SIRIUS XM
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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.

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[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 concern[7] 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

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[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+10log (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.

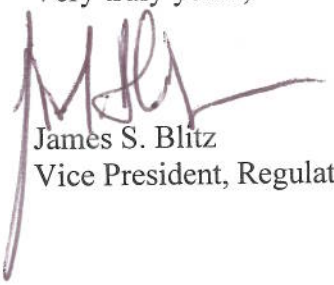
Granting this request will not alter Sirius XM's obligation to protect authorized radio-communications facilities from interference, nor will it prejudice the outcome of the Commission's ongoing rulemaking pertaining to the deployment and operation of terrestrial repeaters.

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-FR90-17-00NVL	180	350	2	3200
Las Vegas, NV	Sirius 48-01 (Sector 2)	36-08-09	115-09-06	EMS-FR65-18-00NVL	240	355	2	4000
Las Vegas, NV	XM LVX010A (Sector 1)	36-08-09	115-09-06	EMS-FR90-17-00NVL	180	350	2	3200
Las Vegas, NV	XM LVX010A (Sector 2)	36-08-09	115-09-06	EMS-FR65-18-00NVL	240	355	2	4000

Exhibit B

Google™ Satellite Image of Repeater Location: Atlanta, Georgia

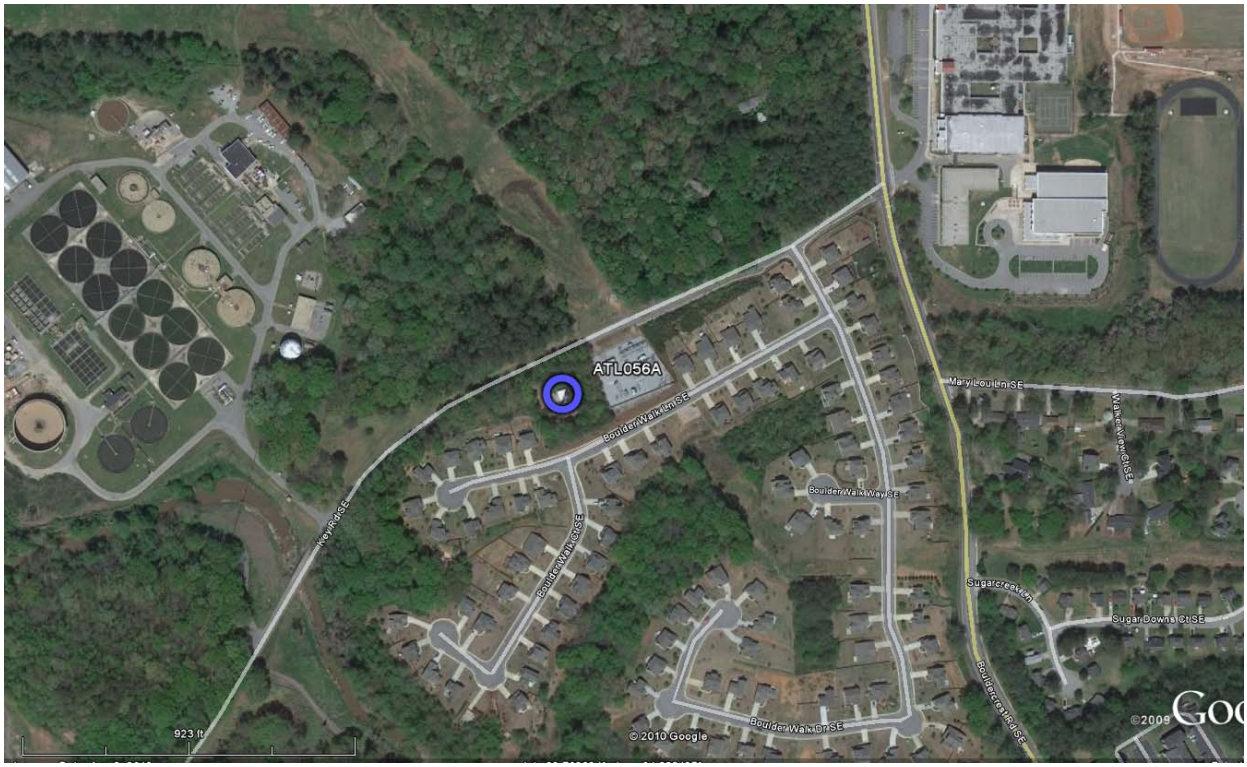


Exhibit B

Google™ Satellite Image of Repeater Location:
Kokomo, Indiana

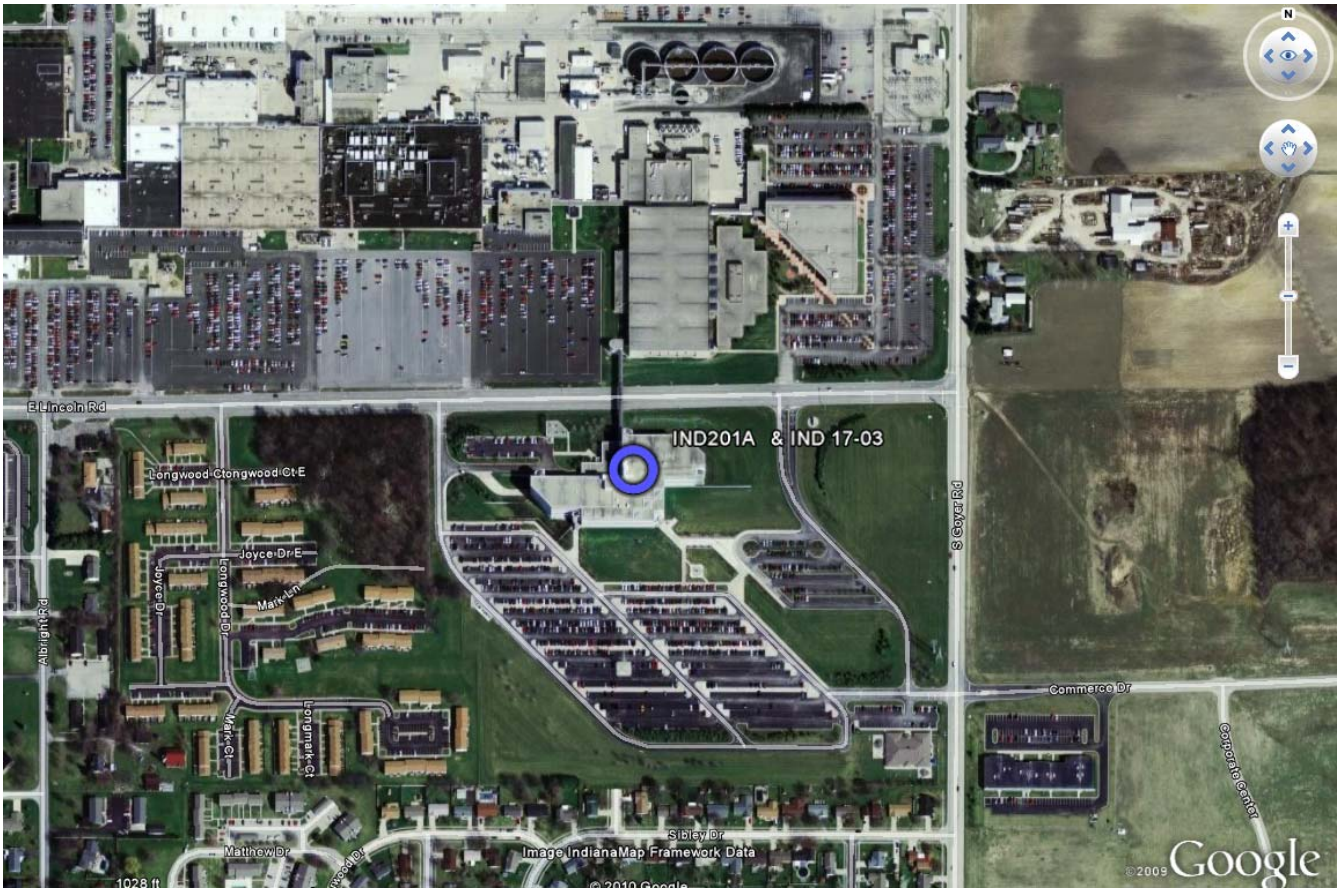


Exhibit B

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

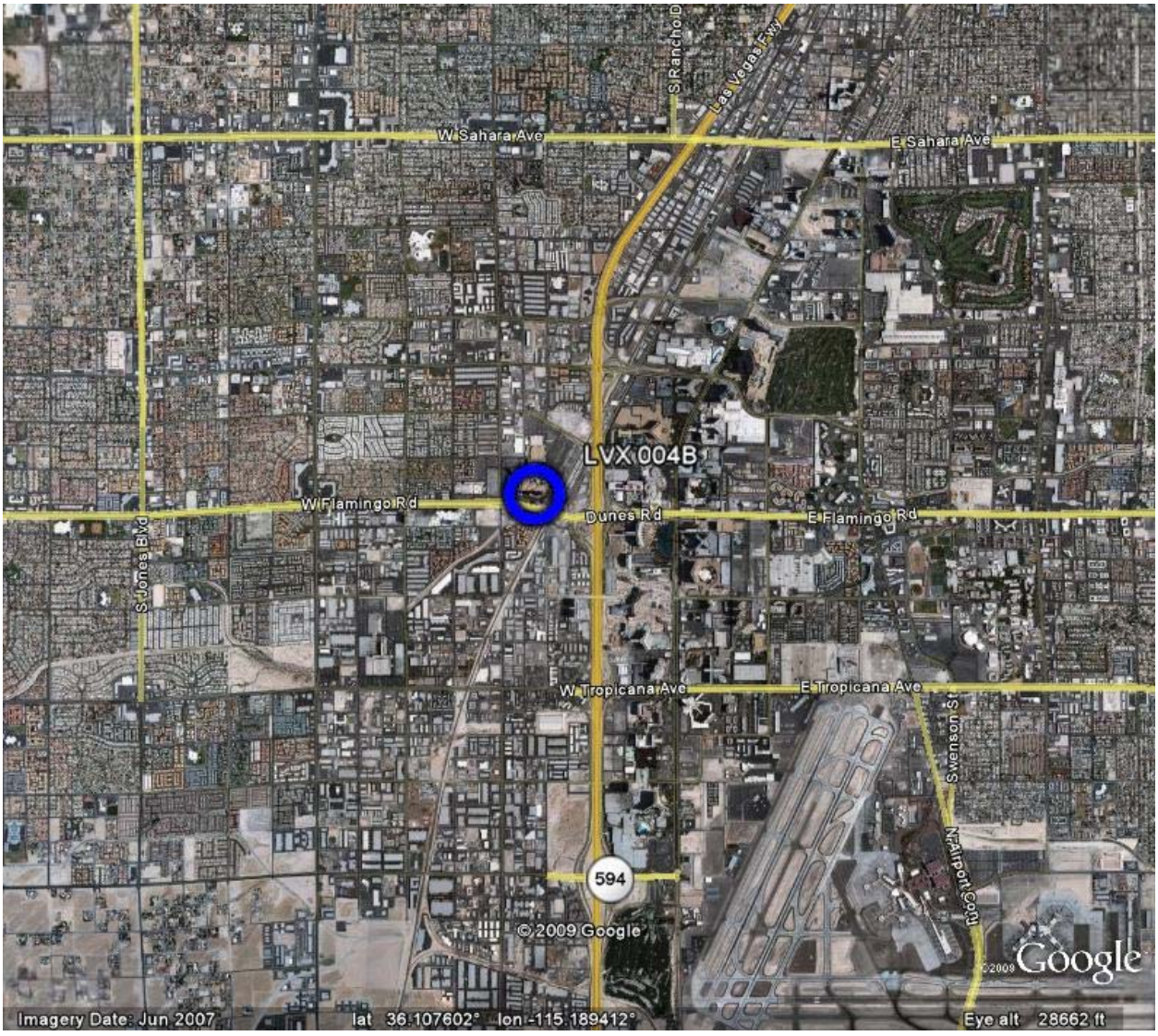


Exhibit C

Topographic Map of Repeater Location:
Atlanta, Georgia

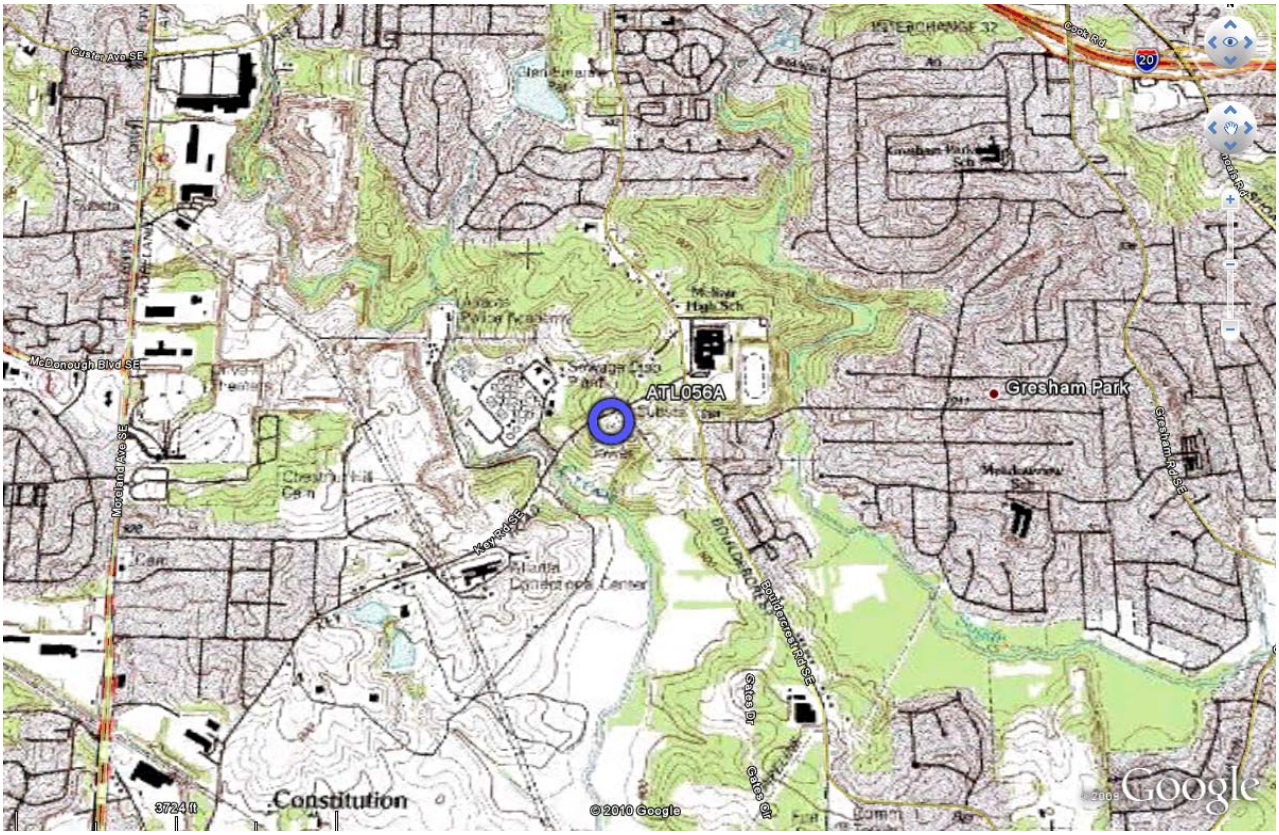


Exhibit C

Topographic Map of Repeater Location:
Kokomo, Indiana

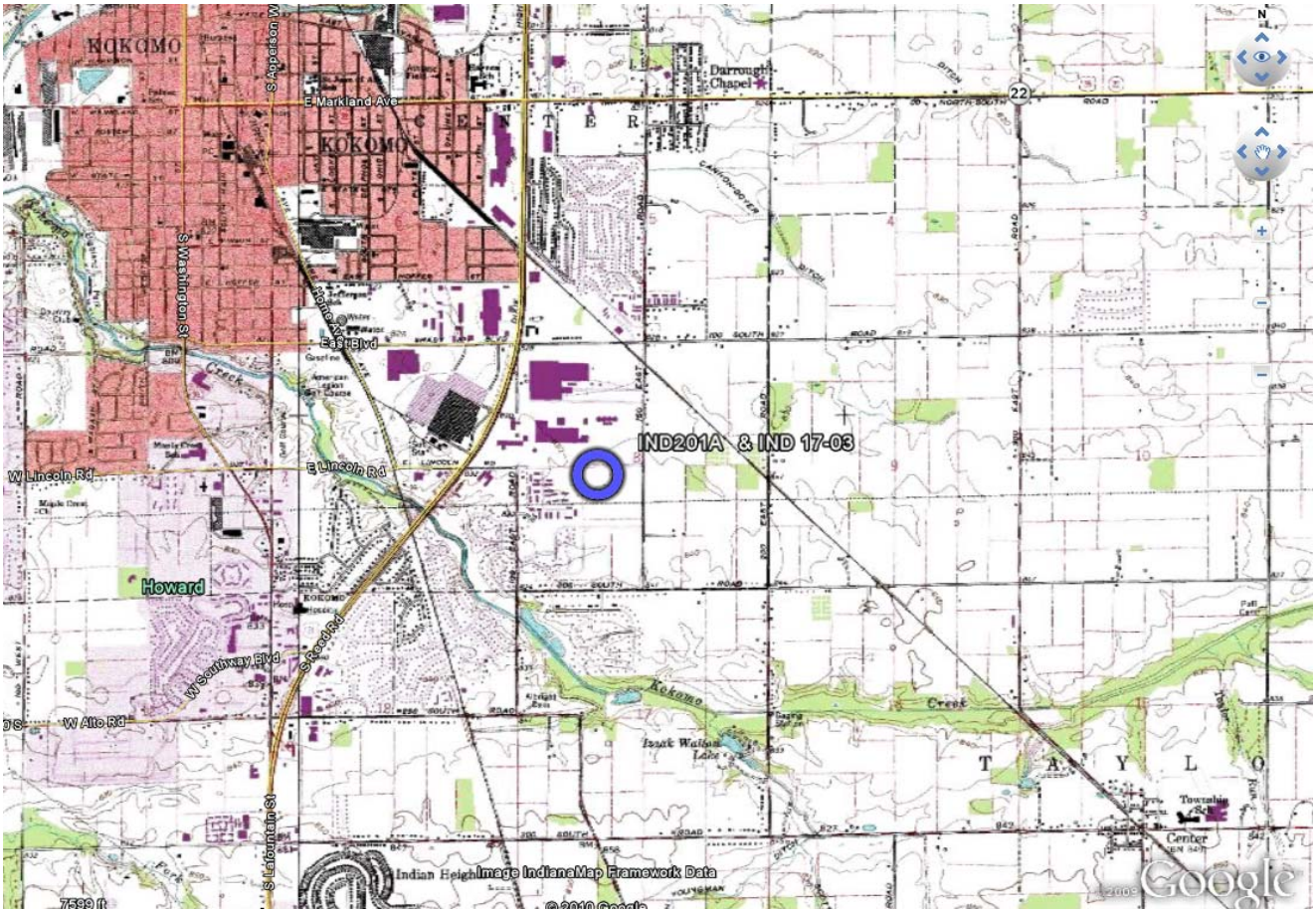


Exhibit C

Topographic Map of Repeater Location:
Las Vegas, Nevada

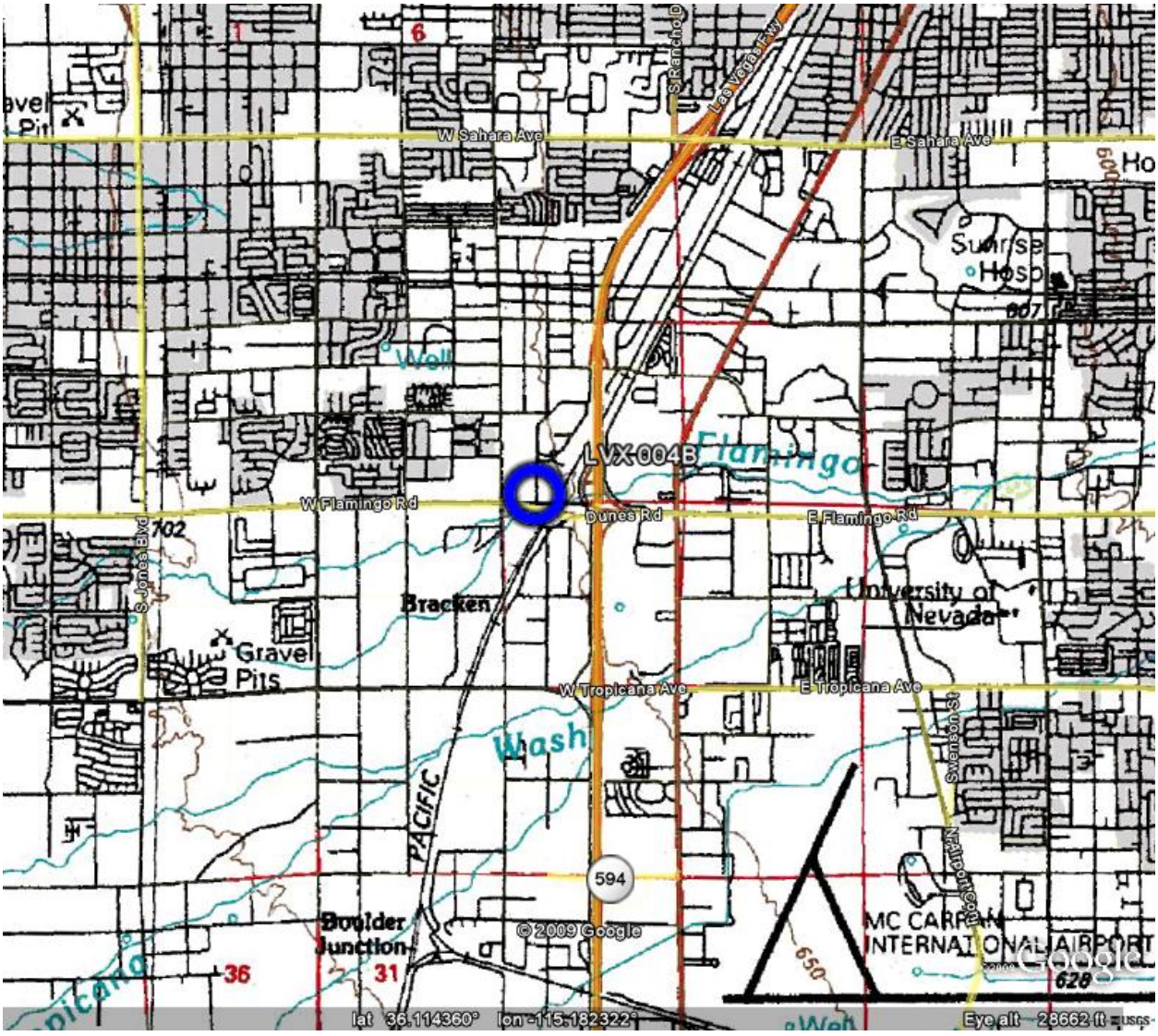


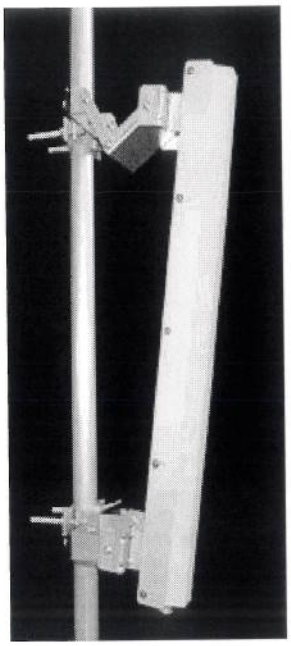
Exhibit D

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

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

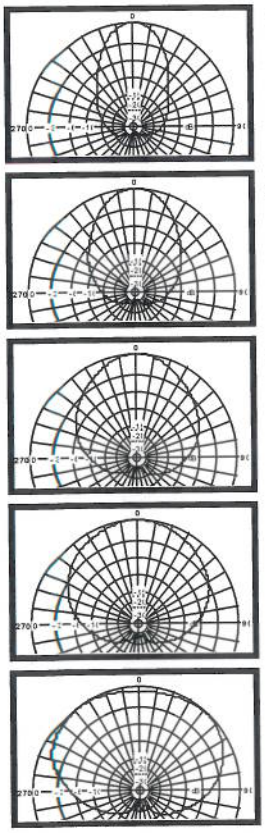
Mechanical Specifications

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)

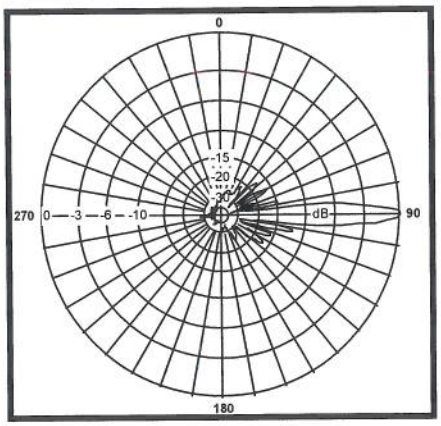
Materials

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

H-Plane



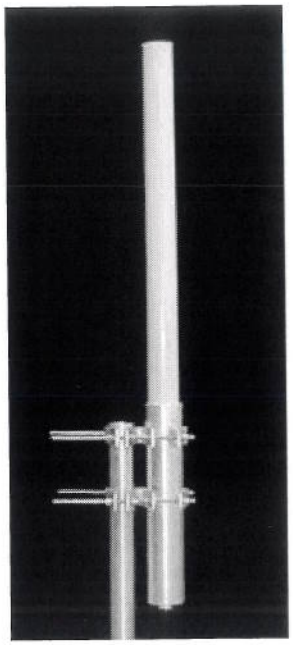
E-Plane



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)

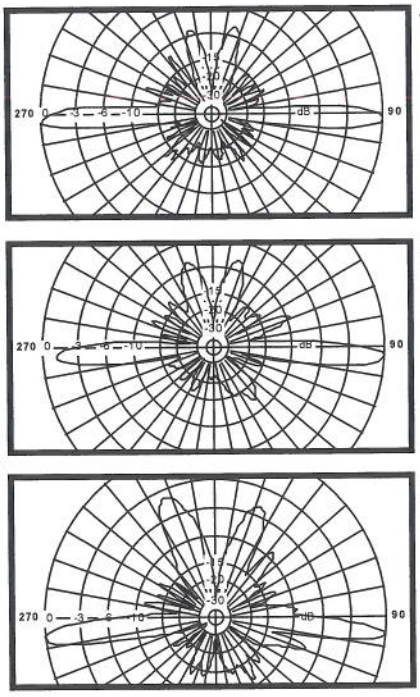
Mechanical Specifications

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



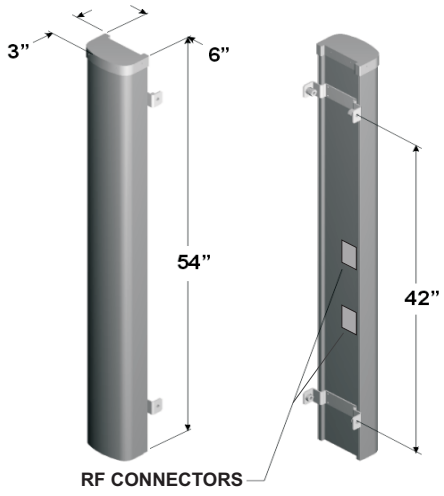
EMS Wireless

Preliminary

OptiFill™ Suppressor™

FR65-18-XXDVL

2305 MHz - 2360 MHz (V)



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

SPECIFICATIONS

Electrical

Azimuth Beamwidth (-3 dB)	65°
Elevation Beamwidth (-3 dB)	5.7°
Elevation Sidelobes (Upper)	>20 dB
Gain	17.8 dBi (15.7 dBd)
Polarization	Slant, ±45°
Front-to-Back Ratio	>25 dB (≥30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
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

Mechanical

Dimensions (L x W x D)	54in x 6in x 3in (137.2 cm x 15.2 cm x 7.6 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	2.3ft^2 (.21 m^2)
Front Wind Load @ 100 mph (161 kph)	65 lbs (288 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	11 lbs (5.0 kg)

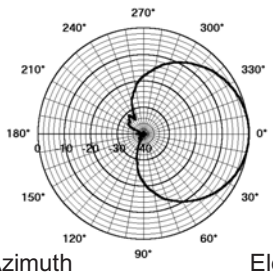
Note: Patent Pending and US Patent number 5, 757, 246 & 5, 844, 529.

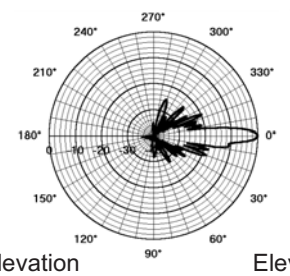
Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

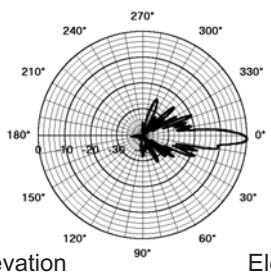
MOUNTING OPTIONS

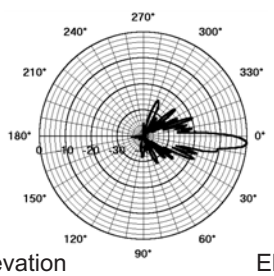
Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	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”

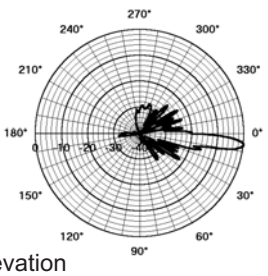
* Model number shown represents a series of products. See mounting options section for specific model number.


Azimuth


Elevation
0° Downtilt


Elevation
2° Downtilt


Elevation
4° Downtilt


Elevation
6° Downtilt

EMS Wireless

FR90-17-XXXVL

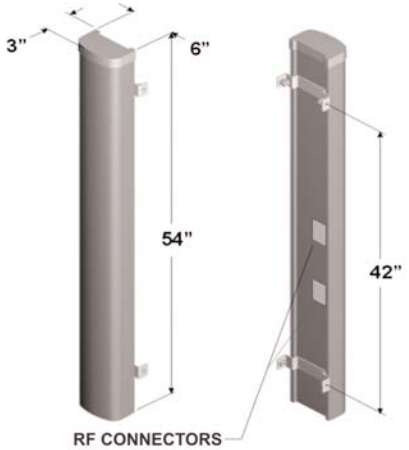
DualPol® Polarization

2305 MHz - 7360 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



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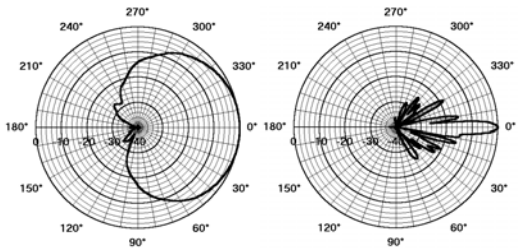
Dimensions (L x W x D)	54 in x 6 in x 3 in (137.2 cm x 15.2 cm x 7.6 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	2.3 ft^2 (.21 m^2)
Front Wind Load @ 100 mph (161 kph)	66 lbs (294 N)
Side Wind Load @ 100 mph (161 kph)	33 lbs (147 N)
Weight (Without Mounting Options)	13 lbs (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



Azimuth

Elevation
0° Downtilt

Revised 09/03/04

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