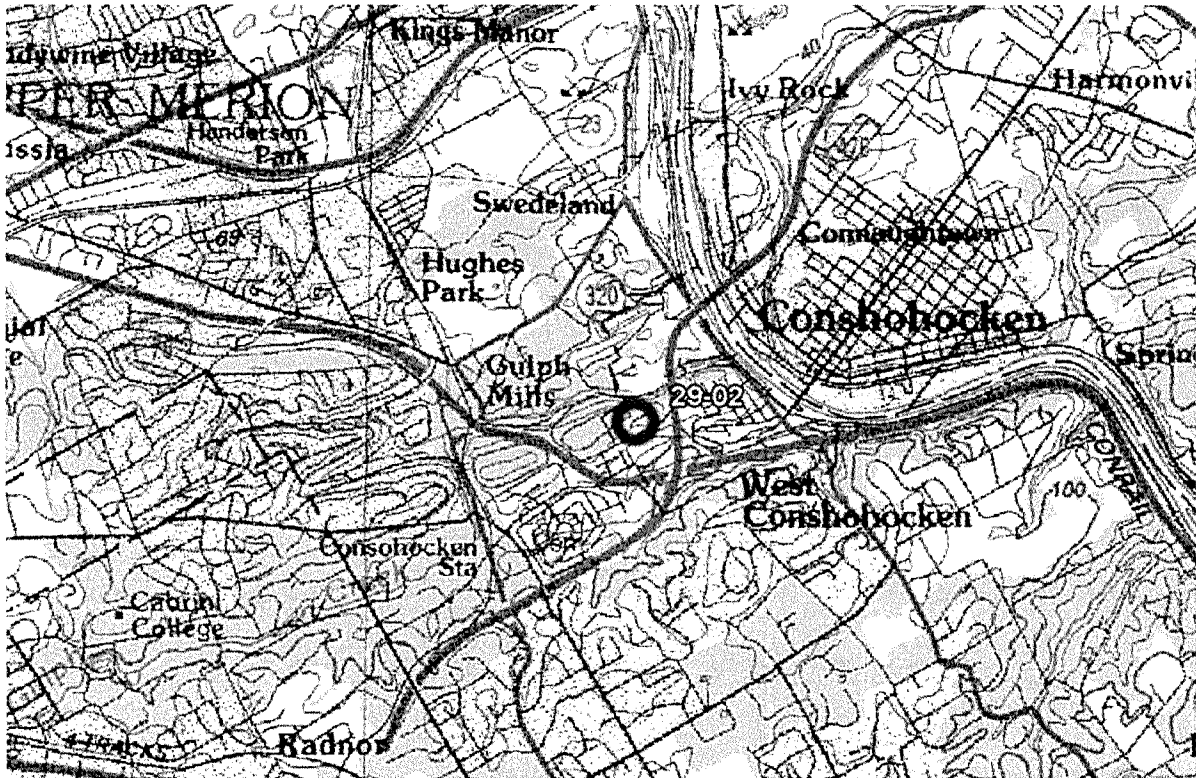


Exhibit C

Topographic Map of Repeater Location

XM BOS135A

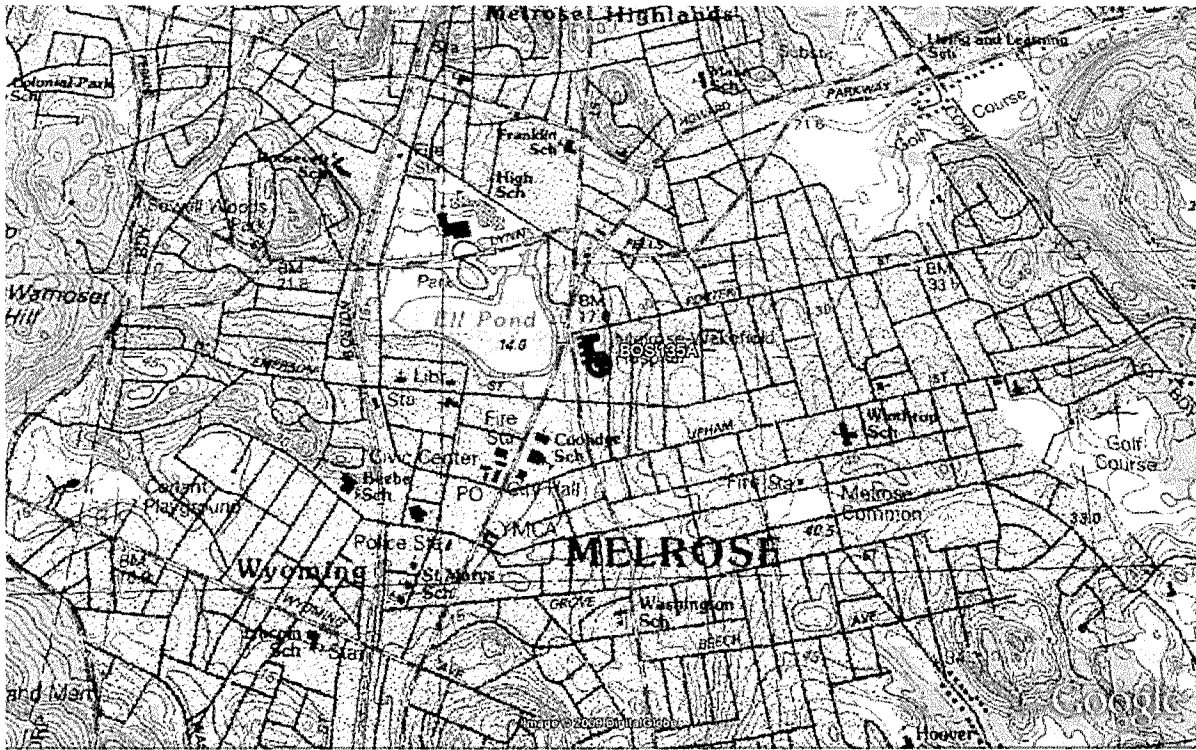


Exhibit C

Topographic Map of Repeater Location

Sirius 40-07

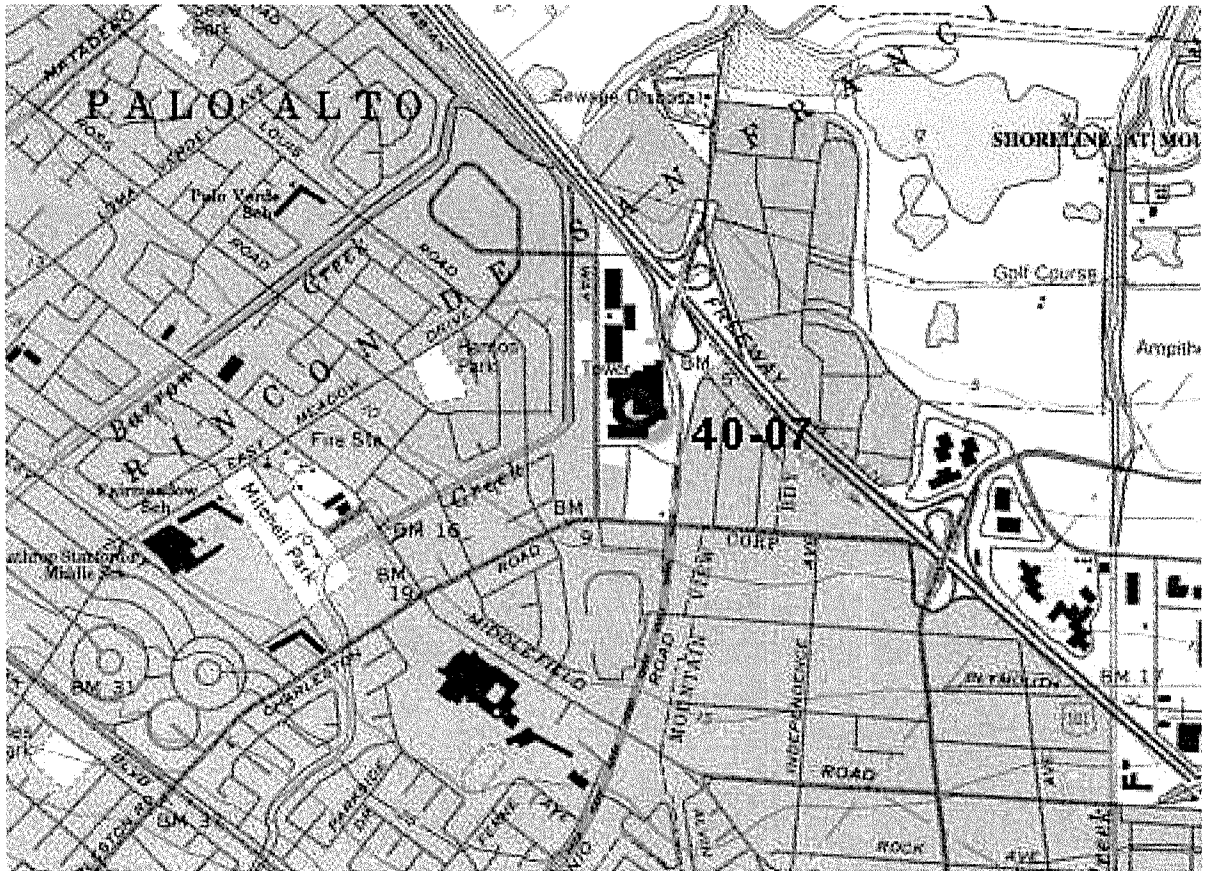
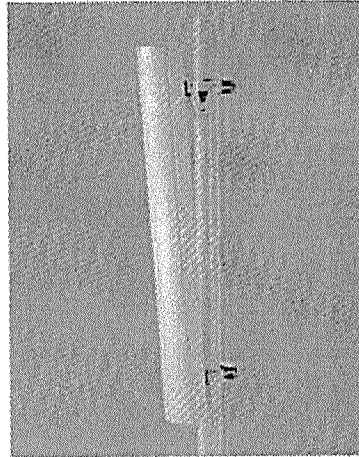
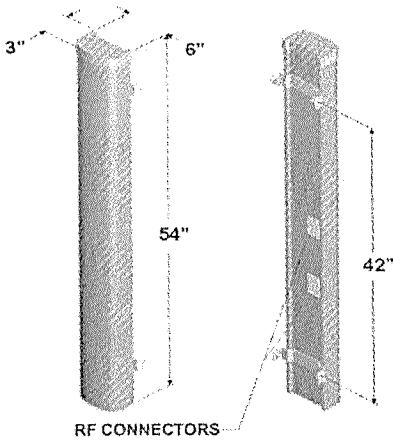


Exhibit D

Antenna Specification Sheet for Repeaters

2305 MHz - 2360 MHz (N)



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

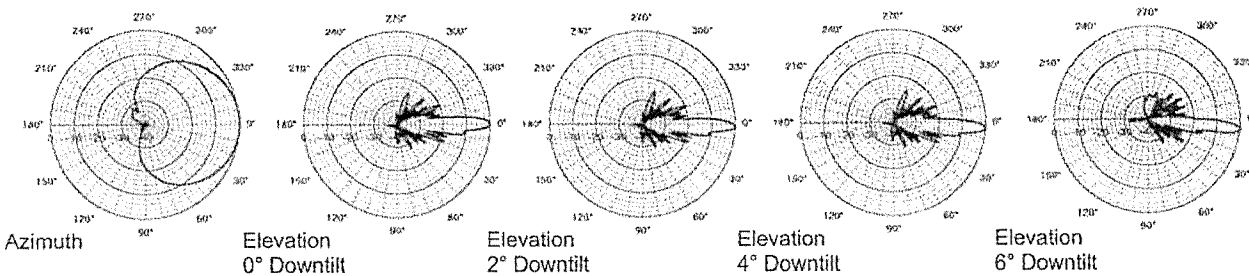
SPECIFICATIONS

| 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.



Product Specifications



SA2500-065X-18

DualPol® Antenna, 2300–2700 MHz, 65° horizontal beamwidth, fixed electrical tilt



- Broadband sector antenna ideally suited to WiMAX and WLL applications
- High performance in a small, lightweight package
- Superior front-to-back ratio

CHARACTERISTICS

General Specifications

Antenna Type DualPol®
Brand DualPol®
Operating Frequency Band 2300 – 2700 MHz

Electrical Specifications

| | 2300–2700 |
|--|------------------|
| Frequency Band, MHz | |
| Beamwidth, Horizontal, degrees | 65 |
| Gain, dBd | 15.5 |
| Gain, dBi | 17.6 |
| Beamwidth, Vertical, degrees | 5.6 |
| Beam Tilt, degrees | 2 |
| Upper Sidelobe Suppression (USLS), typical, dB | 20 |
| Front-to-Back Ratio at 180°, dB | 32 |
| Isolation, dB | 30 |
| VSWR Return Loss, db | 1.4:1 15.6 |
| Intermodulation Products, 3rd Order, 2 x 20 W, dBc | -140 |
| Input Power, maximum, watts | 200 |
| Polarization | ±45° |
| Impedance, ohms | 50 |
| Lightning Protection | dc Ground |



Product Specifications

SA2500-065X-18



Mechanical Specifications

| | |
|-----------------------|---|
| Color | Light gray |
| Connector Interface | N Female |
| Connector Location | Bottom |
| Connector Quantity | 2 |
| Wind Loading, maximum | 272.0 N @ 100 mph 61.1 lbf @ 100 mph |
| Wind Speed, maximum | 241.4 km/h 150.0 mph |

Dimensions

| | |
|------------|---------------------|
| Depth | 83.1 mm 3.3 in |
| Length | 1218.1 mm 48.0 in |
| Width | 166.4 mm 6.6 in |
| Net Weight | 3.9 kg 8.7 lb |

Regulatory Compliance/Certifications

Agency

RoHS 2002/95/EC
China RoHS SJ/T 11364-2006

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)



Included Products

602030WM

Downtilt Mounting Kit for 4.5 in (114.3 mm) OD round members

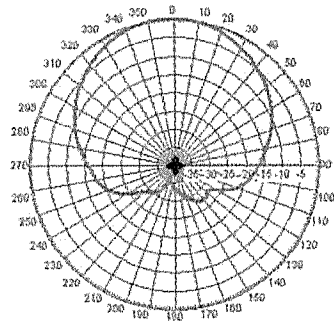


Product Specifications

SA2500-065X-18

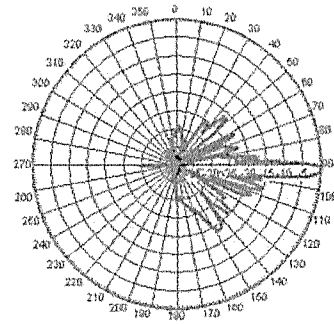


Horizontal Pattern



Freq: 2500 MHz, Tilt: 2

Vertical Pattern



Freq: 2500 MHz, Tilt: 2



SA2500-090X-16

DualPol® Antenna

Decibel®
Base Station Antennas

- Broadband Sector Antenna ideally suited for WiMax applications
- High performance in a small, lightweight package
- Superior front to back ratio
- Rugged reliable design

ELECTRICAL

| | |
|-----------------------------|-------------|
| Frequency (MHz) : | 2300 - 2700 |
| Polarization : | ±45° |
| Gain (dBd/dBi) : | 14.5/16.6 |
| Azimuth BW (Deg.): | 90 |
| Elevation BW (Deg.): | 5.6 |
| Beam Tilt (Deg.): | 2 |
| USLS* (dB) : | 18 |
| Front-To-Back Ratio* (dB) : | 34 |
| Isolation (dB) : | >30 |
| VSWR : | <1.4:1 |
| PIM3 @ 2 x 20w (dBc) : | -140 |
| Max. Input Power (Watts) : | 80 |
| Impedance (Ohms) : | 50 |
| Lightning Protection : | DC Ground |

Notes: Antenna mount is included with antenna.

MECHANICAL

| | |
|------------------------------|--|
| Weight : | 3.9 kg (8.7 lb) |
| Dimensions (LxWxD) : | 1,219 x 165 x 84 mm (48 x 6.5 x 3.3 in) |
| Max. Wind Area : | 0.10 m ² (1.1 ft ²) |
| Max. Wind Load (@ 100 mph) : | 271.7 N (61.1 lbf) |
| Max. Wind Speed : | 241 km/h (150 mph) |
| Hardware Material : | Stainless Steel |
| Connector Type : | N - Type Female (2, Bottom) |
| Color : | Light Gray |
| Standard Mounting Hardware : | 602030WM |

Andrew Corporation
2601 Telecom Parkway
Richardson, Texas U.S.A 75082-3521
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

* - Indicates Typical
4/6/2007
dbtech@andrew.com

Information correct at date of issue but may be subject to change without notice.



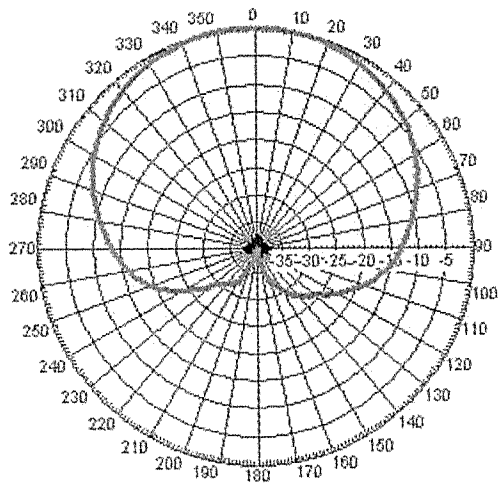
SA2500-090X-16

DualPol® Antenna

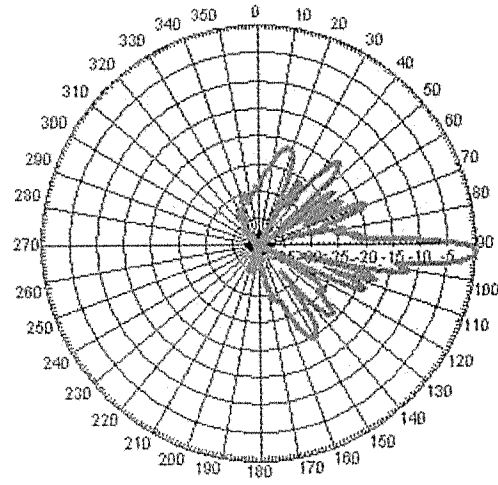
Decibel®
Base Station Antennas

AZIMUTH PATTERN

ELEVATION PATTERN



Freq: 2500 MHz, Tilt: 2



Freq: 2500 MHz, Tilt: 2

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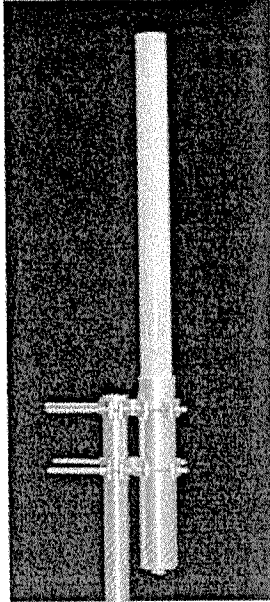
Information correct at date of issue but may be subject to change without notice.



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)

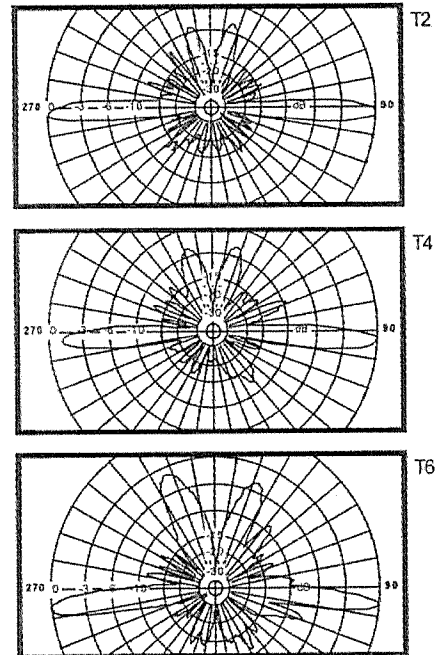
Mechanical Specifications

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



Sirius Radio Deployment

ANDREW HMD8PV180-R05-H

| Andrew Corporation Products | Product Description | Average Input Power (W) | Null Fill (%) | E-Plane Beamwidth (-3 dB) | Total Length (in) | Weight (lbs.) | Radome Diam. (in) |
|-----------------------------|--|-------------------------|---------------|---------------------------|-------------------|---------------|-------------------|
| HMD8PV180-R05-H | 180 degree Azimuth pattern, 8 Bays, Vertical Polarization, Standard Beamtilt (0.5 deg.), 2300 -2500 MHz Freq. Band, 50 Ohm, 7/8" EIA Flange, 1.38 :1 Max. VSWR | 1000 W (rms) | None | 7.0 - 7.5 deg | 57" | 40 lbs | 5" |

Antennas

180 DEGREE ANTENNA

14.0 dBi 1000 W (rms)

Note: All Directional (Sector) Antennas come with Type C Mount

