

SIRIUS XM

RADIO INC.

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November 9, 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
Eight 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"), a satellite radio licensee in the Satellite Digital Audio Radio Service, hereby requests 180-Day Special Temporary Authority ("STA") to operate multiple low power terrestrial repeaters in its licensed frequency band, each of which has average Effective Isotropically Radiated Power ("EIRP") of up to 2000 watts. Specifically, this application seeks authority to operate one new low power repeater in the former Sirius Satellite Radio Inc. ("Sirius") frequency band (2320-2332.5 MHz) and seven new low power repeaters in the former XM Radio Inc. ("XM") frequency band (2332.5-2345 MHz).

The Commission has recognized that SDARS operators require terrestrial repeaters to provide high-quality service nationwide.¹ Consistent with this policy, in September 2001, the Bureau granted STAs to Sirius XM to operate a nationwide network of terrestrial repeaters.² In the years since, the

¹ 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).

² 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").

Bureau has granted Sirius XM additional STAs to operate terrestrial repeaters, pending issuance of final rules governing the deployment and use of repeaters.³

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.

Technical Information for the New Low Power Repeater. 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.⁴ Exhibits B 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.

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,⁵ Sirius XM is sending a copy of this STA

³ See, e.g., *Sirius Satellite Radio Inc.; Request to Modify Special Temporary Authority to Operate Additional Satellite Digital Audio Radio Service Terrestrial Repeater, 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 Repeater, 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 Repeater, 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.

⁴ 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.

⁵ See *Sirius STA Order* ¶ 14 and *XM STA Order* ¶ 14.

application to Horizon Wi-Com LLC (“Horizon”) in satisfaction of this coordination requirement.⁶ 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.⁷ However, if prohibited interference does occur, Sirius XM will cease operation of the new repeaters until such interference can be eliminated.⁸

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:

⁶ 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 a WCS station serving the New York City metro area, Call Sign KNLB312. It is not clear from the certification whether the base station is receiving transmissions from CPE or is 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 its proposed repeaters will not create any interference concern for Horizon’s operating WCS site beyond any concerns that may exist from Sirius XM’s existing repeaters in the vicinity, none of which have been the subject of any interference complaints from WCS licensees or users.

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). Sirius XM agrees to these conditions.

⁸ 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 (202-380-4725), which is available on a continuous basis to receive any reports of any suspected interference and take immediate corrective action.

- (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
- (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, nor will it prejudice the outcome of the Commission's ongoing rulemaking pertaining to the deployment and operation of terrestrial repeaters.

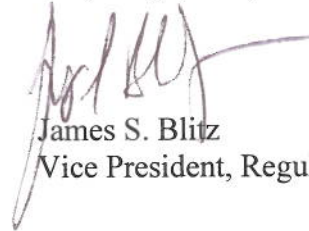
Sirius XM hereby certifies that no party to this application is subject to a denial of Federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 853(a).

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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.⁹

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

Rajendra Singh, Horizon Wi-Com LLC (rsingh@tvllc.com)
Thomas Gutierrez, Lukas Nace Gutierrez & Sachs (tgutierrez@fcclaw.com)

⁹ 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)
Las Vegas, NV	LVX010A	36-08-09	115-09-069	EMS FR90-17-00NVL	180	350	2	2000
Alpine, NJ	NYC005A	40-57-39	73-55-22	TA2304-2-DAB (90)	0	247	0	2000
Neptune, NJ	NYC010A	40-13-45	74-05-25	TA2304-2-DAB-H (120)	180	300	0	2000
Riverdale, NY	NYC013C	40-52-58	73-54-41	TA2304-2-DAB (90)	40	155	0	2000
Manhattan, NY	NYC035A	40-51-18	73-55-38	TA2304-2-DAB (90)	45	200	4	2000
Fort Lee, NJ	NYC056E	40-51-17	73-58-17	TA2304-2-DAB (90)	20	227	0	2000
New Rochelle, NY	NYC098A	40-54-43	73-46-56	TA2304-2-DAB (90)	0	180	0	2000
Westwood, NY	Sirius 28-12 (Sector 1)	40-59-26	74-01-48	TA2304-2-DAB-H (120)	330	102	2	2000

Exhibit B

Google™ Satellite Image of Repeater Location

LVX010A

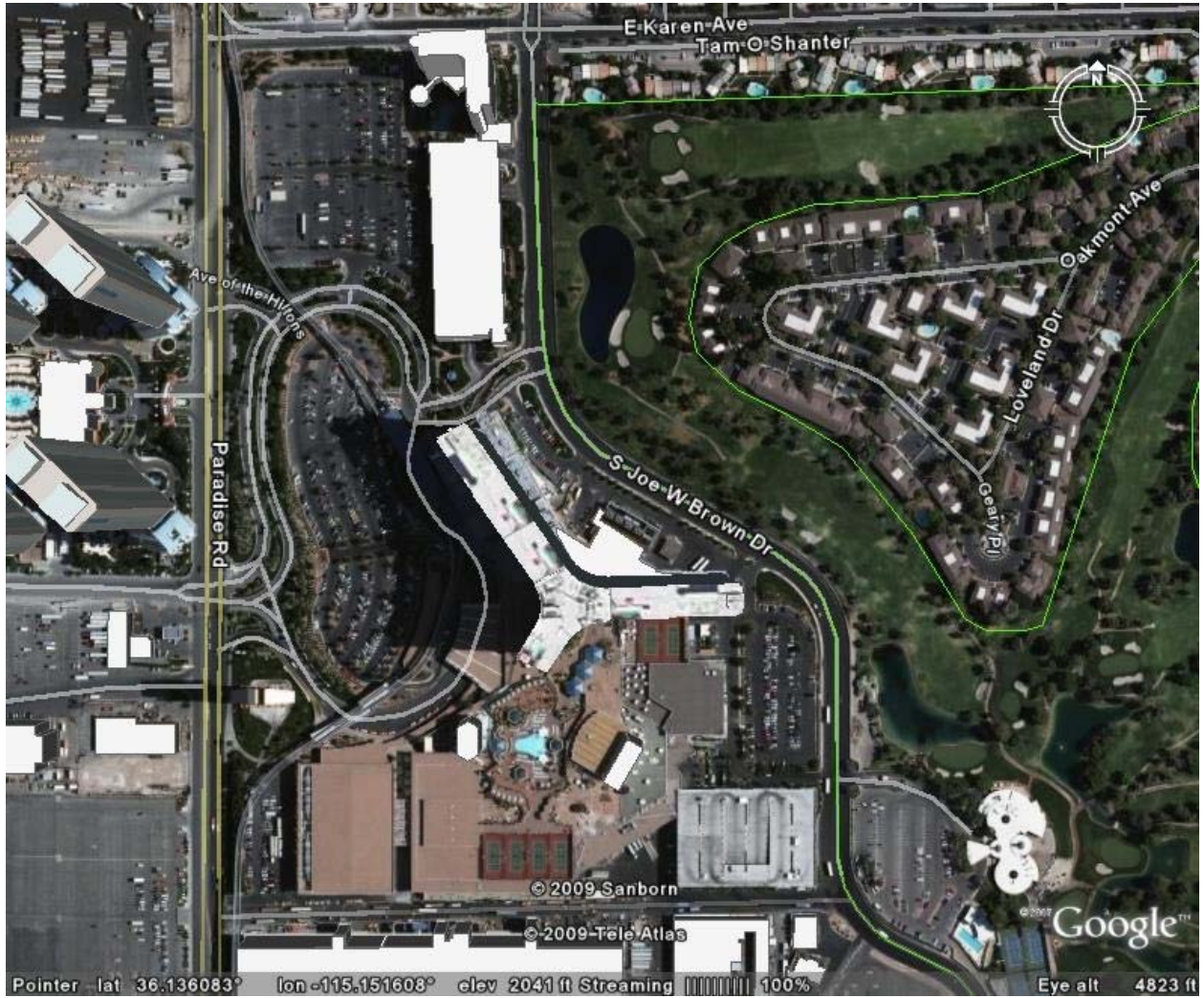


Exhibit B

Google™ Satellite Image of Repeater Location

NYC005A

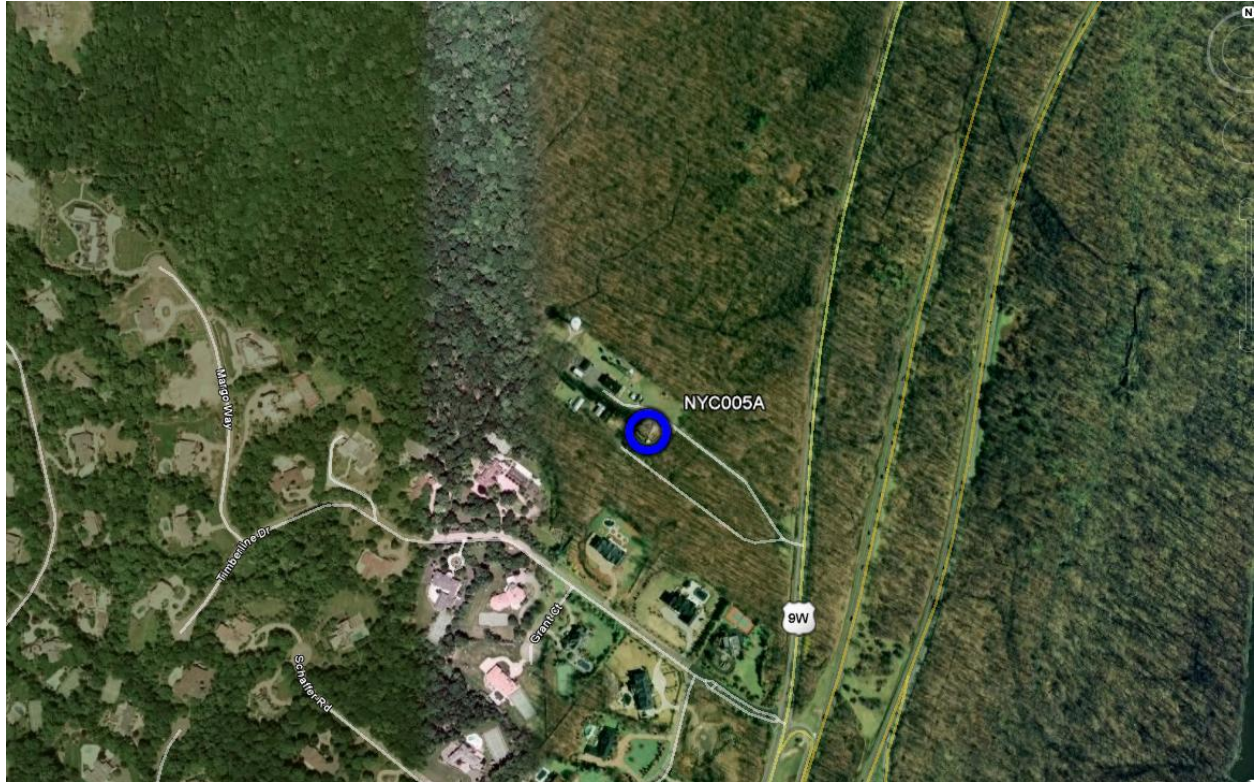


Exhibit B

Google™ Satellite Image of Repeater Location

NYC010A

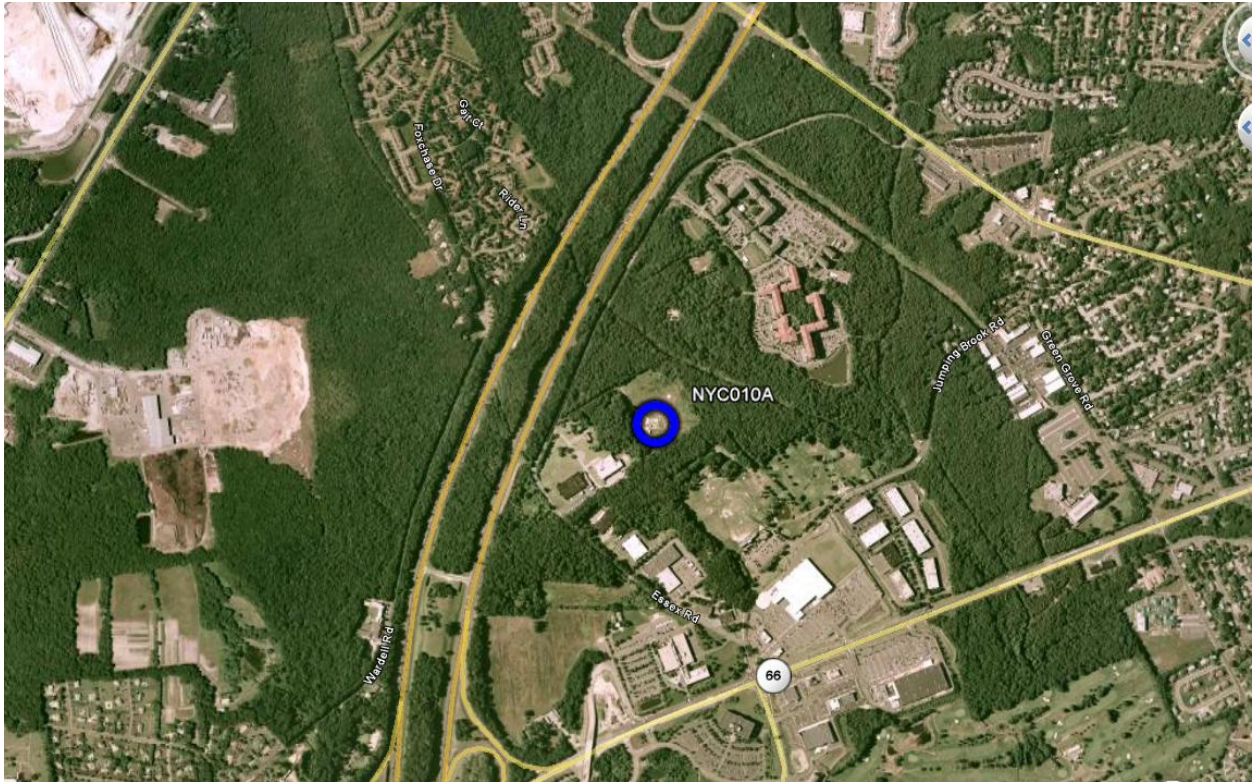


Exhibit B

Google™ Satellite Image of Repeater Location

NYC013C

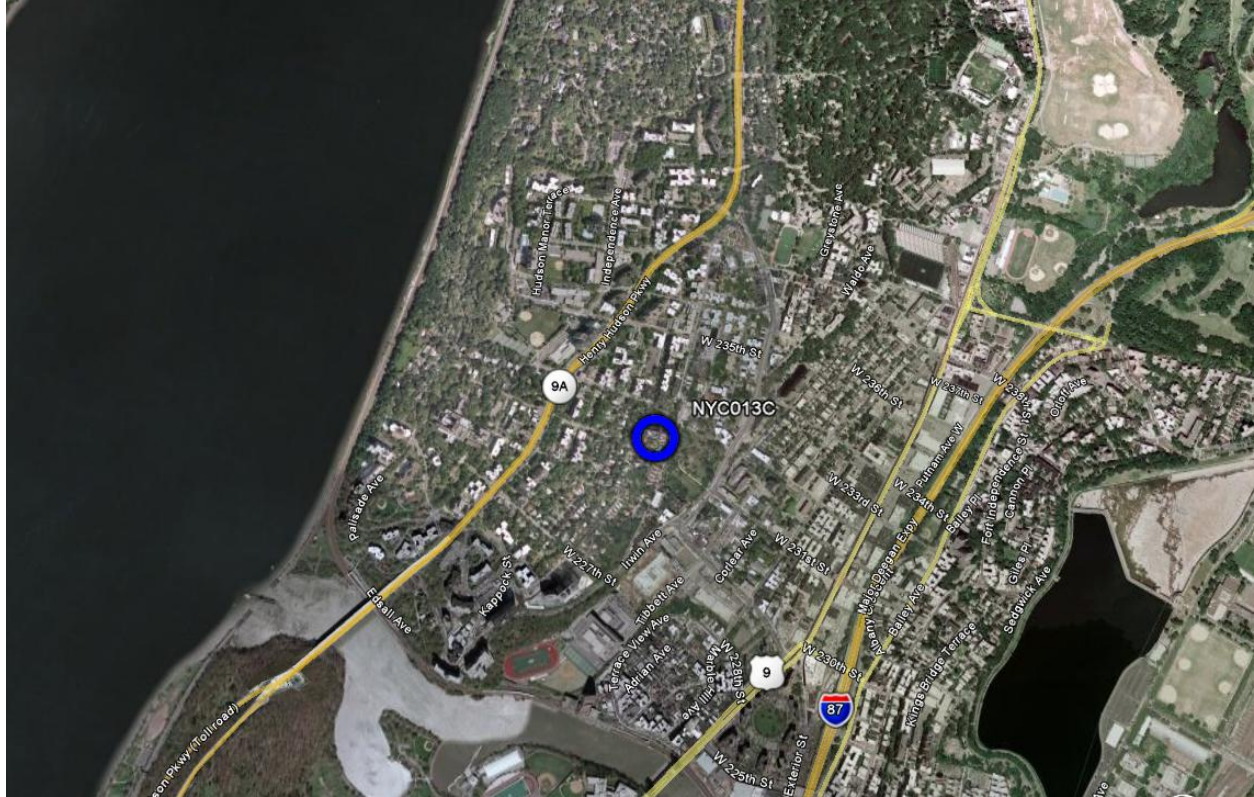


Exhibit B

Google™ Satellite Image of Repeater Location

NYC035A

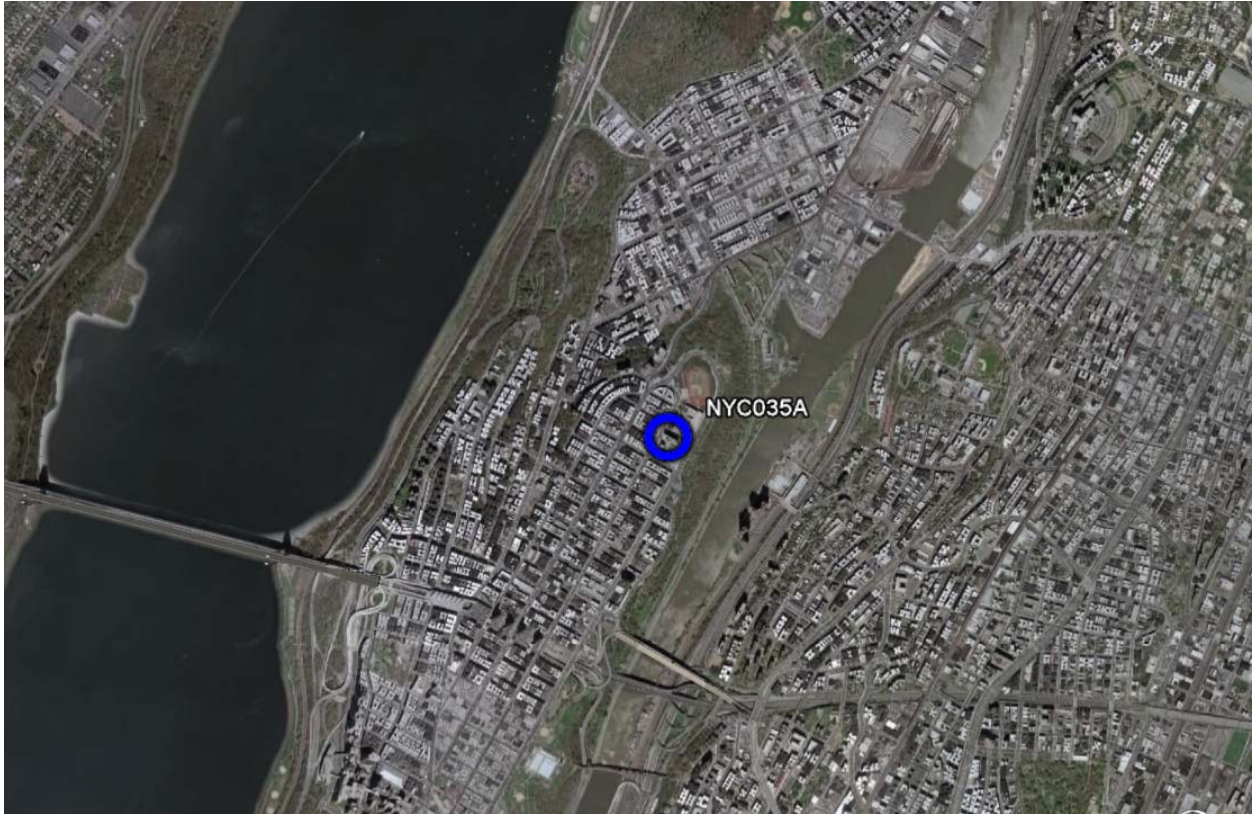


Exhibit B

Google™ Satellite Image of Repeater Location

NYC056E

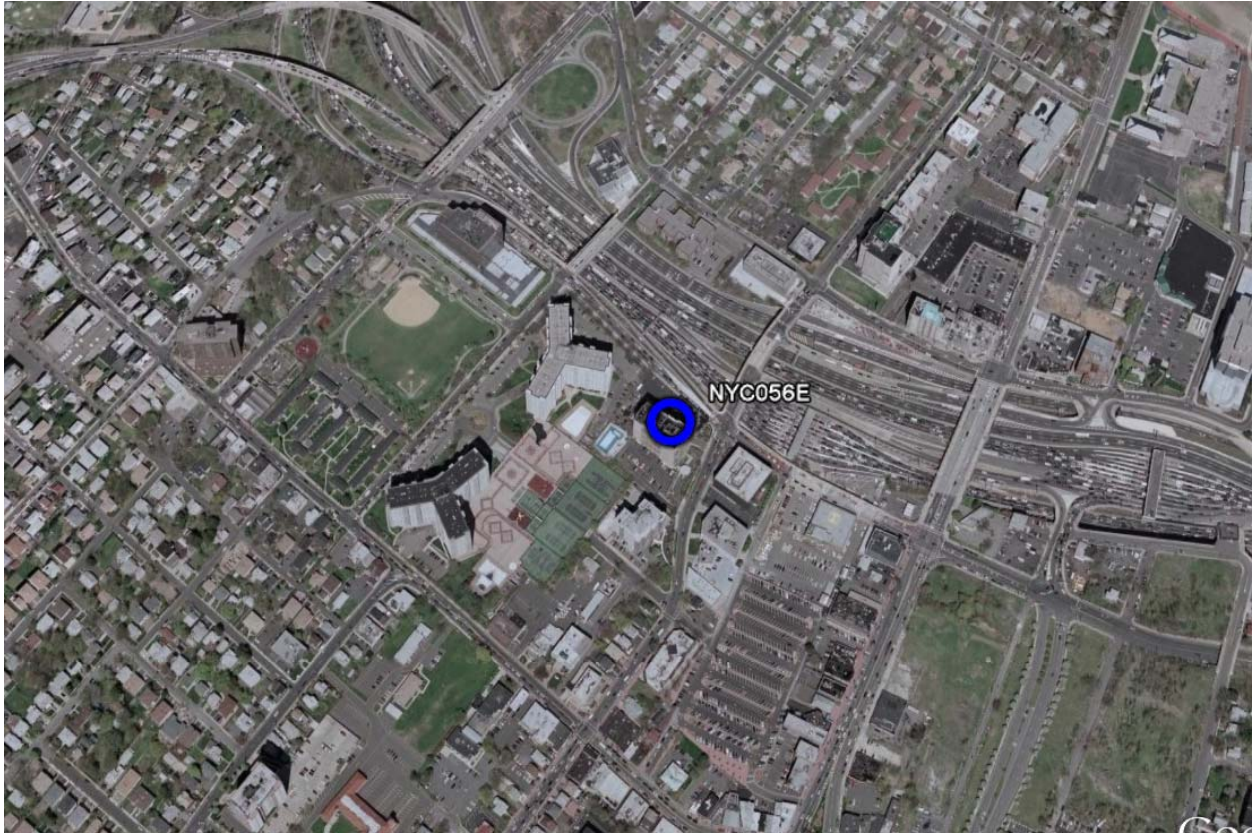


Exhibit B

Google™ Satellite Image of Repeater Location

NYC098A

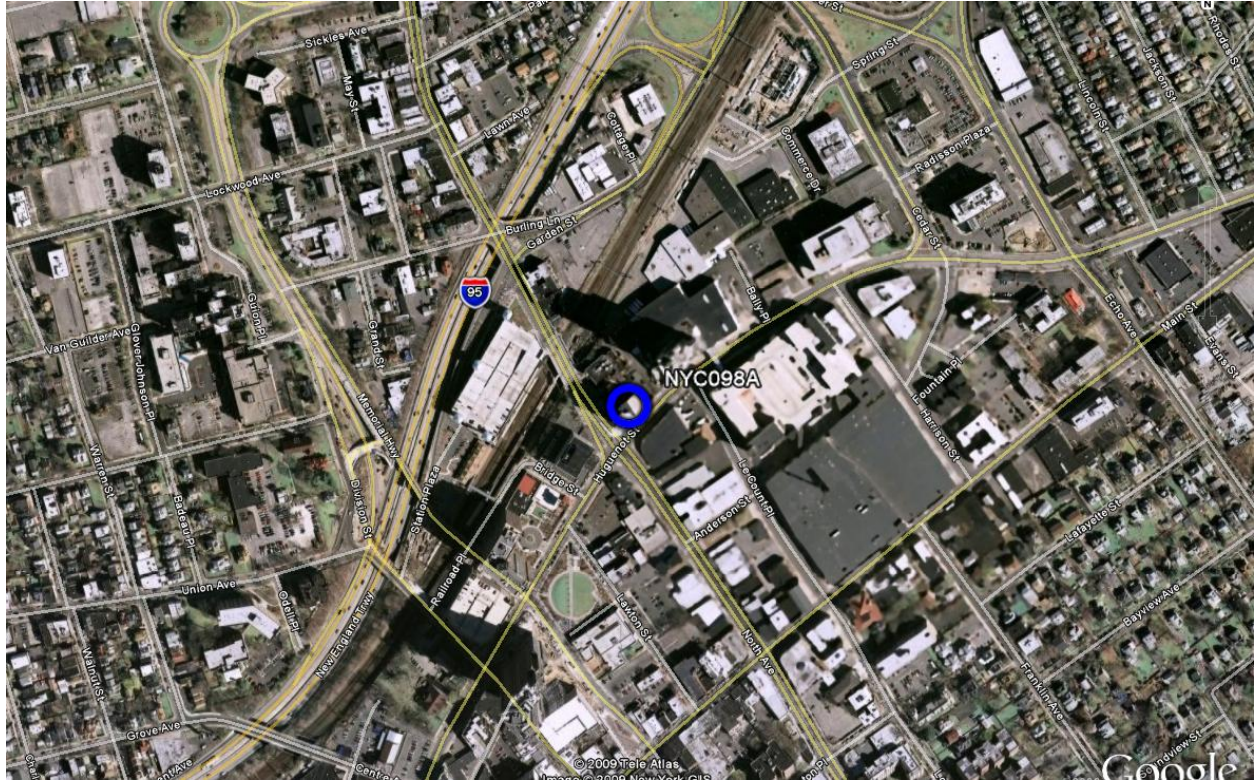


Exhibit B

Google™ Satellite Image of Repeater Location

Sirius 28-12

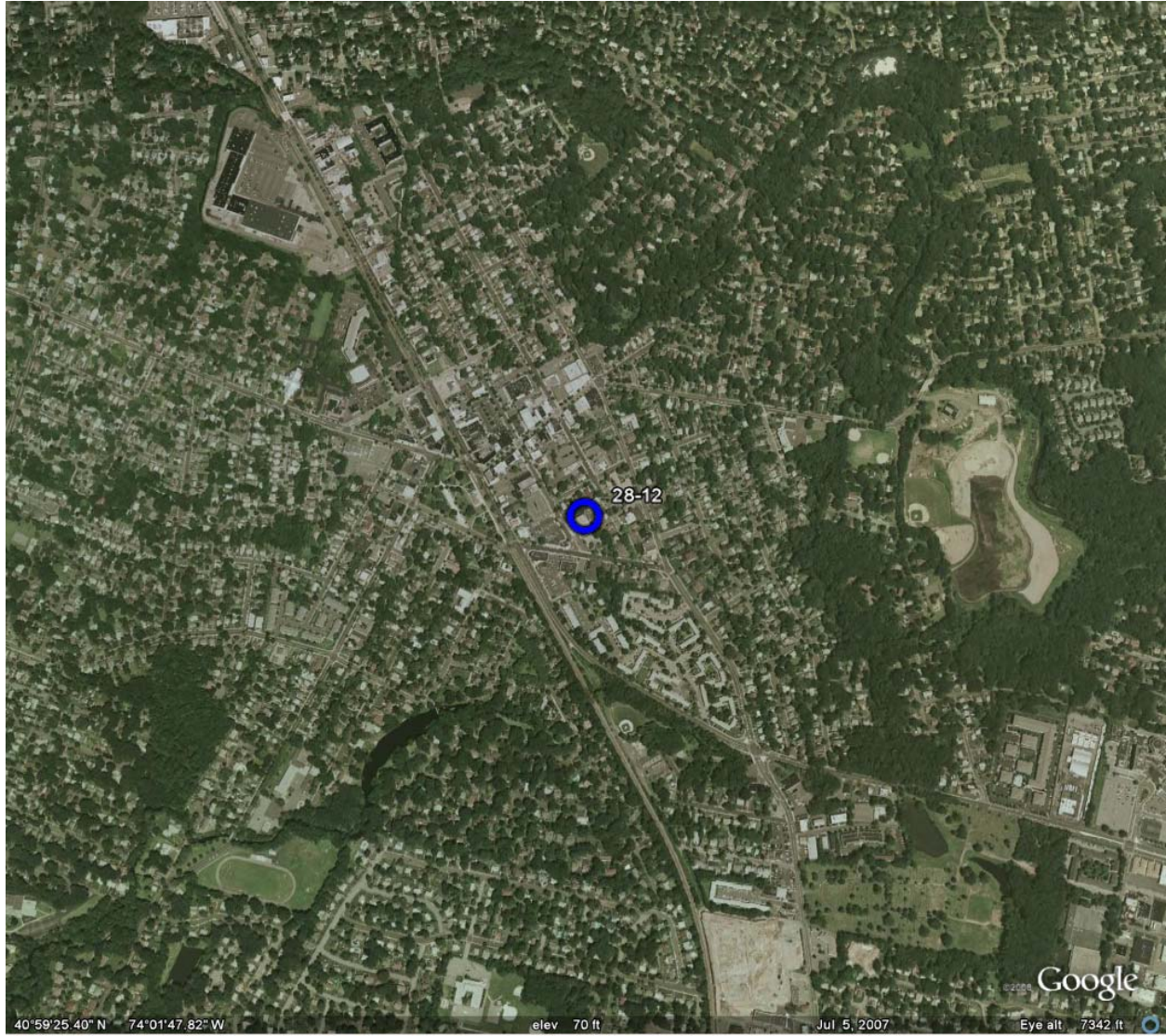


Exhibit C

Topographic Map of Repeater Location

NYC005A

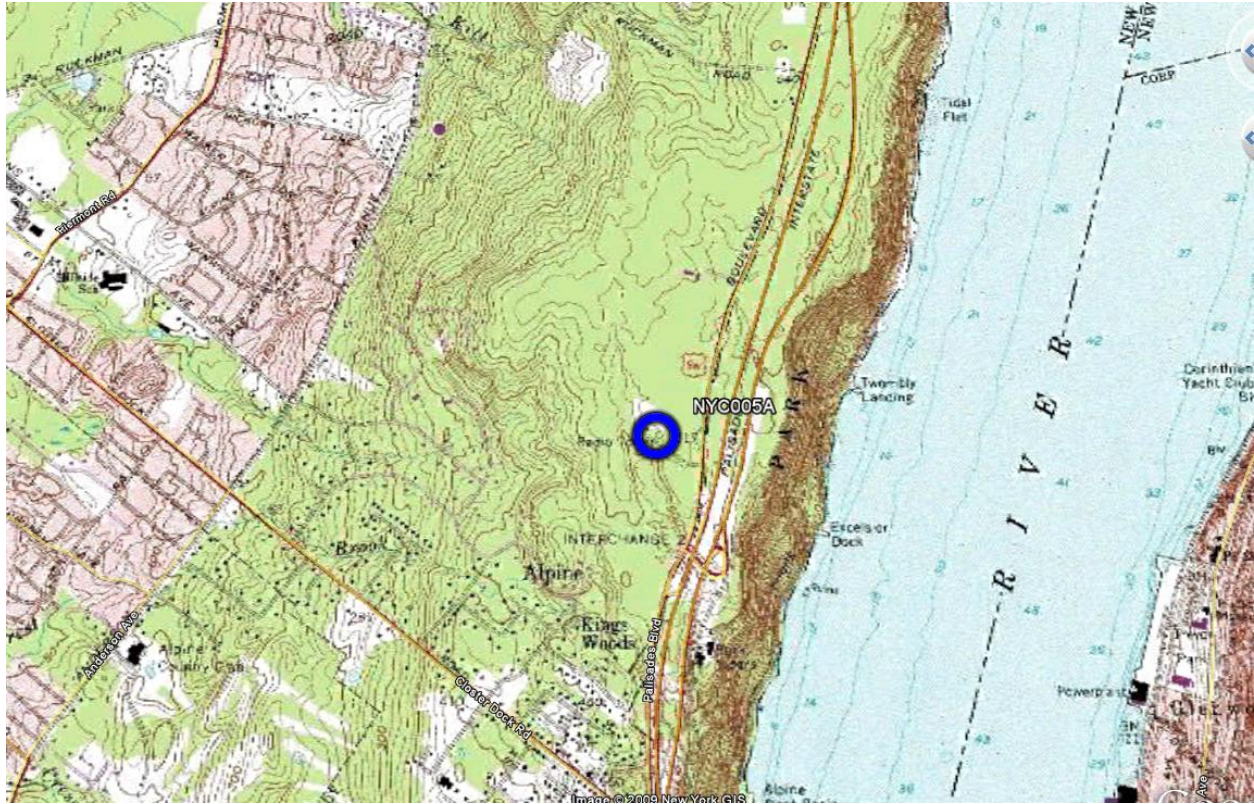


Exhibit C

Topographic Map of Repeater Location

NYC010A

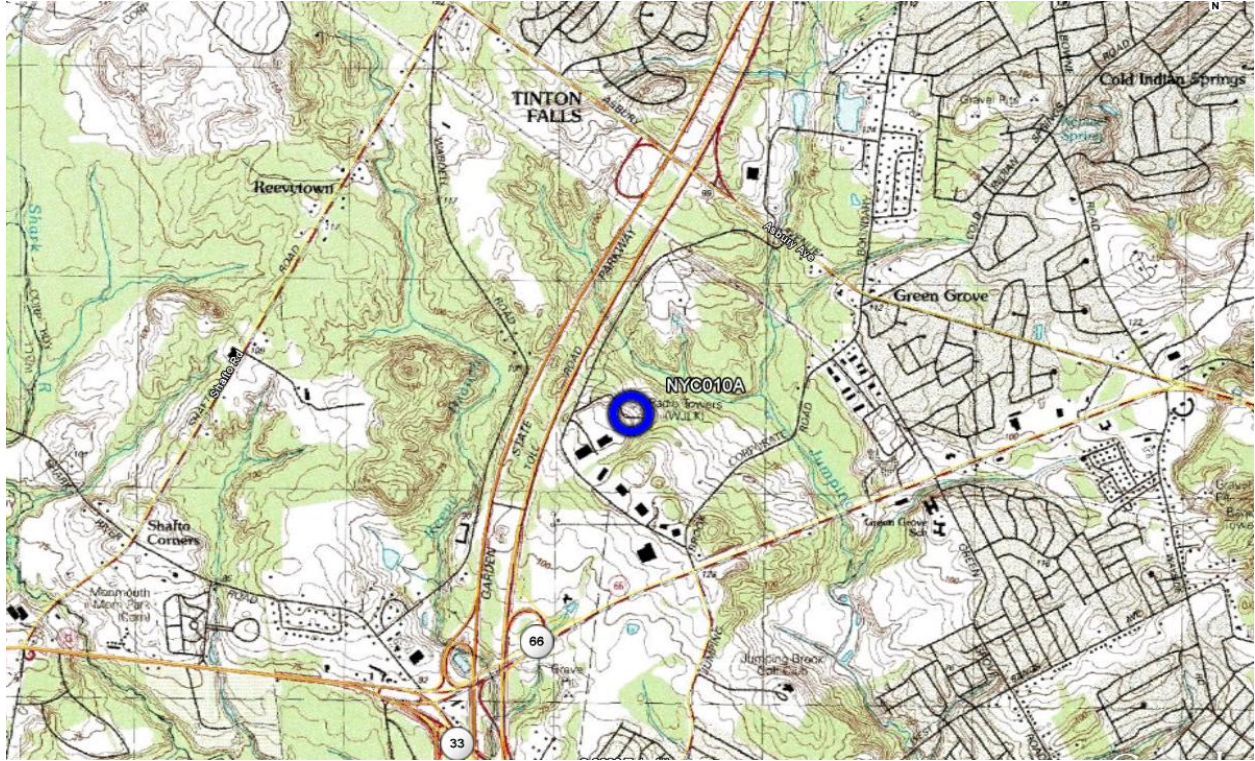


Exhibit C

Topographic Map of Repeater Location

NYC013C



Exhibit C

Topographic Map of Repeater Location

NYC035A

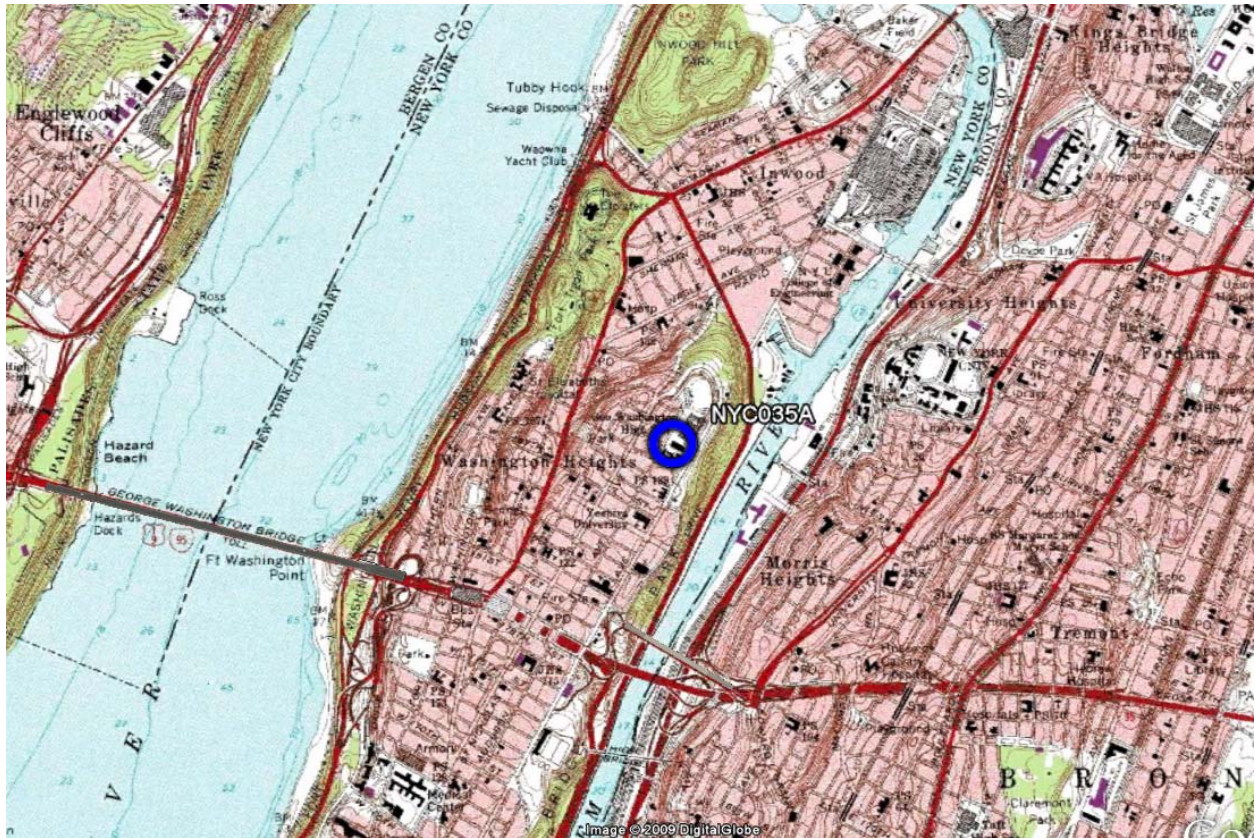


Exhibit C

Topographic Map of Repeater Location

NYC056E

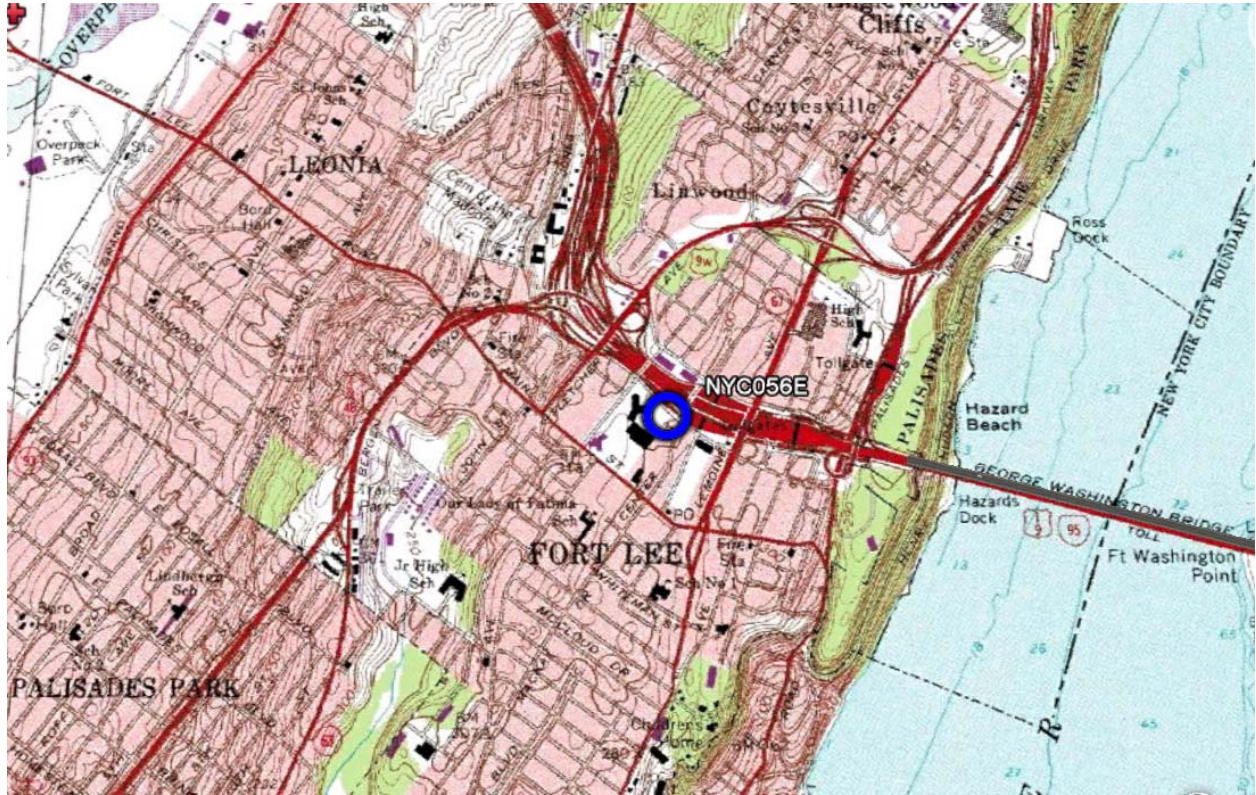


Exhibit C

Topographic Map of Repeater Location

NYC098A

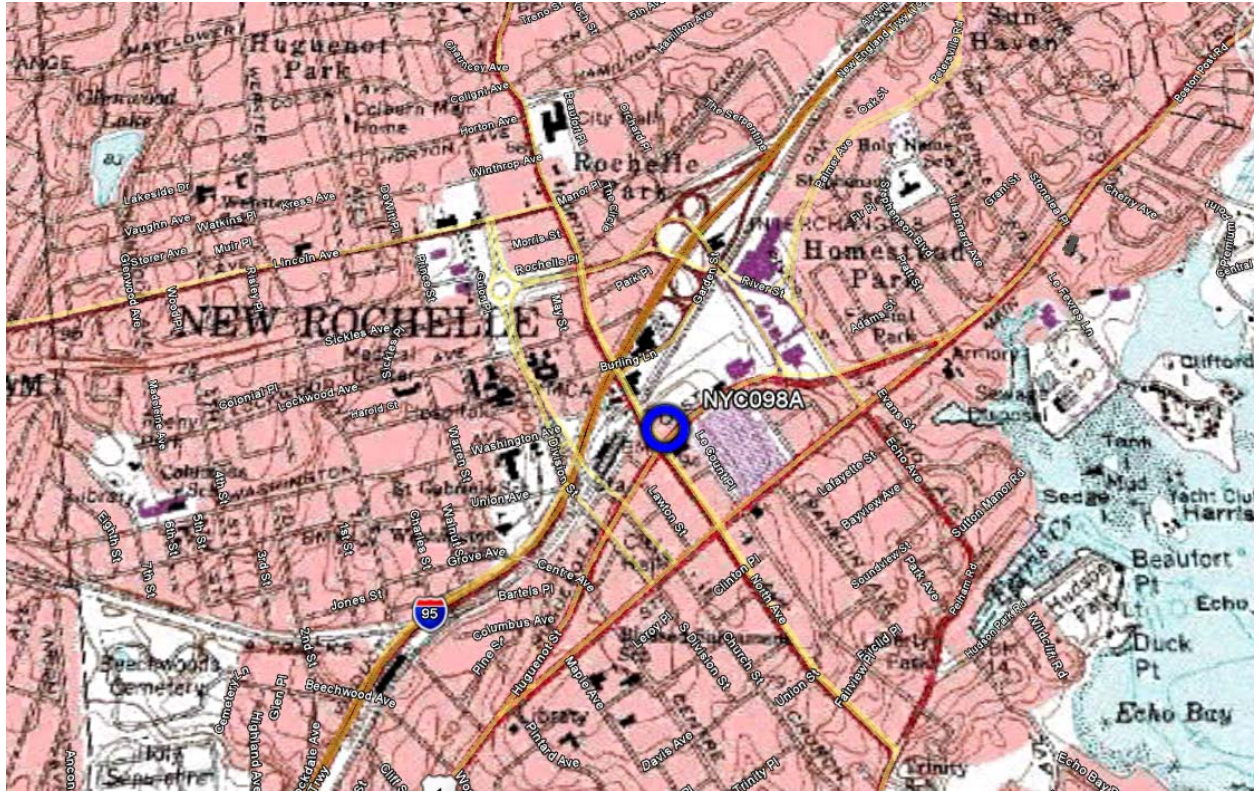


Exhibit C

Topographic Map of Repeater Location

Sirius 28-12

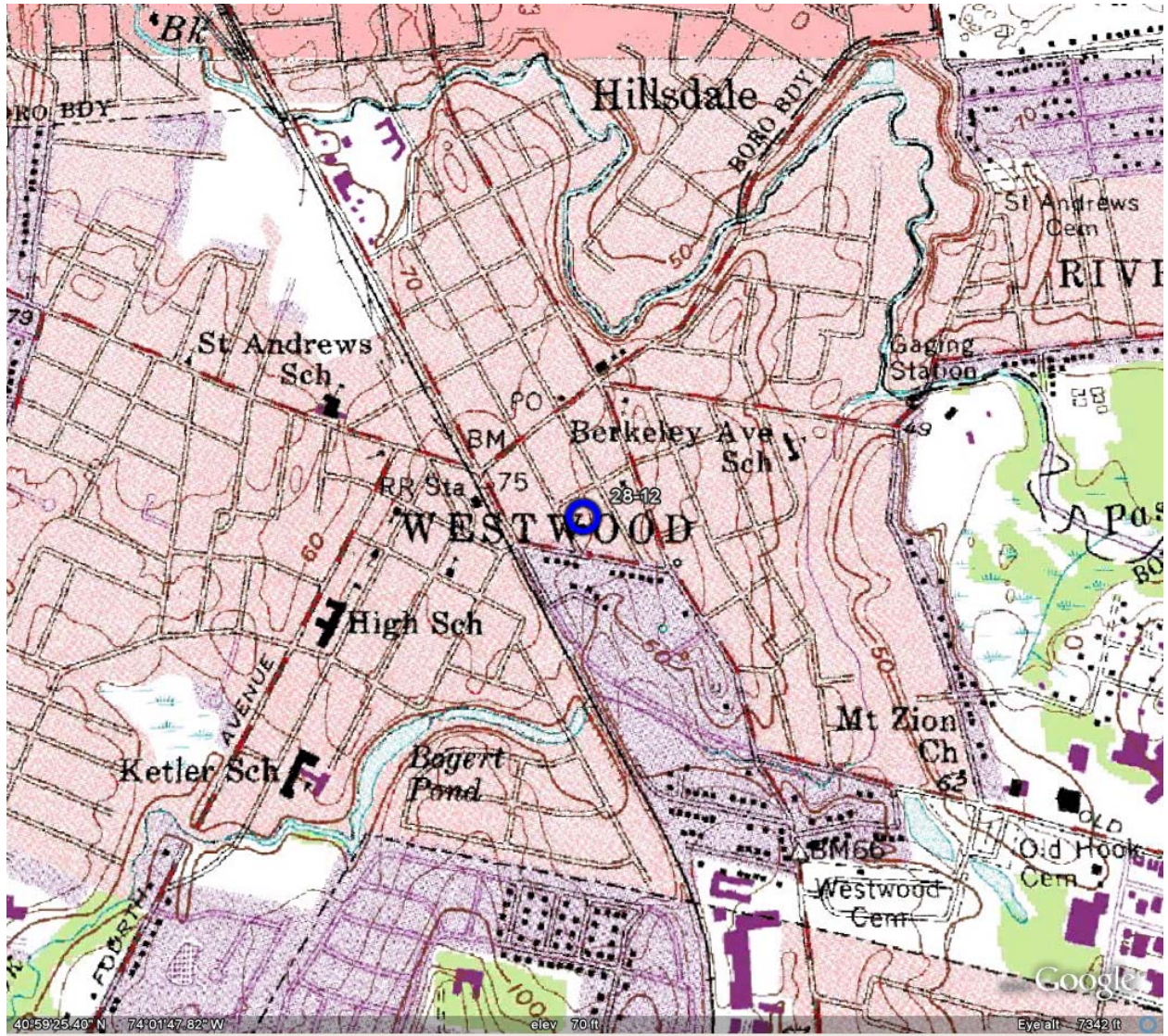


Exhibit D

Antenna Specification Sheets for Repeaters



FR90-17-XXXVL

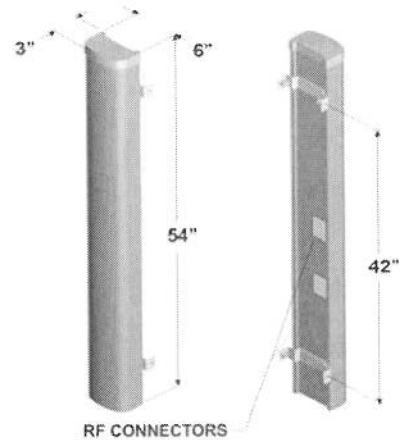
DualPol[®] Polarization

2305 MHz - 2360 MHz

OptiFill™
Suppressor™

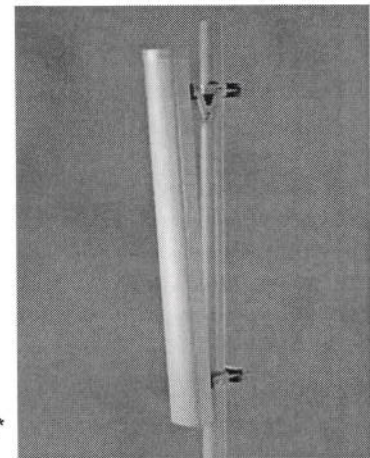
Electrical Specifications

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 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)

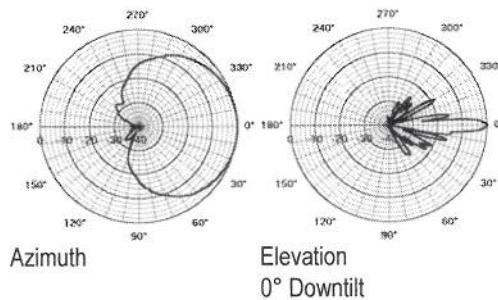


Mounting Options

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



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.

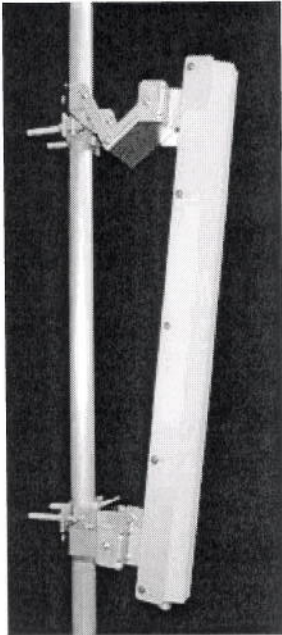
Revised 09/03/04



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

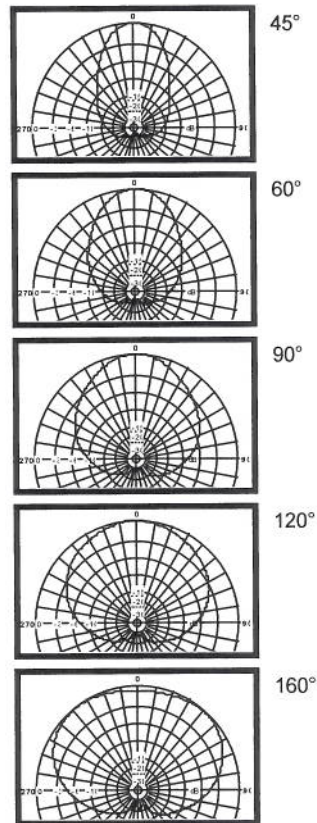
Length: 39.5 in. (1003 mm)
Width: 6.5 in. (165 mm) with 45° side panels
 5.0 in. (127 mm) without 45° side panels
Depth: 3.5 in. (89 mm)
Weight (incl. Clamps): 8 lb. (3.6 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 86 lb. (39 kg)
 with 45° side panels: 113 lb. (51 kg)
Mechanical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

Materials

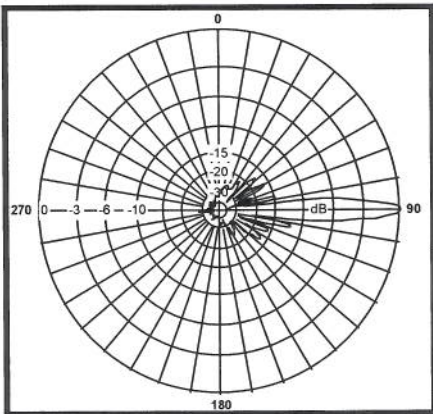
Radiating Elements: Tin Plated copper on PCB
Reflector: Irridited aluminum
Radome: Gray UV stabilized ASA
Clamps: Aluminum and HDG steel

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

H-Plane



E-Plane

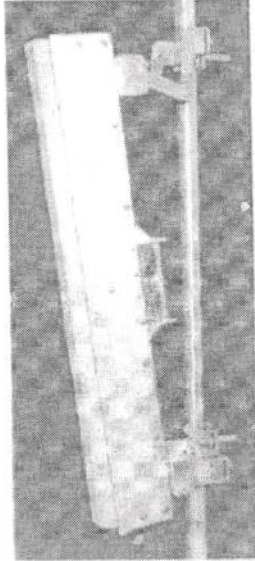




TA-2304-2-DAB-H

High Power Adjustable Sector

2330-2345 MHz



The TA-2304-2-DAB-H is a high 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: 18 dBi @ 45°, 17 dBi @ 60°, 15 dBi @ 90°
 14 dBi @ 120°, 13 dBi @ 160°
 VSWR: 1.3:1 max.
 Front to Back Ratio: 15 dB min.
 Polarization: Vertical
 Power Rating: 2000 W avg., 8000 W peak
 H-Plane Beamwidth: 45°, 60°, 90°, 120°, 160°
 E-Plane Beamwidth: 7 degrees
 Cross Pol. Discrimination: 20 dB
 Impedance: 50 ohms nominal
 Termination: 7/8" EIA Flange

Mechanical Specifications

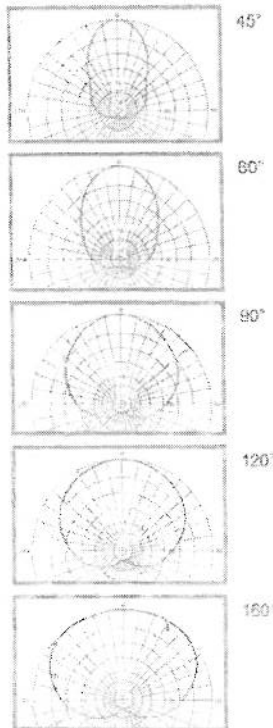
Length: 39.4 in. (1001 mm)
 Width: 6.5 in. (165 mm) with 45° side panels
 5.0 in. (127 mm) without 45° side panels
 Depth: 9.0 in. (228.6 mm)
 Weight (incl. Clamps): 31 lb. (14.1 kg)
 Rated Wind Velocity: 125 mph (200 km/h)
 Hor. Thrust at rated wind: 85 lb. (39 kg)
 with 45° side panels: 111 lb. (50.4 kg)
 Mechanical Tilt: 0° +/- 11.5°
 Mounting (O.D.): 0.75 - 3.0 in. (19 - 76 mm)

Materials

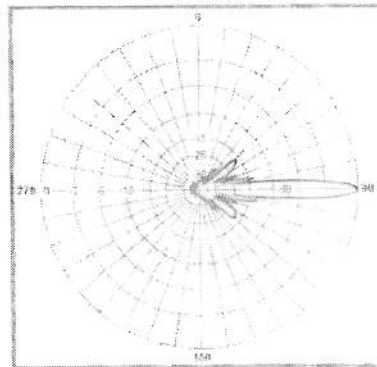
Radiating Elements: Tin Plated copper on PCB
 Reflector: Iridized aluminum
 Radome: Gray UV stabilized ASA
 Clamps: Stainless and HDG steel

Typical mid band values. (For details, contact factory)
 Specifications subject to change without notice.

H-Plane



E-Plane



Rev. 1.1

2002-03-27

500 Van Buren Street
 P.O. Box 560
 Kemptonville ON K0G 1J0
 Canada



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 CGSB Registered
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