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Callsign:

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Request for Special Temporary Authority

1. Applicant

Name:	XM Radio Inc.	Phone Number:	202-380-1383
DBA Name:		Fax Number:	202-380-1373
Street:	1500 Eckington Place, NE	E-Mail:	james.blitz@xmradio.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20002 -
Attention:	James S. Blitz		

2. Contact

Name:	James S. Blitz	Phone Number:	202-380-1383
Company:	XM Radio Inc.	Fax Number:	202-380-1373
Street:	1500 Eckington Place, NE	E-Mail:	james.blitz@xmradio.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20002 -
Attention:		Relationship:	

(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?

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity Noncommercial educational licensee
- Other (please explain):

4b. Fee Classification CRY - Space Station (Geostationary)

5. Type Request

- Change Station Location Extend Expiration Date Other

6. Temporary Orbit Location

7. Requested Extended Expiration Date

8. Description (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

See attached letter.

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. Yes No

10. Name of Person Signing
James S. Blitz

11. Title of Person Signing
Vice President, Regulatory Counsel

12. Please supply any need attachments.

Attachment 1: XM STA Request

Attachment 2: Exhibits/Table

Attachment 3: Declaration

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

October 2, 2006

Via Electronic Filing

Mr. John Giusti
Acting Chief
International Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

**Re: XM Radio Inc.
Request for Special Temporary Authority to Operate
Satellite Digital Audio Radio Service Terrestrial Repeaters**

Dear Mr. Giusti:

XM Radio Inc. ("XM"), one of the two Satellite Digital Audio Radio Service ("SDARS") licensees in the United States, pursuant to Section 25.120(b)(4) of the Commission's rules, hereby requests Special Temporary Authority ("STA") for a period of 30 days to operate SDARS terrestrial repeaters identified in Exhibit A, in their licensed bands, pursuant to the technical parameters shown therein.¹ Grant of this STA will ensure continuity of service to millions of SDARS subscribers without resulting in any interference while the International Bureau (the "Bureau") processes XM's request for a 180-day STA that will be filed shortly pursuant to Section 25.120(b)(2) of the Commission's rules. 47 C.F.R. § 25.120(b)(2). Based on XM's experience in operating its repeater network, these operations should not cause harmful interference to any operations of other services or licensees.

Background. The Commission has recognized that terrestrial repeaters are critical to enable SDARS licensees to overcome the effects of signal blockage and multipath interference.² Consistent with this policy, in September 2001, the Bureau granted XM an STA to operate a network of terrestrial repeaters while the Commission concluded its rulemaking proceeding

¹ 47 C.F.R. § 25.120(b)(4). Because XM is requesting temporary authority for a 30-day period and it does not contemplate filing an application for "regular" authority, the Bureau can grant this STA without placing it on Public Notice. *Id.*

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 (1997) ("DARS Order and FNPRM").

regarding final technical rules for this service.³ In granting this STA, the Bureau recognized that XM “needs to employ terrestrial repeaters to provide adequate service.” See *XM STA Order* ¶ 7. Soon after grant of this STA, XM began providing commercial satellite radio service. Since that time, satellite radio has proven to be a highly attractive service to American consumers, confirming the Commission’s vision in establishing the satellite radio service. As of today, XM has over 7 million subscribers (roughly 15 million listeners).

Variations. Much of XM’s repeater network is operating in a manner that is fully consistent with the existing STA authorizations. In addition, the network contains many fewer repeaters than authorized and operates in many cases at lower power levels. However, as described more fully below, XM’s repeater network – as built and operating – varies in numerous instances from the network authorized by the STAs the Commission has granted. Many of these variations are *de minimis*. Many, however, do represent more significant differences in certain aspects from the site-specific authorizations in XM’s existing STAs. XM has already taken steps to eliminate some of the largest variations, including turning down to authorized power levels, 210 repeaters that were operating less than 2 dB above authorized power levels and turning down to authorized power levels nine (of eleven) repeaters that were operating at more than 2 dB above authorized power levels. XM has also turned off the transmitters of fifteen (of nineteen) repeaters that were operating without any obviously applicable STA for the area of the repeater. The purpose of this STA request is both to ensure that consumers can continue to receive robust service from XM and to bring XM’s entire repeater network into compliance for 30 days, while the Commission has the opportunity to consider a 180-day STA request covering the entire network that XM will file shortly.

Request for STA. Attached as Exhibit A is a list of the repeaters for which XM seeks authorization in the instant filing, including each repeater’s technical parameters.⁴ XM has previously provided much, if not all, of this information to the other SDARS licensee and, with

³ *XM Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complimentary Terrestrial Repeaters, Order and Authorization*, DA 01-2172, at ¶ 18 (rel. September 17, 2001) (“*XM STA Order*”). Since the time the Bureau issued the XM STA Order, the Bureau has granted XM additional STAs to operate terrestrial repeaters. See XM Radio Inc. Request for Special Temporary Authority, File No. SAT-STA-20020815-00153 (granted September 30, 2002); *XM Radio Inc., Order and Authorization*, DA 04-2987, File No. SAT-STA-20031112-00371 (Deputy Chief, Satellite Division, International Bureau, September 15, 2004).

⁴ Exhibit A provides the following technical information for each of the repeaters that XM seeks to operate pursuant to this STA: (1) market; (2) number of sectors; (3) antenna type; (4) EIRP; (5) antenna beamwidth; (6) orientation; (7) geographic coordinates; and (8) antenna height. XM has also attached as Exhibit B the antenna specification sheets for each of the antenna types listed.

regard to their licensed markets, to the WCS licensees that participated in negotiations with XM concerning the pending repeater rulemaking. *See DARS Order and FNPRM.* To assist the Bureau in its analysis of this request, XM has highlighted in yellow all variances that fall into the following categories: repeaters whose locations are not obviously covered by XM's current STA grants; antennas added to an existing authorized site (*e.g.*, a single panel antenna changed to two panel antennas); repeaters operating with an EIRP greater than authorized; repeaters operating at a location differing more than 5 seconds from authorized location; repeaters with a different antenna type than authorized; repeaters with antenna orientation differing from that authorized; repeaters with antenna height differing from that authorized; and repeaters with antennas having down-tilt differing from that authorized.

There are a number of reasons for the variances between the repeater network as authorized and as built and operated. The largest single reason for variance is the determination that many authorized repeaters could simply be eliminated based in part on greater than anticipated satellite signal availability. Other reasons include: transcription errors in information originally provided to the Commission; installation by contractors that differed from the parameters listed in the STA; the determination that some locations for planned repeaters were unavailable; the replacement of several authorized repeaters by a single repeater in a different location; and the relocation or addition of a repeater based on empirical data gathered from drive tests and customer feedback which demonstrated a need for better service.

In some significant cases, the variances typically developed because XM found, as it deployed the network, that it was able to substitute one new repeater for several other repeaters or that it needed to adjust the power or location of a central repeater to avoid self-interference within the network. The attached Declaration of Jeffrey Snyder, who at the time the repeater network was built held the position of XM's Vice President of Repeater Engineering and Operations, provides an explanation of how the design and deployment of the repeater networks evolved during the initial months of the system's deployment. In no case, however, did XM operate such repeaters in a market where it did not have authority to operate repeaters. Moreover, XM has not received any interference complaints from any WCS licensee during its operation of repeaters pursuant to these technical parameters.

The repeater network that XM constructed and is requesting to continue to operate with the technical parameters in Exhibit A involves over 300 fewer repeaters than the FCC authorized XM to operate in its existing STAs, including 86 fewer high power repeaters, and over 250 fewer medium power repeaters (operating in the 2 - 10 kW range). From an overall system standpoint, the total power being radiated and particularly the radiation of high power signals in urban markets results in a network that should be less objectionable to other parties than the network granted by the FCC in XM's previous STAs.

Remedial Actions. Beginning on September 23, 2006, XM took a series of remedial actions that immediately brought many of its repeaters into compliance with the STA. Exhibit A reflects the following remedial actions that XM has taken:

- XM reduced the power of 210 repeaters that were operating at up to 2 dB more power than authorized. XM is not requesting authority in this application to return those repeaters to their previous power levels.
- XM turned off 15 of 19 repeaters that were not obviously covered by any existing STA.
- XM reduced to their authorized power, 9 of 11 repeaters that were operating at more than 2 dB above their authorized power.

As reflected in Exhibit A, XM herein asks for authority to return to operation eight of the fifteen repeaters that were turned off, and to increase to pre-existing power levels five of the nine repeaters that had been operating at more than 2 dB above authorized levels but were reduced in power .

As indicated above there are also four repeaters not covered by an existing STA as to which XM has not taken any corrective action, and two repeaters operating at more than 2 dB above authorized transmitter power as to which XM has not taken any corrective action. As reflected in Exhibit A, XM also asks for authority to continue to operate these repeaters as they are now operating.

Public Interest. We believe it is strongly in the public interest for XM to keep operating the six repeaters noted above as to which it has taken no corrective action, and to turn back on or increase the power for the other thirteen repeaters noted above.

The four currently operating repeaters that do not have obviously applicable STAs serve core urban areas in Ann Arbor, Boston, Buffalo, and Providence, where there are large areas dependent on the terrestrial repeater signal for coverage.

The two repeaters currently operating more than 2 dB above authorized power levels serve high traffic routes in Nashville and New York City that are highly dependent on repeater coverage to fill gaps in satellite service.

The eight repeaters that have been turned off serve major roadways in the Birmingham, Cincinnati, Detroit, New York, and St. Louis markets, and the five repeaters that have been reduced in power are near major traffic routes in the New York, Sacramento, San Francisco, and Washington, DC markets.

Table 1 provides more specific information about each of these repeaters, including the actions taken and the authority requested.

In light of the above, XM urges the Bureau to grant the requested Special Temporary Authority in the public interest. An expeditious grant will permit XM to continue to provide a valuable entertainment and information service to millions of American consumers with the same quality of service they have come to expect. As demonstrated by XM's previous operations, there is no risk of causing harmful interference to other services or licensees and, to the extent any such interference should develop, XM accepts its obligation to remedy the situation immediately. Grant of this application also is without prejudice to the processing of XM's 180-day STA request.

XM certifies that its operation of these repeaters complies with the same conditions the Bureau imposed on XM in granting its original STA. *See XM STA Order* ¶ 18. Specifically, XM certifies the following:

- (a) Any actions taken as a result of this STA are solely at XM's own risk. This STA will not prejudice the outcome of the final rules adopted by the Commission in GEN Docket 95-91.
- (b) Operation of the repeaters authorized pursuant to this STA is on a non-interference basis with respect to all permanently authorized radiocommunication facilities.⁵ XM will provide the information and follow the process set forth in the *XM STA Order*, including the requirement that XM cease operating any repeater that interferes, upon receiving a written, descriptive notification identifying the specific source of interference.
- (c) The repeaters are restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to SDARS receivers.
- (d) Where applicable, coordination of the repeaters has been completed with all affected Administrations, in accordance with all applicable international agreements including those with Canada and Mexico.
- (e) The repeaters comply with Part 17 of the Commission's rules regarding antenna structures.
- (f) The repeaters comply with Part 1 of the Commission's rules, Subpart I - Procedures Implementing the National Environmental Policy Act of 1969,

⁵ XM's repeater operations center (202-380-4725) is staffed 24 hours per day, 7 days per week in the event that a repeater causes interference.

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.

- (g) The out-of-band emissions of the repeaters are limited to 75+log (EIRP) dB less than the transmitter EIRP.

One of the conditions imposed in the original STA grant was the requirement that XM pre-coordinate with Wireless Communications Service ("WCS") licensees any repeater affecting an operational WCS base station. *XM STA Order* ¶ 14. XM is willing to comply with this requirement, but XM is not aware of any operational WCS base station in any of the cities listed in Exhibit A.⁶

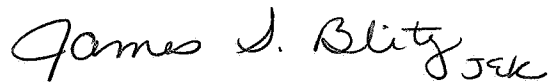
XM hereby certifies that no party to this application is subject to a denial of Federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 853(a).

XM has attached hereto a check made payable to the Federal Communications Commission for the sum of Seven Hundred Thirty-Five Dollars (\$735.00). This filing fee amount is applicable to requests for STAs for geostationary ("GSO") satellites. See *International and Satellite Services Fee Filing Guide* (September 2004).

XM will serve copies of this application on Sirius Satellite Radio and the WCS licensees of record.

Please direct any questions regarding this matter to the undersigned.

Very truly yours,

Handwritten signature of James S. Blitz in cursive, with the initials "JSB" written at the end.

James S. Blitz
Vice President, Regulatory Counsel

⁶ In the *XM STA Order*, the Bureau stated that it expects "WCS licensees to provide a schedule or as much advance notice as possible of when their stations are to be placed in operation." *XM STA Order* ¶ 14. To date, XM has not received information from any WCS licensee regarding their plans for WCS deployment.

Exhibit A

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Akron		AKR 002B	Tx1	41-03-56	81-30-11	TA-2350-DAB	0	150	0	1264
Akron		AKR 004A	Tx1	41-06-23	81-34-31	TA-2304-2-DAB(90)	310	110	0	3142
Akron		AKR 005A	Tx1	41-09-11	81-26-32	TA-2335-DAB-H	180	205	0	2742
Albany		ALB 002A	Tx1	42-39-07	73-45-35	TA-2350-DAB	0	324	0	1262
Albany		ALB 003A	Tx1	42-39-40	73-49-18	TA-2350-DAB	0	153	0	1386
Albany		ALB 006D	Tx1	42-43-14	73-48-00	TA-2304-2-DAB(90)	340	104	0	4246
Albany		ALB 008A	Tx1	42-48-49	73-55-58	TA-2350-T6	0	132	0	1342
Albany		ALB 010A	Tx1	43-05-55	73-47-12	TA-2350-T6	0	133	0	1074
Albany		ALB 013B	Tx1	42-36-12	73-44-00	TA-2304-2-DAB-H(60)	40	108	0	31622
Albuquerque		ALQ 004A	Tx1	35-12-50	106-27-02	TA-2304-2-DAB-H(90)	225	65	6	25118
Atlanta		ATL 003C	Tx1	33-52-04	84-28-08	TA-2350-T6	0	235	0	1185
Atlanta		ATL 004C	Tx1	33-51-11	84-22-38	TA-2304-2-DAB(120)	60	208	0	834
Atlanta		ATL 004C	Tx2	33-51-11	84-22-38	TA-2304-2-DAB(120)	300	213	0	834
Atlanta		ATL 005B	Tx1	33-45-14	84-29-54	TA-2350-DAB	0	158	0	1026
Atlanta		ATL 006B	Tx1	33-40-27	84-26-22	TA-2350-DAB	0	111	0	1185
Atlanta		ATL 007A	Tx1	33-37-21	84-29-13	TA-2350-T2	0	137	0	991
Atlanta		ATL 009A	Tx1	33-55-15	84-20-06	TA-2335-DAB-H	90	438	0	1247
Atlanta		ATL 009A	Tx2	33-55-15	84-20-06	TA-2335-DAB-H	300	438	0	1247
Atlanta		ATL 010B	Tx1	33-45-27	84-23-14	TA-2335-DAB-H	270	668	0	3436
Atlanta		ATL 011G	Tx1	33-58-37	84-32-44	TA-2304-2-DAB(160)	0	170	0	1589
Atlanta		ATL 012B	Tx1	33-55-42	84-33-00	TA-2350-T6	0	140	0	991
Atlanta		ATL 013A	Tx1	33-55-53	84-14-40	TA-2350-T6	0	283	0	631
Atlanta		ATL 016C	Tx1	33-45-43	84-14-58	TA-2350-DAB	0	140	0	1074
Atlanta		ATL 023B	Tx1	34-00-54	84-19-49	TA-2350-T6	0	120	0	991
Atlanta		ATL 024A	Tx1	33-53-55	84-28-02	TA-2350-DAB-T2	0	192	0	1400
Atlanta		ATL 026B	Tx1	33-55-25	84-08-13	TA-2350-DAB	0	160	0	991
Atlanta		ATL 027A	Tx1	33-41-48	84-23-57	TA-2304-2-DAB(120)	180	170	0	2392
Atlanta		ATL 028C	Tx1	33-43-04	84-15-18	TA-2350-DAB	0	160	0	913
Atlanta		ATL 029D	Tx1	33-52-18	84-11-15	TA-2350-DAB	0	124	0	1106
Atlanta		ATL 030B	Tx1	33-56-23	84-30-20	TA-2350-DAB-T2	0	158	0	1392
Atlanta		ATL 032A	Tx1	33-41-13	84-30-48	TA-2350-DAB	0	324	0	563
Atlanta		ATL 042D	Tx1	33-42-20	84-27-19	TA-2350-DAB	0	135	0	991
Atlanta		ATL 043B	Tx1	33-37-17	84-24-16	TA-2304-2-DAB(120)	270	85	0	2244
Atlanta		ATL 046A	Tx1	33-48-26	84-20-21	HMD8-V360-R05-H	0	600	0	5703
Atlanta		ATL 047D	Tx1	33-49-07	84-14-39	TA-2350-T6	0	250	0	725
Atlanta		ATL 048E	Tx1	33-46-49	84-17-47	TA-2304-2-DAB(120)	135	148	0	3557
Atlanta		ATL 049C	Tx1	33-41-11	84-18-33	TA-2350-DAB	0	125	0	1097
Atlanta		ATL 050A	Tx1	33-44-16	84-18-37	TA-2350-T6	0	125	0	1017
Atlanta		ATL 052B	Tx1	33-53-01	84-15-53	TA-2350-T6	0	250	0	723
Atlanta		ATL 053A	Tx1	33-55-01	84-12-06	TA-2304-2-DAB(120)	60	255	0	2000
Atlanta		ATL 054A	Tx1	33-39-45	84-22-27	TA-2350-DAB	0	225	0	748
Atlanta		ATL 056A	Tx1	33-42-09	84-19-47	TA-2350-T6	0	240	0	748
Atlanta		ATL 061E	Tx1	33-58-09	84-20-51	TA-2350-DAB	0	186	0	840
Atlanta		ATL 063A	Tx1	33-57-54	84-10-59	TA-2350-T6	0	220	0	823
Atlanta		ATL 064C	Tx1	33-52-16	84-31-45	TA-2350-T6	0	120	0	883
Atlanta		ATL 065A	Tx1	33-44-10	84-14-02	TA-2350-T6	0	150	0	787

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Atlanta	ATL	066A	Tx1	33-53-56	84-07-53	TA-2350-DAB	0	135	0	991
Atlanta	ATL	067A	Tx1	33-51-09	84-12-23	TA-2304-2-DAB(120)	45	157	3	2518
Atlanta	ATL	068A	Tx1	33-55-24	84-22-52	TA-2350-DAB-T2	0	155	0	941
Atlanta	ATL	069A	Tx1	33-58-19	84-30-09	TA-2304-2-DAB(120)	300	208	0	2958
Atlanta	ATL	076A	Tx1	34-03-27	84-18-18	TA-2350-T6	0	420	0	402
Atlanta	ATL	093C	Tx1	33-24-01	84-34-49	TA-2350-DAB	0	250	0	1416
Atlanta	ATL	094A	Tx1	33-20-29	84-31-57	TA-2350-DAB	0	180	0	978
Atlanta	ATL	095A	Tx1	33-50-30	84-25-35	TA-2304-2-DAB(120)	315	103	4	1800
Atlanta	ATL	110B	Tx1	33-45-26	84-23-14	TA-2335-DAB-H	160	664	0	3269
Atlanta	ATL	508B	Tx1	33-52-03	84-20-01	TA-2304-2-DAB(120)	10	133	0	2392
Atlanta	ATL	525A	Tx1	33-54-55	84-24-12	TA-2350-DAB-T2	0	131	0	594
Austin	AUS	003A	Tx1	30-19-24	97-47-59	TA-2304-2-DAB-H(160)	90	490	0	5929
Birmingham	BIR	001A	Tx1	33-26-28	86-53-02	TA-2304-2-DAB(90)	240	350	0	3811
Birmingham	BIR	002A	Tx1	33-25-04	86-49-56	TA-2304-2-DAB(90)	140	350	0	2518
Birmingham	BIR	005B	Tx1	33-29-04	86-48-31	TA-2304-2-DAB(90)	150	340	0	3166
Birmingham	BIR	006A	Tx1	33-33-45	86-42-06	TA-2350-T6	0	202	0	718
Birmingham	BIR	007B	Tx1	33-32-20	86-51-28	TA-2304-2-DAB(90)	240	265	0	3591
Birmingham	BIR	008A	Tx1	33-26-49	86-44-05	TA-2304-2-DAB(160)	180	112	0	2000
Birmingham	BIR	009A	Tx1	33-31-03	86-48-30	TA-2350-T6	0	501	0	1458
Birmingham	BIR	010A	Tx1	33-30-14	86-43-04	TA-2350-T6	0	157	0	990
Boston	BOS	101E	Tx1	42-21-30	71-03-30	TA-2335-DAB-H	0	600	0	13997
Boston	BOS	101E	Tx2	42-21-30	71-03-30	TA-2335-DAB-H	120	600	0	13997
Boston	BOS	101E	Tx3	42-21-30	71-03-30	TA-2335-DAB-H	240	600	0	13997
Boston	BOS	103B	Tx1	42-21-47	71-03-52	TA-2350-T6	0	485	0	1247
Boston	BOS	109B	Tx1	42-22-48	71-16-03	TA-2335-DAB-H	0	250	0	1878
Boston	BOS	109B	Tx2	42-22-48	71-16-03	TA-2335-DAB-H	240	250	0	1878
Boston	BOS	110F	Tx1	42-12-16	71-07-46	TA-2350-DAB	0	65	0	1123
Boston	BOS	111D	Tx1	42-18-12	71-13-04	TA-2335-DAB-H	0	285	0	1111
Boston	BOS	111D	Tx2	42-18-12	71-13-04	TA-2335-DAB-H	120	285	0	1111
Boston	BOS	111D	Tx3	42-18-12	71-13-04	TA-2335-DAB-H	240	285	0	1111
Boston	BOS	112B	Tx1	42-30-00	71-06-08	TA-2350-DAB	0	80	0	1062
Boston	BOS	115A	Tx1	42-34-31	70-52-00	TA-2350-DAB	0	170	0	840
Boston	BOS	116A	Tx1	42-34-21	70-54-29	TA-2350-DAB	0	61	0	1185
Boston	BOS	118D	Tx1	42-28-02	70-56-38	TA-2304-DAB(120)	45	190	0	1262
Boston	BOS	120C	Tx1	42-25-00	71-09-03	TA-2350-DAB	0	110	0	668
Boston	BOS	121A	Tx1	42-25-52	71-05-17	TA-2304-2-DAB(160)	0	260	0	1232
Boston	BOS	122A	Tx1	42-29-16	71-06-57	TA-2350-DAB	0	89	0	1123
Boston	BOS	123B	Tx1	42-19-30	71-11-25	TA-2350-DAB	0	68	0	1032
Boston	BOS	124A	Tx1	42-24-34	71-02-23	TA-2304-2-DAB(160)	45	108	0	1950
Boston	BOS	125A	Tx1	42-22-53	71-10-33	TA-2304-2-DAB(160)	290	74	0	1072
Boston	BOS	126B	Tx1	42-20-19	71-09-16	TA-2304-2-DAB(120)	180	178	0	1589
Boston	BOS	126B	Tx2	42-20-19	71-09-16	TA-2304-2-DAB(120)	300	178	0	1589
Boston	BOS	127A	Tx1	42-19-47	71-06-29	TA-2304-2-DAB(160)	250	107	0	2000
Boston	BOS	128A	Tx1	42-30-53	70-54-25	TA-2350-DAB	0	103	0	1247
Boston	BOS	129A	Tx1	42-32-57	70-53-00	TA-2350-DAB	0	94	0	991
Boston	BOS	132A	Tx1	42-27-08	71-08-08	TA-2350-DAB	0	73	0	1158

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Boston	BOS	134A	Tx1	42-30-18	71-04-07	TA-2304-2-DAB(160)	0	75	0	2000
Boston	BOS	135A	Tx1	42-27-36	71-03-39	TA-2304-2-DAB(120)	0	80	0	2825
Boston	BOS	136A	Tx1	42-30-36	70-51-21	TA-2304-2-DAB(120)	270	145	0	592
Boston	BOS	137A	Tx1	42-10-53	71-04-07	TA-2350-DAB	0	256	0	1112
Boston	BOS	140B	Tx1	42-14-49	71-02-53	TA-2335-DAB-H	120	540	0	1247
Boston	BOS	140B	Tx2	42-14-49	71-02-53	TA-2335-DAB-H	240	540	0	1247
Boston	BOS	202C	Tx1	42-29-04	71-11-46	TA-2304-2-DAB(160)	40	103	0	710
Boston	BOS	202C	Tx2	42-29-04	71-11-46	TA-2304-2-DAB(160)	220	103	0	710
Boston	BOS	203A	Tx1	42-31-54	70-59-11	TA-2335-DAB-H	0	200	0	1878
Boston	BOS	203A	Tx2	42-31-54	70-59-11	TA-2335-DAB-H	120	200	0	1878
Boston	BOS	226A	Tx1	42-15-37	71-48-17	TA-2350-DAB	0	280	0	1247
Boston	BOS	232B	Tx1	42-13-17	71-46-26	TA-2335-DAB-H	0	275	0	2844
Boston	BOS	232B	Tx2	42-13-17	71-46-26	TA-2335-DAB-H	120	275	0	2844
Boston	BOS	232B	Tx3	42-13-17	71-46-26	TA-2335-DAB-H	240	275	0	2844
Boston	BOS	638A	Tx1	42-14-39	71-07-50	TA-2335-DAB-H	0	120	0	892
Boston	BOS	638A	Tx2	42-14-39	71-07-50	TA-2335-DAB-H	120	120	0	892
Boston	BOS	638A	Tx3	42-14-39	71-07-50	TA-2335-DAB-H	240	120	0	892
Buffalo	BUF	001A	Tx1	43-01-39	78-55-54	TA-2335-DAB-H	80	136	0	16788
Buffalo	BUF	003A	Tx1	42-48-46	78-49-07	TA-2335-DAB-H	90	149	0	2489
Buffalo	BUF	004A	Tx1	42-52-47	78-52-34	TA-2335-DAB-H	75	552	0	1977
Buffalo	BUF	006A	Tx1	43-06-39	79-01-39	TA-2335-DAB-H	75	100	3	9340
Buffalo	BUF	011B	Tx1	42-47-46	78-38-49	TA-2304-2-DAB(90)	135	125	0	3227
Buffalo	BUF	012A	Tx1	43-10-14	78-42-18	TA-2335-DAB-H	225	248	0	2119
Charlotte	CHA	003A	Tx1	34-56-43	81-02-23	TA-2350-T6	0	207	0	1247
Charlotte	CHA	004A	Tx1	35-17-50	81-06-56	TA-2304-2-DAB-H(60)	240	200	4	39905
Charlotte	CHA	005A	Tx1	35-16-34	80-47-59	TA-2304-2-DAB(120)	30	365	0	2825
Charlotte	CHA	007B	Tx1	35-10-50	80-41-17	TA-2304-2-DAB(120)	100	134	6	2637
Charlotte	CHA	009F	Tx1	35-10-36	80-47-49	TA-2304-2-DAB(120)	120	109	0	3027
Charlotte	CHA	011B	Tx1	35-05-35	80-52-00	TA-2304-2-DAB(120)	210	177	0	2173
Charlotte	CHA	012C	Tx1	35-05-30	80-47-55	TA-2304-2-DAB(120)	160	155	0	2296
Charlotte	CHA	013C	Tx1	35-13-26	80-50-41	TA-2350-DAB	0	600	0	1247
Charlotte	CHA	014B	Tx1	35-09-53	80-54-55	TA-2304-2-DAB(120)	220	174	0	2296
Charlotte	CHA	015B	Tx1	35-15-56	80-55-15	TA-2304-2-DAB(160)	300	135	3	1702
Charlotte	CHA	020B	Tx1	35-10-03	80-50-56	TA-2350-T6	0	135	0	1466
Charlotte	CHA	021B	Tx1	35-12-37	80-54-25	TA-2304-2-DAB(120)	210	131	6	2637
Charlotte	CHA	023C	Tx1	35-12-54	80-45-10	TA-2304-2-DAB(120)	90	163	0	2392
Charlotte	CHA	032B	Tx1	35-09-02	80-50-20	TA-2304-DAB(120)	160	206	0	2244
Charlotte	CHA	037A	Tx1	35-07-29	80-43-30	TA-2304-2-DAB(120)	160	268	6	3098
Charlotte	CHA	038B	Tx1	35-11-11	80-44-59	TA-2304-2-DAB(120)	160	170	0	2193
Chicago	CHI	101A	Tx1	41-52-44	87-38-10	TA-2304-2-DAB(60)	180	1465	9	1900
Chicago	CHI	101A	Tx2	41-52-44	87-38-10	TA-2304-2-DAB(60)	210	1465	5	1900
Chicago	CHI	101A	Tx3	41-52-44	87-38-10	TA-2304-2-DAB(60)	270	1465	9	1900
Chicago	CHI	101A	Tx4	41-52-44	87-38-10	TA-2304-2-DAB(60)	330	1465	5	1900
Chicago	CHI	102G	Tx1	41-52-27	87-37-58	TA-2350-DAB	0	152	0	1500
Chicago	CHI	106B	Tx1	42-01-36	87-45-13	TA-2304-2-DAB(120)	0	138	0	2094
Chicago	CHI	106B	Tx2	42-01-36	87-45-13	TA-2304-2-DAB(120)	120	138	0	2094

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Chicago	CHI	115D	Tx1	41-48-35	87-36-09	TA-2304-2-DAB(60)	170	198	0	5637
Chicago	CHI	116F	Tx1	41-59-44	87-39-27	TA-2304-2-DAB(90)	315	210	0	3639
Chicago	CHI	118E	Tx1	42-03-37	87-45-26	TA-2304-2-DAB(90)	0	172	0	4158
Chicago	CHI	121A	Tx1	41-54-17	87-55-05	TA-2335-DAB-H	230	268	0	4128
Chicago	CHI	123F	Tx1	41-54-33	87-48-28	TA-2335-DAB-H	315	205	0	1570
Chicago	CHI	125A	Tx1	41-40-28	87-48-30	TA-2350-DAB	0	200	0	892
Chicago	CHI	127A	Tx1	41-44-09	87-37-52	TA-2304-2-DAB(120)	180	150	0	2518
Chicago	CHI	129A	Tx1	41-53-32	87-35-59	TA-2304-2-DAB(60)	220	148	0	4184
Chicago	CHI	129A	Tx2	41-53-32	87-35-59	TA-2304-2-DAB(60)	280	148	0	4184
Chicago	CHI	132B	Tx1	41-57-51	87-45-30	TA-2350-T6	0	76	0	175
Chicago	CHI	133A	Tx1	41-48-26	87-44-52	TA-2335-DAB-H	225	168	0	2977
Chicago	CHI	134D	Tx1	41-46-40	87-35-12	TA-2335-DAB-H	120	221	0	2218
Chicago	CHI	134D	Tx2	41-46-40	87-35-12	TA-2335-DAB-H	240	221	0	2218
Chicago	CHI	136C	Tx1	42-02-50	87-40-47	TA-2304-2-DAB(120)	315	245	0	629
Chicago	CHI	137B	Tx1	41-42-28	87-31-15	TA-2335-DAB-H	160	306	3	2037
Chicago	CHI	140A	Tx1	41-45-01	87-50-20	TA-2304-2-DAB(160)	225	139	0	2000
Chicago	CHI	141H	Tx1	41-51-02	87-51-19	TA-2335-DAB-H	210	190	0	1400
Chicago	CHI	141H	Tx2	41-51-02	87-51-19	TA-2335-DAB-H	330	190	0	1400
Chicago	CHI	142B	Tx1	42-03-57	87-48-02	TA-2304-2-DAB(160)	0	158	0	2170
Chicago	CHI	201E	Tx1	42-07-11	87-46-50	TA-2335-DAB-H	60	165	2	7937
Chicago	CHI	201E	Tx2	42-07-11	87-46-50	TA-2335-DAB-H	330	165	2	7937
Chicago	CHI	209C	Tx1	41-37-15	87-40-55	TA-2335-DAB-H	180	412	0	3436
Chicago	CHI	210B	Tx1	41-36-54	87-31-24	TA-2335-DAB-H	110	132	0	1570
Chicago	CHI	210B	Tx2	41-36-54	87-31-24	TA-2335-DAB-H	230	132	0	1570
Chicago	CHI	213A	Tx1	42-03-32	88-01-15	TA-2304-2-DAB(90)	280	275	0	4062
Chicago	CHI	215A	Tx1	41-46-19	87-57-05	TA-2304-2-DAB(90)	235	151	0	3991
Chicago	CHI	221C	Tx1	41-56-51	87-59-44	TA-2304-2-DAB(120)	290	210	0	2825
Chicago	CHI	222A	Tx1	41-49-20	87-55-11	TA-2304-2-DAB(120)	240	192	0	2825
Chicago	CHI	225B	Tx1	42-29-36	87-52-14	TA-2304-2-DAB-H(120)	10	167	0	12619
Chicago	CHI	238A	Tx1	41-31-59	87-42-18	TA-2304-2-DAB(160)	180	214	0	2159
Chicago	CHI	241D	Tx1	41-36-44	87-47-33	TA-2335-DAB-H	240	178	0	2953
Chicago	CHI	250A	Tx1	41-53-19	88-01-05	TA-2304-2-DAB(120)	250	159	0	2992
Chicago	CHI	251E	Tx1	42-02-26	87-53-17	TA-2350-DAB-T2	0	144	0	728
Chicago	CHI	255B	Tx1	42-12-51	87-50-35	TA-2304-2-DAB-H(90)	0	163	0	4540
Chicago	CHI	604B	Tx1	41-59-36	87-47-59	TA-2304-2-DAB(90)	320	92	0	3991
Cincinnati	CIN	025C	Tx1	39-06-59	84-30-07	HMD8-V360-R05-H	0	790	0	5738
Cincinnati	CIN	026B	Tx1	39-13-16	84-23-01	TA-2350-DAB	0	130	0	1062
Cincinnati	CIN	029B	Tx1	39-08-26	84-27-14	TA-2304-2-DAB(45)	120	217	2	3991
Cincinnati	CIN	037A	Tx1	39-12-00	84-31-22	TA-2304-2-DAB(90)	315	750	0	19103
Cincinnati	CIN	039B	Tx1	39-12-15	84-27-06	TA-2304-2-DAB(45)	115	175	2	4276
Cincinnati	CIN	041B	Tx1	39-10-44	84-23-56	TA-2304-2-DAB(90)	45	209	4	3991
Cincinnati	CIN	042E	Tx1	39-09-20	84-36-45	TA-2350-T6	0	155	0	313
Cincinnati	CIN	043D	Tx1	39-04-32	84-39-35	TA-2304-2-DAB(90)	225	164	0	3767
Cleveland	CLE	002A	Tx1	41-30-04	81-41-38	TA-2335-DAB-H	90	648	0	1888
Cleveland	CLE	002A	Tx2	41-30-04	81-41-38	TA-2335-DAB-H	200	648	0	1888
Cleveland	CLE	005D	Tx2	41-25-23	81-30-49	TA-2335-DAB-H	130	160	2	2667

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CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Cleveland	CLE	006A	Tx1	41-35-36	81-30-13	TA-2304-2-DAB(90)	45	150	0	2698
Cleveland	CLE	018B	Tx1	41-34-27	81-32-14	TA-2304-2-DAB(90)	45	150	0	3379
Cleveland	CLE	023A	Tx1	41-28-44	81-45-46	TA-2304-2-DAB-H(90)	225	140	0	33650
Cleveland	CLE	027A	Tx2	41-25-06	81-37-18	TA-2304-2-DAB-H(90)	135	123	2	11222
Columbus	COL	008J	Tx1	39-57-54	83-00-20	TA-2350-DAB	0	325	0	1123
Columbus	COL	019D	Tx1	40-03-47	82-53-45	TA-2304-2-DAB(45)	110	240	0	2518
Columbus	COL	019D	Tx2	40-03-47	82-53-45	TA-2304-2-DAB(90)	340	240	6	1262
Columbus	COL	020F	Tx2	40-06-20	83-00-03	TA-2304-2-DAB(45)	300	165	2	2266
Columbus	COL	020F	Tx1	40-06-20	83-00-03	TA-2304-2-DAB(90)	60	165	4	1136
Columbus	COL	501A	Tx1	39-59-32	83-05-17	TA-2304-2-DAB(120)	330	140	0	1888
Dayton	DAY	011B	Tx1	39-43-28	84-15-17	HMD8-V360-R05-H	0	900	0	5261
Dayton	DAY	013A	Tx1	39-55-27	83-48-32	TA-2335-DAB-H	150	130	0	493
Dayton	DAY	014C	Tx1	39-48-59	84-14-54	TA-2304-2-DAB(120)	0	282	0	1589
Dayton	DAY	017A	Tx1	39-38-43	84-09-32	TA-2350-DAB	0	175	0	748
Denver	DEN	001B	Tx1	39-44-37	104-59-19	TA-2350-DAB	0	735	0	1038
Denver	DEN	002D	Tx1	39-54-48	105-17-34	TA-2335-DAB-H	0	30	2	4131
Denver	DEN	003A	Tx1	39-44-48	104-59-40	TA-2350-DAB	0	158	0	447
Denver	DEN	006A	Tx1	39-39-16	104-55-00	TA-2335-DAB-H	60	150	0	1413
Denver	DEN	006A	Tx2	39-39-16	104-55-00	TA-2335-DAB-H	180	150	0	1413
Detroit	DET	001A	Tx1	42-19-44	83-02-23	TA-2335-DAB-H	315	763	0	4426
Detroit	DET	005D	Tx1	42-32-39	82-54-06	TA-2335-DAB-H	335	343	6	4226
Detroit	DET	008A	Tx1	42-17-27	83-10-11	TA-2335-DAB-H	270	140	4	3516
Detroit	DET	012A	Tx1	42-24-31	82-55-19	TA-2335-DAB-H	315	50	6	2157
Detroit	DET	014A	Tx1	42-23-34	83-08-47	TA-2335-DAB-H	300	400	5	3682
Detroit	DET	016A	Tx1	42-28-16	83-12-01	TA-2335-DAB-H	315	300	0	2793
Detroit	DET	019A	Tx1	42-22-16	82-57-06	TA-2335-DAB-H	330	130	6	3945
Detroit	DET	029B	Tx1	42-36-33	83-17-34	TA-2335-DAB-H	315	203	0	2793
Detroit	DET	030A	Tx1	42-39-05	83-04-18	TA-2335-DAB-H	325	215	3	4426
Detroit	DET	031C	Tx1	42-16-38	83-27-03	TA-2335-DAB-H	270	129	3	4226
Detroit	DET	034A	Tx1	42-22-19	83-22-34	TA-2335-DAB-H	270	127	6	4506
Detroit	DET	035A	Tx1	42-17-42	83-17-45	TA-2335-DAB-H	240	120	3	3945
Detroit	DET	037A	Tx1	42-06-33	83-11-44	TA-2335-DAB-H	240	130	3	3134
Detroit	DET	038A	Tx1	42-11-31	83-09-57	TA-2335-DAB-H	270	189	0	707
Detroit	DET	040A	Tx1	42-32-29	83-07-50	TA-2335-DAB-H	315	155	0	3358
Detroit	DET	043A	Tx1	42-28-18	83-20-10	TA-2335-DAB-H	315	80	3	3944
Detroit	DET	044A	Tx1	43-02-29	83-41-28	TA-2304-DAB(120)	0	218	0	1589
Detroit	DET	045A	Tx1	42-56-37	83-42-39	TA-2304-2-DAB(120)	0	130	0	1584
Detroit	DET	047A	Tx1	42-14-32	83-34-11	TA-2335-DAB-H	270	105	0	3748
Detroit	DET	048A	Tx1	42-13-18	83-41-55	TA-2335-DAB-H	290	157	0	3340
Detroit	DET	301A	Tx1	42-23-05	83-10-47	TA-2304-2-DAB(60)	270	204	0	3170
Detroit	DET	302A	Tx1	42-27-30	83-07-18	TA-2304-2-DAB(90)	330	320	4	3170
Detroit	DET	303A	Tx1	42-29-27	83-02-32	TA-2304-2-DAB(120)	330	145	0	3170
Detroit	DET	515A	Tx1	42-32-34	83-12-36	TA-2335-DAB-H	300	167	3	986
Detroit	DET	549A	Tx1	42-17-17	83-44-16	TA-2350-DAB	0	125	0	162
Dallas	DFW	001A	Tx1	32-46-53	96-48-06	TA-2350-DAB	0	850	0	967
Dallas	DFW	004A	Tx1	32-59-08	96-42-49	TA-2335-DAB-H	20	260	0	4320

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CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Dallas	DFW	005A	Tx1	32-51-53	96-48-38	TA-2335-DAB-H	0	220	0	3076
Dallas	DFW	006C	Tx1	32-54-41	96-52-35	TA-2335-DAB-H	330	200	0	3340
Dallas	DFW	008A	Tx1	32-55-49	96-37-39	TA-2335-DAB-H	70	140	0	991
Dallas	DFW	011A	Tx1	32-45-12	97-19-47	TA-2350-DAB	0	520	0	1247
Dallas	DFW	013B	Tx1	33-14-23	97-07-57	TA-2304-2-DAB(120)	0	170	0	2232
Dallas	DFW	507B	Tx1	32-49-54	96-54-45	TA-2304-2-DAB(45)	270	270	0	5024
Dallas	DFW	515B	Tx1	32-52-39	97-04-56	TA-2304-2-DAB(45)	290	175	0	5508
Fresno	FRE	002A	Tx1	36-49-00	119-52-56	TA-2304-2-DAB-H(90)	120	180	0	37820
Greensboro	GRE	001B	Tx1	36-04-32	79-47-27	TA-2304-2-DAB(120)	45	304	0	3258
Greensboro	GRE	003A	Tx1	35-55-11	80-01-46	TA-2335-DAB-H	45	240	3	11830
Greensboro	GRE	003A	Tx2	35-55-11	80-01-46	TA-2335-DAB-H	210	240	3	11830
Greensboro	GRE	009A	Tx1	36-05-25	80-15-05	TA-2304-2-DAB-H(160)	315	330	0	10000
Greensboro	GRE	009A	Tx2	36-05-25	80-15-05	TA-2304-DAB(120)	135	330	6	1901
Greensboro	GRE	018D	Tx1	35-59-21	79-48-25	TA-2304-2-DAB(90)	0	172	0	3027
Greensboro	GRE	019C	Tx1	36-04-41	79-54-40	TA-2304-DAB(120)	45	150	0	1664
Greensboro	GRE	021A	Tx1	36-07-08	80-19-01	TA-2304-2-DAB(120)	270	174	0	2416
Greensboro	GRE	022D	Tx1	36-09-18	80-16-39	TA-2304-2-DAB(120)	0	194	0	2244
Greenville	GRV	005B	Tx1	34-51-16	82-23-51	TA-2335-DAB-H	0	358	0	1361
Greenville	GRV	005B	Tx2	34-51-16	82-23-51	TA-2335-DAB-H	120	358	0	1361
Greenville	GRV	005B	Tx3	34-51-16	82-23-51	TA-2335-DAB-H	240	358	0	748
Greenville	GRV	014B	Tx1	34-47-52	82-25-32	TA-2350-DAB	0	163	0	892
Greenville	GRV	015A	Tx1	34-50-25	82-28-14	TA-2350-DAB	0	235	0	1306
Greenville	GRV	023A	Tx1	34-54-03	82-18-50	TA-2350-DAB	0	175	0	946
Greenville	GRV	025A	Tx1	34-49-38	82-17-38	TA-2350-DAB	0	240	0	1300
Greenville	GRV	027B	Tx1	34-47-13	82-18-29	TA-2350-DAB	0	156	0	892
Greenville	GRV	029B	Tx1	34-46-28	82-23-06	TA-2350-DAB	0	125	0	1072
Greenville	GRV	030D	Tx1	34-52-20	82-21-29	TA-2350-DAB	0	147	0	956
Greenville	GRV	032D	Tx1	34-48-19	82-22-53	TA-2350-DAB	0	123	0	1072
Greenville	GRV	106A	Tx1	34-57-33	81-58-41	TA-2350-DAB	0	163	0	899
Greenville	GRV	112D	Tx1	34-57-08	81-55-09	TA-2350-DAB	0	220	0	941
Greenville	GRV	118B	Tx1	34-55-49	81-53-21	TA-2350-DAB	0	190	0	1400
Harrisburg	HAB	003C	Tx1	39-57-46	76-43-33	TA-2350-T6	0	129	0	1247
Harrisburg	HAB	005A	Tx1	40-19-02	76-56-49	TA-2335-DAB-H	200	178	3	3074
Harrisburg	HAB	006E	Tx1	40-15-36	76-52-42	TA-2350-T6	0	345	0	1247
Harrisburg	HAB	008A	Tx1	40-14-38	76-48-13	TA-2350-DAB-T2	0	118	0	624
Harrisburg	HAB	009C	Tx1	40-17-14	76-44-01	TA-2335-DAB-H	135	192	0	2977
Harrisburg	HAB	011A	Tx1	40-20-24	76-25-40	TA-2350-DAB	0	155	0	1247
Harrisburg	HAB	014A	Tx1	40-02-18	76-18-21	TA-2335-DAB-H	60	223	2	1247
Harrisburg	HAB	014A	Tx2	40-02-18	76-18-21	TA-2335-DAB-H	180	223	2	1247
Harrisburg	HAB	014A	Tx3	40-02-18	76-18-21	TA-2335-DAB-H	300	223	6	1247
Harrisburg	HAB	017C	Tx1	40-20-43	76-52-09	TA-2335-DAB-H	140	170	3	3835
Hartford	HAR	006D	Tx1	41-10-36	73-12-13	TA-2350-DAB	0	147	0	1277
Hartford	HAR	013A	Tx1	41-42-13	72-49-54	TA-2335-DAB-H	60	460	0	8242
Hartford	HAR	013A	Tx2	41-42-13	72-49-54	TA-2335-DAB-H	180	460	0	8242
Hartford	HAR	013A	Tx3	41-42-13	72-49-54	TA-2335-DAB-H	300	460	0	8242
Hartford	HAR	014A	Tx1	41-18-25	72-55-28	TA-2350-DAB	0	393	0	941

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Hartford	HAR	015B	Tx1	41-32-08	72-48-02	TA-2350-DAB	0	149	0	1462
Hartford	HAR	016B	Tx1	41-33-43	73-02-41	TA-2350-T6	0	143	0	1337
Hartford	HAR	017A	Tx1	41-03-10	73-33-47	TA-2350-DAB	0	260	0	1185
Hartford	HAR	018A	Tx1	41-46-06	72-40-29	TA-2335-DAB-H	90	372	0	2792
Hartford	HAR	032A	Tx1	41-07-42	73-23-25	TA-2335-DAB-H	0	350	15	944
Hartford	HAR	032A	Tx2	41-07-42	73-23-25	TA-2335-DAB-H	120	350	15	944
Hartford	HAR	032A	Tx3	41-07-42	73-23-25	TA-2335-DAB-H	240	350	15	944
Hartford	HAR	035A	Tx1	41-28-50	72-49-04	TA-2304-2-DAB(45)	200	170	0	4254
Hartford	HAR	040A	Tx1	41-13-43	73-04-12	TA-2335-DAB-H	105	90	2	881
Houston	HOU	001A	Tx1	29-45-30	95-22-06	TA-2350-DAB	0	1030	0	1034
Houston	HOU	003C	Tx1	29-44-57	95-22-18	TA-2350-DAB	0	300	0	1272
Houston	HOU	007A	Tx1	29-42-20	95-25-49	TA-2304-2-DAB(160)	230	150	0	2190
Houston	HOU	009B	Tx1	30-04-52	95-24-50	TA-2304-2-DAB-H(45)	340	180	0	40000
Houston	HOU	011C	Tx1	29-56-04	95-17-58	TA-2304-2-DAB(160)	0	170	0	1924
Houston	HOU	015B	Tx1	29-45-03	95-30-09	TA-2304-2-DAB(90)	270	160	0	3991
Houston	HOU	020A	Tx2	30-18-27	95-28-28	TA-2350-T6	0	400	0	1176
Houston	HOU	504A	Tx1	29-50-39	95-30-46	TA-2304-2-DAB-H(120)	320	230	0	8770
Houston	HOU	506A	Tx1	29-39-38	95-28-33	TA-2304-2-DAB(90)	270	180	0	3811
Houston	HOU	517A	Tx1	29-42-57	95-17-44	TA-2304-2-DAB(120)	120	135	0	2623
Houston	HOU	519A	Tx1	29-17-52	94-48-08	TA-2350-DAB	0	190	0	852
Indianapolis	IND	002C	Tx2	39-46-11	86-09-26	HMD8-V360-R05-H	0	828	0	10332
Jacksonville	JAC	001C	Tx1	30-19-39	81-39-45	TA-2350-DAB	0	462	0	941
Jacksonville	JAC	008A	Tx1	30-20-08	81-35-46	TA-2335-DAB-H	60	178	3	3112
Jacksonville	JAC	009A	Tx1	30-17-09	81-43-18	TA-2335-DAB-H	200	168	0	3134
Jacksonville	JAC	011A	Tx1	30-18-18	81-23-46	TA-2335-DAB-H	20	212	0	721
Jacksonville	JAC	011A	Tx2	30-18-18	81-23-46	TA-2335-DAB-H	140	202	0	721
Jacksonville	JAC	012A	Tx1	30-24-55	81-41-50	TA-2350-T6	0	118	0	1038
Kansas City	KAC	006B	Tx1	39-00-58	94-41-24	TA-2350-T6	0	210	0	1337
Kansas City	KAC	007C	Tx1	38-57-48	94-47-01	TA-2335-DAB-H	230	150	0	2977
Kansas City	KAC	022C	Tx1	39-03-54	94-25-15	TA-2335-DAB-H	110	170	0	2977
Kansas City	KAC	025A	Tx1	39-05-59	94-35-01	TA-2304-2-DAB(120)	60	630	0	3170
Kansas City	KAC	B25A	Tx1	39-05-59	94-35-01	TA-2304-2-DAB(120)	180	630	0	3170
Kansas City	KAC	C25A	Tx1	39-05-59	94-35-01	TA-2304-2-DAB(120)	300	630	0	3170
Knoxville	KNO	001A	Tx1	36-00-10	83-56-41	TA-2350-T6	0	435	0	1092
Knoxville	KNO	002A	Tx1	35-57-45	83-54-59	TA-2350-DAB	0	330	0	1644
Knoxville	KNO	006A	Tx1	35-56-20	83-59-13	TA-2350-DAB	0	170	0	928
Knoxville	KNO	007G	Tx1	35-57-46	84-01-23	TA-2350-T6	0	265	0	787
Knoxville	KNO	008C	Tx1	36-00-50	83-51-13	TA-2350-DAB	0	165	0	892
Knoxville	KNO	009D	Tx1	35-55-28	83-53-56	TA-2350-T6	0	197	0	1463
Knoxville	KNO	011A	Tx1	36-00-53	84-01-15	TA-2350-DAB	0	155	0	899
Knoxville	KNO	012A	Tx1	35-58-00	84-02-49	TA-2350-T6	0	180	0	946
Knoxville	KNO	013E	Tx1	36-02-03	83-53-54	TA-2350-DAB	0	173	0	920
Knoxville	KNO	014A	Tx1	35-54-09	84-01-01	TA-2350-T6	0	180	0	859
Knoxville	KNO	017D	Tx1	35-59-30	83-59-34	TA-2350-DAB	0	115	0	1056
Los Angeles	LAX	001B	Tx1	34-03-17	118-15-21	TA-2350-DAB-T2	0	163	0	1219
Los Angeles	LAX	009A	Tx1	34-09-49	118-03-08	TA-2350-DAB	0	43	0	1247

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Los Angeles	LAX	011A	Tx1	34-03-03	118-27-35	TA-2304-2-DAB(60)	240	327	0	1581
Los Angeles	LAX	012C	Tx1	34-04-03	118-24-31	TA-2304-2-DAB(60)	280	157	0	6324
Los Angeles	LAX	014A	Tx1	34-09-12	118-27-57	TA-2350-DAB-T2	0	314	0	1480
Los Angeles	LAX	017B	Tx1	34-08-36	118-15-01	TA-2350-DAB	0	108	0	624
Los Angeles	LAX	018A	Tx1	34-11-04	118-18-32	TA-2304-2-DAB(90)	250	164	2	1905
Los Angeles	LAX	020B	Tx1	34-10-11	118-07-06	TA-2304-2-DAB(45)	90	105	0	7962
Los Angeles	LAX	022C	Tx1	34-07-53	118-20-43	TA-2304-DAB(60)	20	71	0	223
Los Angeles	LAX	022C	Tx2	34-07-53	118-20-43	TA-2304-DAB(60)	210	71	0	223
Los Angeles	LAX	023A	Tx1	33-56-45	118-23-23	TA-2304-2-DAB(45)	225	188	9	3786
Los Angeles	LAX	024A	Tx1	33-55-45	118-18-05	TA-2304-2-DAB(90)	180	40	2	2000
Los Angeles	LAX	025C	Tx1	34-01-01	118-30-02	TA-2335-DAB-H	180	304	3	441
Los Angeles	LAX	025C	Tx2	34-01-01	118-30-02	TA-2335-DAB-H	348	304	3	441
Los Angeles	LAX	028B	Tx1	34-05-54	118-19-32	TA-2304-DAB(45)	250	297	0	1928
Los Angeles	LAX	031A	Tx1	34-15-49	118-38-45	TA-2350-DAB	0	20	0	316
Los Angeles	LAX	033A	Tx1	34-09-22	118-47-53	TA-2350-DAB	0	41	0	1247
Los Angeles	LAX	034B	Tx1	34-19-59	119-00-59	TA-2304-2-DAB-H(90)	210	100	8	37218
Los Angeles	LAX	035A	Tx1	34-09-55	118-54-32	TA-2304-2-DAB(120)	0	50	9	3170
Los Angeles	LAX	037B	Tx1	34-15-30	118-19-39	TA-2350-DAB-T2	0	46	0	716
Los Angeles	LAX	039B	Tx1	34-19-41	118-35-51	TA-2304-2-DAB(60)	20	34	9	3170
Los Angeles	LAX	101B	Tx1	34-12-42	118-03-49	TA-2304-2-DAB-H(60)	200	38	8	10024
Los Angeles	LAX	102C	Tx1	33-59-38	117-27-26	TA-2335-DAB-H	135	44	3	3945
Los Angeles	LAX	103A	Tx1	33-57-41	117-16-50	TA-2335-DAB-H	150	118	6	3945
Los Angeles	LAX	105A	Tx1	33-59-08	117-22-22	TA-2335-DAB-H	135	137	0	1975
Los Angeles	LAX	108A	Tx1	33-37-03	117-52-49	TA-2304-2-DAB(90)	180	167	0	3724
Los Angeles	LAX	109A	Tx1	33-37-58	117-36-42	TA-2304-DAB(60)	170	74	0	3170
Los Angeles	LAX	110A	Tx1	34-04-18	117-48-46	TA-2304-DAB(45)	135	68	0	2239
Los Angeles	LAX	111A	Tx1	34-03-22	117-10-44	TA-2304-2-DAB(90)	110	117	2	4157
Los Angeles	LAX	113B	Tx1	33-55-40	117-25-25	TA-2304-DAB(45)	135	88	8	1119
Los Angeles	LAX	114A	Tx1	33-53-45	117-32-01	TA-2335-DAB-H	90	25	2	555
Los Angeles	LAX	114A	Tx2	33-53-45	117-32-01	TA-2335-DAB-H	210	25	2	555
Los Angeles	LAX	116A	Tx1	34-06-18	117-41-15	TA-2335-DAB-H	115	78	3	3990
Los Angeles	LAX	117C	Tx1	34-01-37	117-43-38	TA-2335-DAB-H	130	89	0	1626
Los Angeles	LAX	118C	Tx1	33-52-07	117-56-20	TA-2350-DAB-T2	0	56	0	352
Los Angeles	LAX	119B	Tx1	33-58-34	118-02-03	TA-2350-T6	0	107	0	1264
Los Angeles	LAX	126A	Tx1	33-40-42	117-51-00	TA-2304-2-DAB(45)	140	169	0	7564
Los Angeles	LAX	130A	Tx1	33-45-57	118-11-03	TA-2350-T6	0	255	0	248
Los Angeles	LAX	137A	Tx1	33-47-18	117-53-30	TA-2335-DAB-H	135	238	3	4426
Los Angeles	LAX	143A	Tx1	33-30-21	117-41-35	TA-2335-DAB-H	20	39	8	991
Los Angeles	LAX	143A	Tx2	33-30-21	117-41-35	TA-2335-DAB-H	140	39	0	991
Los Angeles	LAX	143A	Tx3	33-30-21	117-41-35	TA-2335-DAB-H	260	39	0	991
Los Angeles	LAX	144A	Tx1	33-39-29	117-45-04	TA-2304-DAB(90)	135	149	0	629
Los Angeles	LAX	645B	Tx1	33-35-08	117-44-01	TA-2335-DAB-H	180	75	8	3945
Little Rock	LIT	001A	Tx1	34-44-38	92-16-33	TA-2350-DAB	0	484	0	991
Louisville	LOU	001A	Tx1	38-15-22	85-45-29	TA-2350-T6	0	477	0	892
Louisville	LOU	005A	Tx2	38-14-08	85-42-33	TA-2304-2-DAB(60)	160	240	0	2825
Louisville	LOU	005A	Tx1	38-14-08	85-42-33	TA-2304-2-DAB(90)	65	240	2	1783

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Louisville	LOU	006B	Tx1	38-16-54	85-38-21	TA-2304-2-DAB(120)	45	107	0	2820
Louisville	LOU	007B	Tx2	38-13-42	85-38-22	TA-2304-2-DAB(45)	150	176	0	3620
Louisville	LOU	007B	Tx1	38-13-42	85-38-22	TA-2304-2-DAB(60)	30	176	0	2876
Louisville	LOU	009B	Tx1	38-13-11	85-46-30	TA-2304-2-DAB(120)	190	180	0	1000
Louisville	LOU	009B	Tx2	38-13-11	85-46-30	TA-2304-2-DAB(45)	270	180	2	2516
Louisville	LOU	011B	Tx1	38-09-31	85-48-51	TA-2304-2-DAB(90)	210	230	0	3557
Louisville	LOU	014A	Tx1	38-02-52	84-29-56	TA-2350-DAB	0	267	0	640
Louisville	LOU	519A	Tx1	38-09-39	84-51-45	TA-2304-2-DAB(60)	330	207	2	3557
Las Vegas	LVX	001A	Tx1	36-10-10	115-08-34	TA-2350-DAB	0	578	0	1303
Las Vegas	LVX	002A	Tx1	36-08-02	115-09-58	TA-2350-DAB	0	458	0	1247
Las Vegas	LVX	003A	Tx1	36-05-59	115-10-19	TA-2304-2-DAB(90)	190	378	0	3991
Las Vegas	LVX	004A	Tx1	36-06-58	115-11-12	TA-2304-2-DAB(60)	300	432	8	5692
Las Vegas	LVX	005A	Tx1	36-03-38	115-02-20	TA-2304-2-DAB(120)	150	213	0	844
Memphis	MEM	001B	Tx1	35-08-37	90-03-11	TA-2350-T6	0	448	0	1163
Memphis	MEM	003A	Tx1	35-04-08	90-00-06	TA-2350-DAB	0	165	0	1008
Memphis	MEM	005A	Tx1	35-06-44	89-53-29	TA-2304-2-DAB(90)	110	374	0	2890
Memphis	MEM	006B	Tx1	35-12-11	89-50-19	TA-2350-T6	0	127	0	986
Memphis	MEM	007A	Tx1	35-09-28	89-44-59	TA-2350-DAB	0	140	0	934
Memphis	MEM	008A	Tx1	35-10-27	89-56-46	TA-2350-T6	0	180	0	879
Memphis	MEM	011B	Tx1	35-07-12	90-01-12	HMD8-V360-R05-H	0	185	0	2501
Miami	MIA	001A	Tx1	25-48-52	80-07-33	TA-2335-DAB-H	240	250	0	3945
Miami	MIA	002E	Tx1	25-53-18	80-07-24	TA-2335-DAB-H	240	148	0	1213
Miami	MIA	003F	Tx2	25-45-57	80-11-42	TA-2304-2-DAB(45)	0	335	10	796
Miami	MIA	003F	Tx1	25-45-57	80-11-42	TA-2335-DAB-H	240	335	6	4037
Miami	MIA	004A	Tx1	25-38-46	80-20-04	TA-2335-DAB-H	225	129	0	3480
Miami	MIA	005A	Tx1	25-45-56	80-18-32	TA-2335-DAB-H	225	148	0	3760
Miami	MIA	007B	Tx1	25-55-08	80-09-29	TA-2304-2-DAB(45)	220	138	0	3193
Miami	MIA	008A	Tx1	26-07-17	80-08-24	TA-2335-DAB-H	350	379	0	3748
Miami	MIA	009A	Tx1	26-20-29	80-04-39	TA-2335-DAB-H	0	312	0	4037
Miami	MIA	010A	Tx1	26-32-03	80-03-43	TA-2335-DAB-H	0	134	0	3530
Miami	MIA	011A	Tx1	26-17-59	80-09-02	TA-2335-DAB-H	0	134	0	1799
Miami	MIA	012A	Tx1	26-22-14	80-10-20	TA-2335-DAB-H	0	220	0	2547
Miami	MIA	013A	Tx1	26-35-36	80-03-21	TA-2335-DAB-H	0	114	0	3134
Miami	MIA	014C	Tx1	26-42-30	80-03-05	TA-2335-DAB-H	330	357	0	4303
Miami	MIA	015A	Tx1	26-45-42	80-04-42	TA-2335-DAB-H	0	375	0	3202
Miami	MIA	016A	Tx1	26-13-52	80-05-25	TA-2335-DAB-H	0	300	0	3662
Miami	MIA	018B	Tx1	26-27-31	80-04-10	TA-2335-DAB-H	0	164	0	3210
Miami	MIA	019B	Tx1	25-50-22	80-12-13	TA-2335-DAB-H	240	136	0	3264
Miami	MIA	021A	Tx1	26-06-24	80-17-15	TA-2335-DAB-H	0	175	0	1185
Miami	MIA	021A	Tx2	26-06-24	80-17-15	TA-2335-DAB-H	270	175	0	1185
Miami	MIA	022A	Tx1	25-42-48	80-16-38	TA-2350-T6	0	163	0	278
Miami	MIA	023A	Tx1	26-37-17	80-06-52	TA-2335-DAB-H	0	135	0	3134
Miami	MIA	029C	Tx1	26-16-17	80-15-04	TA-2304-2-DAB(160)	325	135	0	2119
Miami	MIA	030C	Tx1	26-31-05	80-10-13	TA-2335-DAB-H	0	220	0	2667
Miami	MIA	101E	Tx1	25-58-16	80-12-31	HMD8-V360-R05-H	0	600	0	8263
Milwaukee	MIL	001B	Tx1	43-02-18	87-54-07	TA-2350-DAB	0	620	0	1570

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CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Milwaukee	MIL	004E	Tx1	43-04-27	87-58-34	TA-2335-DAB-H	330	130	0	4611
Milwaukee	MIL	017A	Tx1	42-51-22	87-50-44	TA-2304-2-DAB(60)	160	299	0	2943
Minneapolis	MIN	001C	Tx1	44-58-52	93-16-26	TA-2350-T6	0	168	0	1570
Minneapolis	MIN	002A	Tx1	44-58-33	93-16-20	TA-2350-T6	0	787	0	1466
Minneapolis	MIN	010A	Tx1	44-52-33	93-04-12	TA-2335-DAB-H	135	227	0	879
Minneapolis	MIN	012A	Tx1	44-56-53	93-05-44	TA-2304-2-DAB(120)	50	489	3	223
Minneapolis	MIN	012A	Tx2	44-56-53	93-05-44	TA-2304-2-DAB(120)	170	489	3	223
Minneapolis	MIN	012A	Tx3	44-56-53	93-05-44	TA-2304-2-DAB(120)	290	489	10	223
Minneapolis	MIN	014B	Tx1	44-53-50	93-24-21	TA-2304-2-DAB(120)	270	189	0	3170
Minneapolis	MIN	016D	Tx1	45-02-30	93-11-43	TA-2304-2-DAB(120)	20	190	0	2296
Minneapolis	MIN	027A	Tx1	44-57-11	93-00-20	TA-2304-2-DAB(120)	90	115	0	441
Minneapolis	MIN	030A	Tx1	45-04-24	93-05-05	TA-2304-2-DAB(160)	0	185	0	904
Minneapolis	MIN	032A	Tx1	44-55-10	93-11-52	TA-2304-2-DAB(120)	135	280	0	3516
Minneapolis	MIN	033A	Tx1	44-53-11	93-19-23	TA-2304-2-DAB(160)	180	189	0	2143
Monterey	MON	001A	Tx1	36-36-43	121-54-56	TA-2304-2-DAB-H(45)	40	23	5	8148
Monterey	MON	004A	Tx1	36-36-25	121-51-23	TA-2304-2-DAB(160)	180	135	0	2392
Monterey	MON	006B	Tx1	36-35-10	121-55-23	TA-2350-T6	0	50	0	1247
Monterey	MON	007B	Tx1	36-54-38	121-45-25	TA-2335-DAB-H	40	60	4	1060
Monterey	MON	007B	Tx2	36-54-38	121-45-25	TA-2335-DAB-H	160	60	4	1335
Monterey	MON	007B	Tx3	36-54-38	121-45-25	TA-2335-DAB-H	280	60	4	1013
Monterey	MON	008C	Tx1	36-39-48	121-38-15	TA-2350-T6	0	140	0	946
Monterey	MON	010D	Tx1	36-36-01	121-53-43	TA-2350-T6	0	160	0	1247
Monterey	MON	011A	Tx1	36-37-15	121-55-01	TA-2350-T6	0	60	0	1185
Nashville	NAS	001A	Tx1	36-10-29	86-40-09	TA-2304-2-DAB(90)	130	65	6	3476
Nashville	NAS	002B	Tx1	36-09-49	86-46-45	TA-2350-DAB	0	372	0	991
Nashville	NAS	009A	Tx1	36-04-35	86-45-35	TA-2304-2-DAB(90)	210	135	8	3379
Nashville	NAS	015A	Tx1	36-13-20	86-41-48	TA-2350-DAB	0	145	0	1009
Nashville	NAS	016A	Tx1	36-11-13	86-49-13	TA-2304-2-DAB(120)	270	140	0	1380
Nashville	NAS	017B	Tx1	36-06-14	86-47-51	TA-2350-DAB	0	100	0	1570
Nashville	NAS	019A	Tx1	36-06-06	86-52-17	TA-2350-DAB	0	120	0	1036
Nashville	NAS	020A	Tx1	36-08-05	86-43-58	TA-2335-DAB-H	180	160	0	25436
Nashville	NAS	025C	Tx1	36-12-43	86-17-35	TA-2350-DAB	0	127	0	1048
Nashville	NAS	026B	Tx1	35-50-13	86-23-54	TA-2304-2-DAB(160)	60	200	0	1733
Nashville	NAS	033C	Tx1	36-22-55	86-26-59	TA-2350-DAB	0	129	0	1048
Nashville	NAS	038D	Tx1	36-04-19	86-54-43	TA-2304-2-DAB(90)	240	200	6	4157
Nashville	NAS	508A	Tx1	36-05-22	86-42-13	TA-2304-2-DAB(90)	150	140	3	3011
Norfolk	NOR	001A	Tx1	37-01-47	76-22-35	TA-2335-DAB-H	320	492	0	3134
Norfolk	NOR	002A	Tx1	36-50-44	76-17-22	TA-2350-DAB	0	254	0	1247
Norfolk	NOR	003A	Tx1	36-51-45	75-58-48	TA-2304-2-DAB(45)	0	212	0	998
Norfolk	NOR	003A	Tx2	36-51-45	75-58-48	TA-2304-2-DAB(45)	180	212	0	998
Norfolk	NOR	004B	Tx1	36-50-33	76-07-56	TA-2304-2-DAB(90)	90	178	0	3396
Norfolk	NOR	005E	Tx1	36-53-09	76-10-58	TA-2335-DAB-H	45	115	0	3516
Norfolk	NOR	007A	Tx1	37-15-36	76-38-45	TA-2335-DAB-H	0	251	0	4560
Norfolk	NOR	007A	Tx2	37-15-36	76-38-45	TA-2335-DAB-H	270	251	0	4560
Norfolk	NOR	008A	Tx1	37-04-42	76-26-46	TA-2335-DAB-H	335	395	0	4540
Norfolk	NOR	009C	Tx1	36-49-11	76-23-34	TA-2304-2-DAB(160)	210	145	0	2000

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Norfolk	NOR	010A	Tx1	36-47-00	76-12-02	TA-2304-2-DAB(90)	130	270	0	3170
New Orleans	NOX	002A	Tx1	30-00-22	90-13-09	TA-2350-DAB	0	130	0	991
New Orleans	NOX	004A	Tx1	29-56-31	90-11-38	TA-2304-2-DAB(90)	275	170	0	774
New Orleans	NOX	006A	Tx1	29-59-23	90-04-07	TA-2350-DAB	0	200	0	1247
New Orleans	NOX	010A	Tx1	30-02-01	89-58-21	TA-2304-2-DAB(90)	30	146	0	3170
New Orleans	NOX	011C	Tx1	29-57-08	90-04-13	TA-2304-2-DAB(90)	10	700	9	1125
New Orleans	NOX	011C	Tx2	29-57-08	90-04-13	TA-2304-2-DAB(90)	130	700	0	1125
New Orleans	NOX	011C	Tx3	29-57-08	90-04-13	TA-2304-2-DAB(90)	250	700	0	1125
New Orleans	NOX	013A	Tx1	30-28-07	90-27-38	TA-2304-2-DAB(90)	0	150	0	3170
New York	NYC	001D	Tx1	40-42-28	74-00-20	TA-2350-T6	0	314	0	1247
New York	NYC	002A	Tx1	40-44-23	73-59-03	TA-2350-T6	0	201	0	1247
New York	NYC	003A	Tx1	40-45-11	73-59-12	TA-2304-2-DAB(60)	30	407	13	3980
New York	NYC	004A	Tx1	40-48-00	74-28-50	TA-2350-T6	0	187	0	1247
New York	NYC	005A	Tx1	40-57-39	73-55-22	TA-2350-T6	0	240	0	1247
New York	NYC	006B	Tx1	40-43-50	74-03-49	TA-2350-T6	0	189	0	1247
New York	NYC	008B	Tx1	40-39-34	73-42-13	TA-2350-DAB	0	88	0	1335
New York	NYC	009A	Tx1	40-45-46	73-49-10	TA-2350-DAB	0	195	0	1247
New York	NYC	010A	Tx1	40-13-45	74-05-25	TA-2304-2-DAB-H(120)	175	300	0	34596
New York	NYC	012B	Tx1	40-46-34	74-02-01	TA-2304-2-DAB(60)	35	112	0	4831
New York	NYC	013C	Tx1	40-52-58	73-54-41	TA-2350-DAB	0	203	0	1247
New York	NYC	014A	Tx1	40-53-32	73-51-09	TA-2350-T6	0	159	0	1247
New York	NYC	015A	Tx1	40-56-45	73-53-09	TA-2350-DAB	0	156	0	1233
New York	NYC	017C	Tx1	40-28-46	74-28-28	TA-2350-T6	0	317	0	625
New York	NYC	019F	Tx1	40-56-04	74-07-07	TA-2335-DAB-H	30	100	0	1262
New York	NYC	019F	Tx2	40-56-04	74-07-07	TA-2335-DAB-H	270	100	0	1262
New York	NYC	020B	Tx1	40-50-46	74-36-35	TA-2304-2-DAB-H(120)	0	240	0	6124
New York	NYC	020B	Tx2	40-50-46	74-36-35	TA-2335-DAB-H	120	240	6	770
New York	NYC	020B	Tx3	40-50-46	74-36-35	TA-2335-DAB-H	240	240	0	7710
New York	NYC	026A	Tx1	40-40-03	73-57-34	TA-2350-T6	0	429	0	1247
New York	NYC	027A	Tx1	40-23-44	74-10-27	TA-2304-2-DAB-H(120)	190	198	0	16070
New York	NYC	028C	Tx1	40-51-41	74-25-01	TA-2304-2-DAB-H(45)	300	97	0	4988
New York	NYC	031D	Tx1	40-44-18	74-10-09	TA-2335-DAB-H	0	425	0	1878
New York	NYC	031D	Tx2	40-44-18	74-10-09	TA-2335-DAB-H	120	425	0	1878
New York	NYC	034C	Tx1	40-47-17	74-15-17	TA-2350-T6	0	203	0	274
New York	NYC	035A	Tx1	40-51-18	73-55-38	TA-2304-2-DAB(120)	210	200	4	1262
New York	NYC	036A	Tx1	40-52-17	74-11-44	TA-2350-DAB	0	181	0	1099
New York	NYC	038B	Tx1	40-53-17	74-03-14	TA-2350-T6	0	285	0	1247
New York	NYC	042D	Tx1	40-36-44	73-58-08	TA-2350-DAB	0	83	0	1247
New York	NYC	046A	Tx1	40-34-24	74-13-10	TA-2335-DAB-H	135	80	0	15600
New York	NYC	046A	Tx2	40-34-24	74-13-10	TA-2335-DAB-H	225	80	0	15600
New York	NYC	048D	Tx1	40-43-02	74-00-26	TA-2350-T6	0	294	0	1247
New York	NYC	051A	Tx1	40-44-49	73-58-36	TA-2350-T6	0	261	0	1247
New York	NYC	052C	Tx1	40-45-54	73-59-04	TA-2350-T6	0	264	0	1247
New York	NYC	053E	Tx1	40-43-33	73-59-20	TA-2350-DAB-T2	0	180	0	1247
New York	NYC	054F	Tx1	40-45-37	73-58-35	TA-2350-T6	0	490	0	1247
New York	NYC	055A	Tx1	40-48-12	73-56-30	TA-2350-DAB-T2	0	143	0	1203

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
New York	NYC	058D	Tx1	40-44-58	73-59-39	TA-2350-DAB-T2	0	248	0	1500
New York	NYC	059F	Tx1	40-46-52	73-57-10	TA-2350-T6	0	181	0	1247
New York	NYC	062A	Tx1	40-43-00	73-59-46	TA-2350-DAB	0	98	0	624
New York	NYC	068A	Tx1	40-49-54	74-07-22	TA-2350-DAB	0	77	0	624
New York	NYC	070G	Tx1	40-58-11	73-42-48	TA-2350-DAB	0	86	0	1254
New York	NYC	074B	Tx1	40-42-45	73-56-26	TA-2350-DAB	0	155	0	1247
New York	NYC	097I	Tx1	40-38-33	73-55-30	TA-2350-DAB	0	93	0	1568
New York	NYC	098A	Tx1	40-54-43	73-46-56	TA-2350-DAB	0	195	0	1247
New York	NYC	100A	Tx1	40-57-42	74-04-24	TA-2350-DAB	0	183	0	1247
New York	NYC	103B	Tx1	40-39-59	74-12-53	TA-2350-T6	0	159	0	1247
New York	NYC	104C	Tx1	40-37-35	74-26-23	TA-2350-T6	0	127	0	1247
New York	NYC	112F	Tx1	40-45-23	73-54-50	TA-2350-DAB	0	80	0	1400
New York	NYC	128C	Tx1	40-41-08	74-18-13	TA-2350-DAB	0	110	0	1247
New York	NYC	131C	Tx1	40-59-25	74-01-48	TA-2304-2-DAB(120)	0	150	0	3557
New York	NYC	132H	Tx1	41-04-13	73-47-22	TA-2304-2-DAB(120)	0	187	4	2392
New York	NYC	134C	Tx1	40-59-38	73-40-37	TA-2350-DAB	0	163	0	1568
New York	NYC	136C	Tx1	40-55-06	73-54-05	TA-2350-DAB	0	104	0	1320
New York	NYC	138A	Tx1	40-50-47	73-50-05	TA-2350-DAB	0	200	0	991
New York	NYC	141A	Tx1	40-39-12	74-00-25	TA-2304-2-DAB(120)	30	153	0	1466
New York	NYC	141A	Tx2	40-39-12	74-00-25	TA-2304-2-DAB(120)	150	153	0	1466
New York	NYC	142A	Tx1	40-36-30	74-00-18	TA-2350-DAB	0	79	0	1570
New York	NYC	143B	Tx1	40-36-06	73-56-33	TA-2350-DAB	0	109	0	1570
New York	NYC	145D	Tx1	40-42-44	73-50-02	TA-2350-DAB	0	285	0	1570
New York	NYC	146D	Tx1	40-42-58	73-46-20	TA-2350-DAB	0	94	0	1247
New York	NYC	148B	Tx1	40-44-15	73-47-00	TA-2350-DAB	0	277	0	1400
New York	NYC	161A	Tx1	40-49-35	74-13-37	TA-2350-T6	0	109	0	625
New York	NYC	163C	Tx1	40-54-17	73-58-09	TA-2304-2-DAB(120)	30	150	4	1247
New York	NYC	168A	Tx1	40-37-33	74-01-36	TA-2350-DAB	0	94	0	1570
New York	NYC	169A	Tx1	40-38-15	73-58-21	TA-2350-DAB	0	220	0	1570
New York	NYC	170C	Tx1	40-34-51	73-57-22	TA-2350-DAB	0	88	0	1400
New York	NYC	172A	Tx1	40-40-24	73-55-33	TA-2304-2-DAB(120)	100	113	0	2489
New York	NYC	174A	Tx1	40-41-29	73-51-05	TA-2350-DAB	0	93	0	312
New York	NYC	181A	Tx1	40-46-42	73-46-49	TA-2350-DAB	0	243	0	1247
New York	NYC	190A	Tx1	40-56-05	73-59-46	TA-2350-DAB	0	108	0	991
New York	NYC	192C	Tx1	40-37-36	74-04-28	TA-2335-DAB-H	150	130	0	963
New York	NYC	192C	Tx2	40-37-36	74-04-28	TA-2335-DAB-H	315	130	0	963
New York	NYC	193B	Tx1	40-37-47	74-18-12	TA-2350-DAB-T2	0	85	0	1247
New York	NYC	195B	Tx1	40-43-48	74-13-19	TA-2350-DAB	0	123	0	1492
New York	NYC	196A	Tx1	40-34-47	74-06-29	TA-2350-DAB	0	99	0	1400
New York	NYC	200A	Tx1	40-57-07	73-49-04	TA-2304-2-DAB(160)	0	81	0	1442
New York	NYC	205A	Tx1	40-52-46	73-53-10	TA-2304-2-DAB(120)	0	490	2	2851
New York	NYC	206B	Tx1	40-55-30	73-50-12	TA-2350-DAB	0	80	0	630
New York	NYC	209A	Tx1	40-53-59	74-10-12	TA-2350-DAB	0	150	0	991
New York	NYC	210A	Tx1	40-52-05	74-00-03	TA-2350-DAB	0	180	0	1247
New York	NYC	212A	Tx1	40-39-39	74-22-42	TA-2350-T6	0	101	0	1247
New York	NYC	214B	Tx2	40-38-18	74-10-14	TA-2304-2-DAB(45)	275	163	0	2377

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CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
New York	NYC	214B	Tx1	40-38-18	74-10-14	TA-2335-DAB-H	135	163	0	1862
New York	NYC	218B	Tx1	40-49-32	73-53-21	TA-2350-DAB	0	95	0	1247
New York	NYC	221D	Tx1	40-41-09	74-00-04	TA-2304-2-DAB(90)	120	94	5	1416
New York	NYC	222C	Tx1	40-46-01	73-54-19	TA-2350-DAB-T2	0	80	0	1247
New York	NYC	223B	Tx1	40-45-31	73-52-44	TA-2350-T6	0	61	0	1570
New York	NYC	225B	Tx1	40-42-04	73-53-46	TA-2350-DAB	0	72	0	1247
New York	NYC	227A	Tx1	40-43-19	73-48-18	TA-2350-DAB	0	96	0	1570
New York	NYC	228C	Tx1	40-43-18	73-43-50	TA-2350-DAB	0	80	0	350
New York	NYC	259A	Tx1	40-58-52	73-44-35	TA-2350-DAB	0	78	0	1247
New York	NYC	261B	Tx2	40-47-22	73-58-31	TA-2304-2-DAB(120)	90	243	0	630
New York	NYC	261B	Tx3	40-47-22	73-58-31	TA-2304-2-DAB(120)	210	243	0	630
New York	NYC	261B	Tx1	40-47-22	73-58-31	TA-2304-2-DAB(90)	0	243	0	794
New York	NYC	611B	Tx1	40-24-12	74-02-38	TA-2304-2-DAB(120)	160	247	0	3170
New York	NYC	614B	Tx1	40-13-04	74-45-00	TA-2350-T6	0	175	0	1247
New York	NYC	630A	Tx1	41-01-09	73-55-41	TA-2350-DAB	0	127	0	991
New York	NYC	683A	Tx1	40-47-37	74-11-52	TA-2350-DAB	0	127	0	1062
New York	NYC	762A	Tx1	40-45-49	73-57-31	TA-2350-T6	0	283	0	1191
Oklahoma City	OKC	001B	Tx1	35-35-52	97-29-23	TA-2335-DAB-H	30	425	0	13214
Oklahoma City	OKC	001B	Tx2	35-35-52	97-29-23	TA-2335-DAB-H	180	425	0	13214
Orlando	ORL	001C	Tx1	28-24-23	81-22-57	TA-2304-2-DAB(160)	180	240	2	2392
Orlando	ORL	002A	Tx1	28-36-14	81-17-15	TA-2335-DAB-H	90	167	0	2959
Orlando	ORL	003E	Tx1	28-32-30	81-30-38	TA-2335-DAB-H	270	185	0	2843
Orlando	ORL	004C	Tx1	28-32-38	81-22-44	TA-2350-DAB	0	324	0	1299
Orlando	ORL	005C	Tx1	28-42-50	81-20-34	TA-2304-2-DAB(120)	0	400	9	2746
Philadelphia	PHI	001D	Tx1	39-57-05	75-09-37	TA-2350-T6	0	550	0	991
Philadelphia	PHI	002A	Tx1	40-04-57	75-10-52	TA-2304-DAB(90)	0	350	0	2067
Philadelphia	PHI	003A	Tx1	39-54-39	75-04-58	TA-2304-DAB(160)	135	130	0	1693
Philadelphia	PHI	004C	Tx1	40-03-30	75-14-19	TA-2304-DAB(90)	280	265	0	1345
Philadelphia	PHI	005B	Tx1	40-02-07	75-10-30	TA-2304-DAB(120)	0	200	0	2000
Philadelphia	PHI	006A	Tx1	39-57-33	75-14-50	TA-2350-DAB	0	132	0	1432
Philadelphia	PHI	007B	Tx1	39-54-41	75-17-21	TA-2304-DAB(120)	225	200	0	1408
Philadelphia	PHI	009B	Tx1	39-58-06	75-03-11	TA-2304-DAB(120)	60	110	0	1733
Philadelphia	PHI	010A	Tx1	39-55-04	75-21-21	TA-2304-DAB(120)	235	180	0	1414
Philadelphia	PHI	012C	Tx1	39-57-41	75-17-11	TA-2304-DAB(120)	240	200	0	1384
Philadelphia	PHI	013A	Tx1	39-56-08	75-12-16	TA-2304-2-DAB(90)	180	250	0	2514
Philadelphia	PHI	014A	Tx1	39-50-10	75-25-27	TA-2304-DAB(160)	235	350	0	1288
Philadelphia	PHI	015C	Tx1	39-53-44	75-24-15	TA-2304-DAB(120)	250	181	0	1441
Philadelphia	PHI	016C	Tx1	40-00-57	75-06-38	TA-2304-DAB(120)	30	225	0	1199
Philadelphia	PHI	017A	Tx1	40-02-17	75-01-01	TA-2304-DAB(90)	45	250	0	1416
Philadelphia	PHI	025A	Tx1	40-01-35	75-19-57	TA-2304-DAB(120)	0	132	0	2392
Philadelphia	PHI	026C	Tx1	40-02-43	75-23-28	TA-2304-DAB(120)	270	215	0	1483
Philadelphia	PHI	028A	Tx1	40-04-06	75-19-32	TA-2304-DAB(120)	0	70	0	2000
Philadelphia	PHI	029A	Tx1	40-05-22	75-21-53	TA-2304-DAB(120)	320	120	0	2327
Philadelphia	PHI	033A	Tx1	39-56-33	75-01-30	TA-2304-DAB(120)	135	148	0	2244
Philadelphia	PHI	041B	Tx1	39-56-56	75-07-01	TA-2304-DAB(120)	135	240	0	2000
Philadelphia	PHI	043A	Tx1	39-53-15	75-00-04	TA-2304-DAB(160)	135	198	0	900

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Philadelphia	PHI	045A	Tx1	39-49-34	75-09-10	TA-2304-DAB(120)	165	120	0	1580
Philadelphia	PHI	046A	Tx1	40-03-50	75-05-02	TA-2304-DAB(90)	0	150	0	2000
Philadelphia	PHI	047A	Tx1	40-00-36	74-55-53	TA-2304-DAB(120)	90	210	0	1900
Philadelphia	PHI	049A	Tx1	40-05-01	74-55-06	TA-2304-DAB(120)	45	400	6	592
Philadelphia	PHI	053A	Tx1	40-07-07	75-08-00	TA-2304-DAB(120)	0	140	0	1475
Philadelphia	PHI	054A	Tx1	39-58-30	75-20-10	TA-2304-DAB(160)	270	156	0	1136
Philadelphia	PHI	059B	Tx1	39-41-56	75-42-17	TA-2304-DAB(160)	225	150	0	1136
Philadelphia	PHI	061A	Tx1	39-47-27	75-32-52	TA-2335-DAB-H	220	210	0	1492
Philadelphia	PHI	061A	Tx2	39-47-27	75-32-52	TA-2335-DAB-H	340	210	0	1492
Philadelphia	PHI	062B	Tx1	39-44-52	75-32-49	TA-2335-DAB-H	225	430	0	4131
Philadelphia	PHI	064B	Tx1	39-49-39	75-00-04	TA-2304-DAB(120)	135	130	0	1654
Philadelphia	PHI	065A	Tx1	39-51-23	75-04-02	TA-2304-DAB(120)	135	160	0	1441
Phoenix	PHO	001B	Tx1	33-27-00	112-04-29	TA-2335-DAB-H	0	420	3	3945
Phoenix	PHO	006A	Tx1	33-19-57	112-03-59	TA-2304-2-DAB-H(160)	27	60	8	29150
Phoenix	PHO	010B	Tx1	33-23-11	111-55-39	TA-2304-2-DAB(60)	100	66	8	887
Phoenix	PHO	101A	Tx1	32-14-57	111-07-00	TA-2304-2-DAB-H(160)	100	30	7	16596
Pittsburgh	PIT	002A	Tx1	40-24-22	79-58-35	TA-2350-T6	0	108	0	1247
Pittsburgh	PIT	004D	Tx1	40-26-47	79-57-49	TA-2304-2-DAB(90)	135	216	8	437
Pittsburgh	PIT	006A	Tx1	40-24-55	80-02-18	TA-2335-DAB-H	180	430	4	1247
Pittsburgh	PIT	006A	Tx2	40-24-55	80-02-18	TA-2335-DAB-H	290	430	2	1247
Pittsburgh	PIT	007A	Tx1	40-29-37	79-58-25	TA-2304-2-DAB(90)	0	87	0	3988
Pittsburgh	PIT	008C	Tx1	40-27-39	79-55-18	TA-2304-2-DAB(90)	90	212	0	3724
Pittsburgh	PIT	009A	Tx1	40-28-22	80-05-27	TA-2304-2-DAB(90)	270	109	0	1995
Pittsburgh	PIT	011C	Tx1	40-13-13	79-57-06	TA-2335-DAB-H	140	265	2	1762
Pittsburgh	PIT	011C	Tx2	40-13-13	79-57-06	TA-2335-DAB-H	271	265	5	1762
Pittsburgh	PIT	012A	Tx1	40-28-19	79-59-40	TA-2335-DAB-H	60	715	5	6846
Pittsburgh	PIT	012A	Tx2	40-28-19	79-59-40	TA-2335-DAB-H	180	715	7	6846
Pittsburgh	PIT	012A	Tx3	40-28-19	79-59-40	TA-2335-DAB-H	300	715	5	6846
Pittsburgh	PIT	014A	Tx1	40-30-12	79-51-58	TA-2335-DAB-H	30	130	0	1492
Pittsburgh	PIT	014A	Tx2	40-30-12	79-51-58	TA-2335-DAB-H	150	130	0	1492
Pittsburgh	PIT	015E	Tx1	40-35-26	80-00-36	TA-2335-DAB-H	60	380	3	11379
Pittsburgh	PIT	015E	Tx2	40-35-26	80-00-36	TA-2335-DAB-H	180	380	6	1138
Pittsburgh	PIT	015E	Tx3	40-35-26	80-00-36	TA-2335-DAB-H	300	380	3	11379
Pittsburgh	PIT	016A	Tx1	40-24-42	79-55-52	TA-2335-DAB-H	70	435	4	1492
Pittsburgh	PIT	016A	Tx2	40-24-42	79-55-52	TA-2335-DAB-H	180	435	4	1492
Pittsburgh	PIT	017A	Tx1	40-25-56	79-52-05	TA-2335-DAB-H	90	240	3	3945
Pittsburgh	PIT	019C	Tx1	40-31-17	80-01-28	TA-2350-T2	0	40	0	941
Pittsburgh	PIT	020A	Tx1	40-29-48	80-07-08	TA-2335-DAB-H	0	250	2	1570
Pittsburgh	PIT	020A	Tx2	40-29-48	80-07-08	TA-2335-DAB-H	240	250	0	1570
Pittsburgh	PIT	021D	Tx1	40-26-09	80-03-58	TA-2350-T6	0	128	0	393
Pittsburgh	PIT	023A	Tx1	40-31-40	80-03-45	TA-2304-2-DAB(90)	330	135	0	1778
Pittsburgh	PIT	025C	Tx1	40-36-17	79-46-11	TA-2304-2-DAB(120)	40	200	0	3557
Pittsburgh	PIT	027B	Tx1	40-23-15	80-02-39	TA-2304-2-DAB(90)	190	130	0	1995
Pittsburgh	PIT	028A	Tx1	40-28-43	79-49-25	TA-2335-DAB-H	60	350	5	1570
Pittsburgh	PIT	028A	Tx2	40-28-43	79-49-25	TA-2335-DAB-H	170	350	7	1570
Pittsburgh	PIT	033A	Tx1	40-20-33	79-57-59	TA-2304-2-DAB(45)	145	115	0	1996

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Pittsburgh	PIT	034A	Tx1	40-31-48	79-45-20	TA-2335-DAB-H	20	292	3	3264
Pittsburgh	PIT	037B	Tx1	40-21-56	79-52-27	TA-2335-DAB-H	115	130	0	2377
Pittsburgh	PIT	037B	Tx2	40-21-56	79-52-27	TA-2335-DAB-H	240	130	0	2377
Pittsburgh	PIT	038A	Tx2	40-19-18	79-52-39	TA-2335-DAB-H	170	390	5	2213
Pittsburgh	PIT	039A	Tx1	40-32-46	80-09-32	TA-2335-DAB-H	0	250	3	1466
Pittsburgh	PIT	039A	Tx2	40-32-46	80-09-32	TA-2335-DAB-H	240	250	3	1466
Pittsburgh	PIT	042B	Tx1	40-23-01	79-49-07	TA-2335-DAB-H	120	105	6	494
Pittsburgh	PIT	042B	Tx2	40-23-01	79-49-07	TA-2335-DAB-H	10	105	9	494
Pittsburgh	PIT	046A	Tx1	40-24-36	80-05-50	TA-2335-DAB-H	180	280	6	907
Pittsburgh	PIT	054A	Tx1	40-26-48	79-45-26	TA-2335-DAB-H	40	400	3	1299
Pittsburgh	PIT	054A	Tx2	40-26-48	79-45-26	TA-2335-DAB-H	150	400	2	1299
Pittsburgh	PIT	055B	Tx1	40-23-33	79-46-52	TA-2335-DAB-H	60	650	9	1106
Pittsburgh	PIT	055B	Tx2	40-23-33	79-46-52	TA-2335-DAB-H	160	650	5	1106
Pittsburgh	PIT	059A	Tx2	40-23-06	79-41-35	TA-2335-DAB-H	120	300	5	1567
Pittsburgh	PIT	061A	Tx2	40-33-42	80-06-31	TA-2335-DAB-H	290	180	0	3579
Pittsburgh	PIT	064A	Tx1	40-22-35	79-55-25	TA-2335-DAB-H	120	155	3	3190
Portland	POR	003B	Tx1	45-30-58	122-44-03	HMD8-V360-R05-H	0	390	0	9249
Portland	POR	005B	Tx1	45-38-11	122-41-31	TA-2304-2-DAB(90)	0	102	0	3639
Portland	POR	008C	Tx1	45-31-00	122-40-46	TA-2350-DAB	0	398	0	963
Portland	POR	010A	Tx1	45-25-05	122-38-50	TA-2304-2-DAB(90)	160	110	0	3990
Portland	POR	012C	Tx1	45-21-40	122-36-44	TA-2304-2-DAB(120)	180	87	0	3320
Portland	POR	015B	Tx1	45-20-39	122-41-37	TA-2304-2-DAB(90)	180	117	0	3396
Portland	POR	017B	Tx1	45-29-21	122-41-46	TA-2304-2-DAB(160)	180	375	0	2000
Portland	POR	019C	Tx1	45-27-07	122-32-51	TA-2304-2-DAB(90)	135	150	0	499
Portland	POR	021A	Tx1	45-31-17	122-33-42	TA-2304-2-DAB(90)	120	125	0	3320
Portland	POR	023A	Tx1	45-38-19	122-36-23	TA-2304-2-DAB(90)	30	110	0	3810
Portland	POR	026B	Tx1	45-17-35	122-59-17	TA-2350-T6	0	130	0	1032
Portland	POR	028A	Tx1	45-31-21	123-06-07	TA-2350-T6	0	110	0	1185
Portland	POR	029A	Tx1	45-15-56	122-40-45	TA-2304-2-DAB(90)	190	138	0	3556
Portland	POR	030A	Tx1	45-43-36	122-39-11	TA-2304-2-DAB(160)	0	105	0	2244
Portland	POR	032A	Tx1	45-30-20	122-46-48	TA-2304-2-DAB(90)	270	83	0	3810
Portland	POR	035A	Tx1	45-25-23	122-42-06	TA-2304-2-DAB(60)	180	92	0	5636
Providence	PRO	001B	Tx1	41-49-18	71-25-08	TA-2350-DAB	0	160	0	1219
Raleigh	RAL	001A	Tx1	35-50-45	78-38-36	TA-2304-DAB(120)	120	150	0	1900
Raleigh	RAL	002A	Tx1	35-47-17	78-43-14	TA-2304-2-DAB(120)	135	350	0	3557
Raleigh	RAL	004A	Tx1	35-59-55	78-51-21	TA-2350-T6	0	315	0	1185
Raleigh	RAL	005B	Tx1	35-45-53	78-48-50	TA-2304-2-DAB(90)	180	108	0	3639
Raleigh	RAL	007A	Tx1	35-52-45	78-50-56	TA-2304-2-DAB-H(90)	135	200	0	39862
Raleigh	RAL	009A	Tx1	35-54-51	79-03-17	TA-2304-2-DAB(120)	220	100	3	1660
Raleigh	RAL	010A	Tx1	35-59-55	78-54-08	TA-2350-T6	0	273	0	1247
Raleigh	RAL	012A	Tx1	36-03-33	78-57-10	TA-2350-T6	0	360	0	1158
Raleigh	RAL	013A	Tx1	35-46-28	78-38-24	TA-2304-2-DAB(90)	100	440	0	3011
Raleigh	RAL	015A	Tx1	36-02-05	78-54-43	TA-2350-DAB	0	130	0	1062
Raleigh	RAL	016C	Tx1	35-57-23	78-55-44	TA-2304-2-DAB(120)	160	130	4	3557
Raleigh	RAL	017B	Tx1	35-57-43	78-59-53	HMD8-V360-R05-H	0	345	0	9336
Raleigh	RAL	019B	Tx1	36-01-42	78-57-38	TA-2350-DAB	0	130	0	269

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Raleigh	RAL	021B	Tx1	35-55-04	79-05-57	TA-2304-DAB(120)	120	147	3	1476
Raleigh	RAL	022A	Tx1	35-52-49	78-37-38	TA-2304-2-DAB(120)	30	156	0	2302
Raleigh	RAL	026A	Tx1	35-52-15	78-40-42	TA-2304-2-DAB(90)	45	150	0	3011
Raleigh	RAL	028A	Tx1	35-44-49	78-41-41	TA-2304-DAB(90)	135	145	0	2826
Raleigh	RAL	029B	Tx1	35-47-21	78-40-45	TA-2304-2-DAB(90)	90	320	6	3732
Richmond	RIC	005D	Tx1	37-32-24	77-31-12	TA-2335-DAB-H	180	174	0	4204
Richmond	RIC	008A	Tx1	37-32-11	77-26-06	TA-2304-2-DAB(160)	125	368	0	2182
Richmond	RIC	009A	Tx1	37-36-52	77-30-55	TA-2350-DAB-H(MOD)	0	405	0	10988
Richmond	RIC	020A	Tx1	37-29-57	77-27-18	TA-2335-DAB-H	190	220	0	4205
Richmond	RIC	030A	Tx1	37-32-02	77-21-44	TA-2304-2-DAB(90)	90	128	0	3620
Richmond	RIC	033A	Tx1	37-28-50	77-30-55	TA-2304-2-DAB(90)	180	128	0	931
Richmond	RIC	034A	Tx1	37-30-44	77-36-01	TA-2304-2-DAB(120)	180	200	0	3027
Rochester	ROC	002A	Tx1	43-10-13	77-40-23	TA-2335-DAB-H	120	300	0	4572
Sacramento	SAC	001C	Tx1	38-32-58	121-25-16	TA-2304-2-DAB-H(120)	235	106	0	10891
Sacramento	SAC	002A	Tx1	38-33-59	121-28-50	TA-2350-DAB	0	163	0	1466
Sacramento	SAC	005C	Tx1	38-34-54	121-30-08	TA-2304-2-DAB(90)	270	620	0	3591
Sacramento	SAC	006A	Tx1	38-40-21	121-19-55	HMD8-V360-R05-H	0	247	0	10160
Sacramento	SAC	008A	Tx1	38-30-20	121-28-05	TA-2304-2-DAB(120)	180	65	0	2845
San Antonio	SAN	001A	Tx1	29-24-09	98-26-31	TA-2335-DAB-H	90	195	0	3050
San Antonio	SAN	002A	Tx1	29-25-43	98-29-32	TA-2350-DAB	0	480	0	1192
San Antonio	SAN	004A	Tx1	29-20-20	98-35-21	TA-2304-2-DAB(160)	225	165	0	1900
San Antonio	SAN	005A	Tx1	29-27-33	98-33-08	TA-2335-DAB-H	340	110	0	3702
San Antonio	SAN	006A	Tx1	29-29-21	98-26-53	TA-2335-DAB-H	45	120	0	3436
San Antonio	SAN	007A	Tx1	29-29-57	98-19-14	TA-2335-DAB-H	70	175	0	2909
San Antonio	SAN	008B	Tx1	29-21-41	98-26-19	TA-2335-DAB-H	160	194	0	4403
San Antonio	SAN	011A	Tx1	29-32-39	98-34-50	TA-2335-DAB-H	0	167	0	3050
San Antonio	SAN	012B	Tx1	29-27-54	98-28-43	TA-2304-2-DAB(120)	350	286	0	2846
San Diego	SDX	002B	Tx1	32-43-06	117-10-01	TA-2350-DAB	0	387	0	1264
San Diego	SDX	005B	Tx1	32-46-51	117-08-10	TA-2335-DAB-H	290	136	3	3396
San Diego	SDX	007B	Tx1	32-41-47	116-56-11	TA-2304-2-DAB-H(60)	300	78	6	19905
San Diego	SDX	013A	Tx1	32-48-23	117-12-58	TA-2304-DAB(60)	315	61	0	3944
San Diego	SDX	019C	Tx1	32-59-34	117-15-19	TA-2335-DAB-H	315	36	0	3990
San Diego	SDX	023A	Tx1	33-12-51	117-11-15	TA-2335-DAB-H	290	50	6	3990
Seattle	SEA	001B	Tx2	47-58-53	122-12-29	TA-2304-2-DAB(45)	190	170	6	946
Seattle	SEA	001B	Tx1	47-58-53	122-12-29	TA-2304-2-DAB(60)	0	170	0	5970
Seattle	SEA	002A	Tx1	47-36-17	122-19-51	TA-2304-2-DAB(45)	330	938	0	1991
Seattle	SEA	003B	Tx1	47-37-01	122-11-49	TA-2304-2-DAB(45)	345	330	6	1990
Seattle	SEA	004B	Tx1	47-45-51	122-09-02	TA-2304-2-DAB(90)	0	48	0	4179
Seattle	SEA	005B	Tx1	47-13-21	122-12-31	TA-2304-2-DAB(45)	210	140	0	6776
Seattle	SEA	006A	Tx1	47-35-17	122-18-56	TA-2304-2-DAB(160)	270	157	0	329
Seattle	SEA	007A	Tx1	47-23-26	122-17-40	TA-2304-2-DAB(160)	225	75	0	2244
Seattle	SEA	008B	Tx1	47-18-20	122-14-43	TA-2304-2-DAB(120)	220	75	0	3320
Seattle	SEA	011A	Tx1	47-32-39	122-06-31	HMD8-V360-R05-H	0	170	0	9528
Seattle	SEA	012A	Tx1	47-57-06	122-21-57	TA-2304-2-DAB(60)	90	100	0	1774
Seattle	SEA	013A	Tx1	47-51-44	122-17-09	TA-2304-2-DAB(90)	10	175	0	2826
Seattle	SEA	014A	Tx1	47-36-57	122-18-30	TA-2304-2-DAB(60)	270	180	0	2951

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Seattle	SEA	015A	Tx1	47-54-37	122-12-30	TA-2304-2-DAB(90)	0	150	0	2878
Seattle	SEA	016A	Tx1	47-40-47	122-10-54	TA-2304-2-DAB(90)	340	60	0	1254
Seattle	SEA	019C	Tx1	47-45-32	122-18-45	TA-2304-2-DAB(90)	330	70	0	2958
Seattle	SEA	021B	Tx1	47-04-04	122-44-17	TA-2304-2-DAB(90)	235	100	0	3810
Seattle	SEA	024A	Tx1	47-47-52	122-33-47	TA-2335-DAB-H	90	116	0	886
Seattle	SEA	027B	Tx1	47-31-14	122-21-31	TA-2304-2-DAB(45)	180	43	0	2084
Seattle	SEA	033B	Tx1	47-37-54	122-21-34	TA-2304-2-DAB(45)	0	80	0	1991
Seattle	SEA	034A	Tx1	47-46-36	122-12-07	TA-2304-2-DAB(90)	30	130	0	3556
Seattle	SEA	035B	Tx1	48-01-27	122-06-44	TA-2304-2-DAB(60)	0	160	0	2350
Seattle	SEA	036B	Tx1	47-00-55	122-55-04	TA-2304-2-DAB(120)	10	110	0	760
Seattle	SEA	036B	Tx2	47-00-55	122-55-04	TA-2304-2-DAB(120)	130	110	0	760
Seattle	SEA	037C	Tx1	47-30-29	122-04-59	TA-2350-DAB	0	95	0	700
Seattle	SEA	039A	Tx1	47-42-24	122-10-44	TA-2304-2-DAB(120)	0	82	0	1066
Seattle	SEA	041A	Tx1	47-50-14	122-07-35	TA-2304-2-DAB(90)	0	158	0	3028
Seattle	SEA	042A	Tx1	47-55-30	122-06-07	TA-2304-2-DAB(45)	0	185	0	6040
Seattle	SEA	044A	Tx1	47-48-48	122-13-48	TA-2304-2-DAB(90)	0	115	0	1820
Seattle	SEA	050A	Tx1	47-39-48	122-18-54	TA-2335-DAB-H	0	128	0	1328
Seattle	SEA	053A	Tx1	47-21-22	122-10-04	TA-2304-2-DAB(160)	210	92	0	2404
Seattle	SEA	054A	Tx1	47-47-42	122-07-54	TA-2304-2-DAB(120)	0	85	0	3170
Seattle	SEA	055A	Tx1	47-02-47	122-49-27	TA-2304-2-DAB(120)	235	150	0	2460
Seattle	SEA	056A	Tx1	47-47-31	122-20-38	TA-2304-2-DAB(60)	20	130	0	5260
Seattle	SEA	525D	Tx2	47-15-48	122-20-53	TA-2335-DAB-H	150	220	0	16636
Seattle	SEA	525D	Tx3	47-15-48	122-20-53	TA-2335-DAB-H	260	220	0	16636
Seattle	SEA	526B	Tx1	47-28-12	122-19-57	TA-2304-2-DAB(120)	225	70	0	3476
San Francisco	SFX	005A	Tx1	37-47-21	122-24-26	TA-2304-2-DAB(120)	0	440	0	3011
San Francisco	SFX	007A	Tx1	37-41-22	122-26-16	HMD8-V360-R05-H	0	145	0	8937
San Francisco	SFX	009C	Tx1	37-30-42	122-17-49	TA-2350-DAB	0	35	0	196
San Francisco	SFX	010A	Tx1	37-25-15	122-08-31	TA-2335-DAB-H	190	140	0	3945
San Francisco	SFX	033A	Tx1	37-48-10	122-16-22	TA-2335-DAB-H	60	365	0	392
San Francisco	SFX	043A	Tx1	37-59-30	121-17-19	TA-2350-T6	0	345	0	991
San Francisco	SFX	058A	Tx1	37-41-48	121-46-11	TA-2304-2-DAB(120)	180	60	0	1981
San Francisco	SFX	064A	Tx1	37-59-20	121-48-24	TA-2304-DAB(90)	90	90	0	2037
San Francisco	SFX	073A	Tx1	37-38-02	120-59-54	TA-2350-DAB	0	188	0	787
San Francisco	SFX	117A	Tx1	37-58-39	122-19-23	TA-2335-DAB-H	45	75	0	593
San Francisco	SFX	118C	Tx1	37-39-20	122-24-04	TA-2304-DAB(90)	225	111	0	536
San Francisco	SFX	122A	Tx1	37-29-24	122-13-41	TA-2304-2-DAB(160)	230	85	0	2518
San Francisco	SFX	123A	Tx1	37-39-35	122-05-44	TA-2335-DAB-H	60	53	0	621
San Francisco	SFX	138A	Tx1	37-20-49	121-56-25	TA-2335-DAB-H	185	140	2	3682
San Francisco	SFX	139B	Tx1	37-27-02	122-09-41	TA-2304-2-DAB(60)	210	85	0	3062
San Francisco	SFX	143A	Tx1	37-22-18	121-55-19	TA-2335-DAB-H	160	136	0	3852
San Francisco	SFX	150B	Tx1	37-19-03	121-56-51	TA-2304-2-DAB(120)	170	122	0	877
San Francisco	SFX	151A	Tx1	37-23-26	122-04-54	TA-2335-DAB-H	180	142	0	3674
San Francisco	SFX	152C	Tx1	37-23-01	121-58-43	TA-2304-2-DAB(45)	180	106	0	6746
San Francisco	SFX	159B	Tx1	37-41-32	122-05-14	TA-2304-DAB(90)	90	30	0	1262
San Francisco	SFX	164A	Tx1	37-32-25	122-04-57	TA-2335-DAB-H	90	30	0	3358
San Francisco	SFX	205B	Tx1	38-13-23	122-39-12	TA-2304-2-DAB(90)	45	44	0	4083

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
San Francisco	SFX	209A	Tx1	38-00-26	122-08-55	TA-2304-2-DAB(160)	110	60	0	2405
San Francisco	SFX	214B	Tx1	37-58-05	122-03-04	TA-2335-DAB-H	160	139	0	530
San Francisco	SFX	250A	Tx1	37-43-52	121-56-57	TA-2304-DAB(60)	145	32	0	3396
San Francisco	SFX	253A	Tx1	37-50-24	122-00-47	TA-2304-2-DAB(90)	135	23	4	1376
San Francisco	SFX	255A	Tx1	38-00-28	121-54-16	TA-2304-DAB(90)	90	55	0	2132
San Francisco	SFX	506B	Tx1	37-45-34	122-27-45	TA-2304-2-DAB(160)	330	145	0	2094
San Francisco	SFX	716B	Tx1	37-32-31	121-58-23	TA-2304-2-DAB(160)	100	98	0	2282
Salt Lake City	SLC	001A	Tx1	40-14-35	111-39-49	TA-2304-2-DAB(90)	150	240	0	4178
Salt Lake City	SLC	001A	Tx2	40-14-35	111-39-49	TA-2304-2-DAB(90)	330	240	0	4178
Salt Lake City	SLC	004B	Tx1	41-07-06	111-56-06	TA-2304-2-DAB(90)	180	107	0	3810
Salt Lake City	SLC	014A	Tx1	40-48-29	111-53-25	TA-2335-DAB-H	180	100	0	24831
Salt Lake City	SLC	016A	Tx1	41-15-16	112-14-15	TA-2304-2-DAB-H(160)	90	290	0	18454
Springfield	SPR	001A	Tx1	42-06-10	72-35-32	TA-2335-DAB-H	90	445	0	2119
Springfield	SPR	001A	Tx2	42-06-10	72-35-32	TA-2335-DAB-H	285	445	0	2128
Springfield	SPR	003B	Tx1	42-08-21	72-32-38	TA-2335-DAB-H	90	144	0	7709
Springfield	SPR	003B	Tx2	42-08-21	72-32-38	TA-2335-DAB-H	285	144	0	7709
St. Louis	STL	001A	Tx1	38-45-07	90-37-22	TA-2350-T4	0	100	0	1185
St. Louis	STL	003A	Tx1	38-38-11	90-20-40	TA-2304-2-DAB(160)	270	349	0	2000
St. Louis	STL	005C	Tx1	38-36-25	90-14-28	TA-2304-2-DAB(160)	240	122	0	2000
St. Louis	STL	006A	Tx1	38-37-48	90-11-27	TA-2304-2-DAB(160)	270	499	0	2000
St. Louis	STL	009D	Tx1	38-35-30	90-18-14	TA-2304-2-DAB(160)	225	113	0	2094
St. Louis	STL	012C	Tx1	38-42-59	90-15-14	TA-2304-2-DAB(120)	0	113	0	2912
St. Louis	STL	013B	Tx1	38-42-42	90-19-12	TA-2304-2-DAB(160)	330	100	0	1122
St. Louis	STL	015A	Tx1	38-47-56	90-28-50	TA-2335-DAB-H	270	75	0	4160
St. Louis	STL	017E	Tx1	38-38-42	90-15-51	TA-2304-2-DAB(160)	290	349	0	2518
St. Louis	STL	020A	Tx1	38-41-11	90-23-20	TA-2304-2-DAB(120)	280	240	0	1693
St. Louis	STL	023A	Tx1	38-47-03	90-20-27	TA-2304-2-DAB(120)	30	110	0	2912
Syracuse	SYR	001A	Tx1	43-04-37	76-05-51	TA-2304-2-DAB(120)	180	110	0	2620
Syracuse	SYR	004A	Tx1	43-02-51	76-08-30	TA-2335-DAB-H	180	248	0	3514
Syracuse	SYR	008F	Tx1	43-05-29	76-09-02	TA-2335-DAB-H	180	69	0	1521
Tampa	TAM	001A	Tx1	28-03-15	82-44-14	TA-2335-DAB-H	300	295	0	3666
Tampa	TAM	002A	Tx1	27-59-38	82-19-28	TA-2304-2-DAB(90)	90	250	0	2570
Tampa	TAM	003A	Tx1	27-49-53	82-41-56	TA-2335-DAB-H	200	250	0	4242
Tampa	TAM	008A	Tx1	27-46-14	82-38-09	TA-2335-DAB-H	200	385	0	3642
Tampa	TAM	009C	Tx1	27-53-44	82-48-00	TA-2335-DAB-H	270	158	0	3262
Tampa	TAM	010A	Tx1	27-55-51	82-19-12	TA-2304-DAB(90)	125	250	5	2000
Tampa	TAM	011A	Tx1	27-56-44	82-27-30	TA-2350-DAB	0	618	0	1056
Tampa	TAM	012D	Tx1	28-01-29	82-30-42	TA-2304-DAB(60)	310	180	3	3991
Tampa	TAM	013A	Tx1	28-01-26	82-10-46	TA-2304-2-DAB(45)	120	270	0	759
Tampa	TAM	014A	Tx1	28-02-41	82-01-51	TA-2304-2-DAB(60)	110	300	4	2392
Tampa	TAM	015A	Tx1	28-08-48	82-27-50	TA-2304-DAB(120)	0	185	0	1518
Tampa	TAM	016A	Tx1	28-19-12	82-41-52	TA-2350-T6	0	185	0	1247
Tampa	TAM	017C	Tx1	27-58-41	82-45-14	TA-2335-DAB-H	280	125	0	3835
Toledo	TOL	001A	Tx1	41-39-11	83-31-50	TA-2350-DAB	0	420	0	1330
Toledo	TOL	505A	Tx1	41-39-36	83-33-16	TA-2350-DAB	0	178	0	1112
Tulsa	TUL	001A	Tx1	36-09-46	95-58-45	TA-2304-2-DAB-H(120)	150	450	0	14125

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Washington DC	WDC	101A	Tx1	38-54-18	77-03-15	TA-2350-DAB	0	175	0	1100
Washington DC	WDC	102E	Tx1	38-52-54	77-00-59	TA-2350-DAB-H	0	104	0	1400
Washington DC	WDC	103D	Tx1	38-54-25	77-00-25	TA-2350-DAB	0	96	0	1185
Washington DC	WDC	105F	Tx1	38-57-01	77-04-47	TA-2335-DAB-H	20	207	5	2392
Washington DC	WDC	105F	Tx2	38-57-01	77-04-47	TA-2335-DAB-H	260	207	0	21318
Washington DC	WDC	106F	Tx1	38-55-56	77-02-13	TA-2350-DAB	0	125	0	1448
Washington DC	WDC	201A	Tx1	38-53-27	77-04-56	TA-2350-DAB	0	164	0	1292
Washington DC	WDC	202A	Tx1	38-51-46	77-03-04	TA-2350-DAB	0	197	0	1276
Washington DC	WDC	203B	Tx1	38-53-01	77-07-05	TA-2335-DAB-H	210	220	6	1000
Washington DC	WDC	203B	Tx2	38-53-01	77-07-05	TA-2335-DAB-H	310	205	6	1000
Washington DC	WDC	204A	Tx1	38-55-16	77-13-42	TA-2350-T6	0	242	0	1588
Washington DC	WDC	207C	Tx1	38-57-33	77-25-28	TA-2350-T6	0	169	0	1002
Washington DC	WDC	215B	Tx3	38-47-16	77-19-46	TA-2335-DAB-H	130	410	4	3396
Washington DC	WDC	215B	Tx1	38-47-16	77-19-46	TA-2335-DAB-H	240	410	3	30272
Washington DC	WDC	218B	Tx1	38-40-59	77-14-11	TA-2335-DAB-H	0	175	0	256
Washington DC	WDC	218B	Tx2	38-40-59	77-14-11	TA-2335-DAB-H	120	175	0	1146
Washington DC	WDC	218B	Tx3	38-40-59	77-14-11	TA-2335-DAB-H	240	175	0	1146
Washington DC	WDC	220C	Tx1	38-44-57	77-29-13	TA-2350-T6	0	152	0	1400
Washington DC	WDC	221A	Tx1	38-51-57	77-21-55	TA-2335-DAB-H	0	140	0	1664
Washington DC	WDC	221A	Tx2	38-51-57	77-21-55	TA-2335-DAB-H	250	140	0	1664
Washington DC	WDC	222A	Tx1	38-39-24	77-17-14	TA-2304-2-DAB(60)	125	200	0	2518
Washington DC	WDC	223A	Tx1	38-56-58	77-21-18	TA-2350-T6	0	195	0	1050
Washington DC	WDC	227E	Tx1	38-44-44	77-05-57	TA-2335-DAB-H	180	352	0	2992
Washington DC	WDC	227E	Tx2	38-44-44	77-05-57	TA-2335-DAB-H	290	352	3	176
Washington DC	WDC	230A	Tx1	38-52-28	77-13-24	TA-2304-2-DAB(90)	225	603	5	3120
Washington DC	WDC	231C	Tx1	38-50-40	77-06-59	TA-2350-T6	0	313	0	1100
Washington DC	WDC	232E	Tx2	38-47-35	77-10-35	TA-2335-DAB-H	160	193	6	4074
Washington DC	WDC	232E	Tx3	38-47-35	77-10-35	TA-2335-DAB-H	260	193	2	4074
Washington DC	WDC	301A	Tx1	39-02-28	76-59-36	TA-2350-DAB	0	245	0	1074
Washington DC	WDC	303A	Tx1	39-06-57	77-04-28	TA-2304-2-DAB(90)	330	135	0	2046
Washington DC	WDC	304A	Tx1	39-05-02	77-08-54	TA-2304-2-DAB(90)	330	222	0	3557
Washington DC	WDC	307A	Tx1	39-06-54	77-11-58	TA-2304-2-DAB(90)	0	295	0	3990
Washington DC	WDC	312D	Tx1	38-58-58	77-05-35	TA-2350-DAB	0	192	0	1206
Washington DC	WDC	313B	Tx1	38-48-21	76-58-41	TA-2304-2-DAB(45)	50	169	2	1991
Washington DC	WDC	313B	Tx2	38-48-21	76-58-41	TA-2304-2-DAB(90)	195	169	6	868
Washington DC	WDC	314B	Tx1	38-55-46	76-55-27	TA-2350-DAB	0	180	0	941
Washington DC	WDC	316A	Tx1	38-51-37	76-56-57	TA-2304-2-DAB(120)	160	224	0	1954
Washington DC	WDC	319A	Tx1	38-53-19	76-54-18	TA-2350-T6	0	106	0	1416
Washington DC	WDC	322D	Tx1	39-00-17	76-58-32	TA-2350-T6	0	272	0	1552
Washington DC	WDC	325A	Tx1	38-57-17	77-00-17	TA-2335-DAB-H	50	297	6	921
Washington DC	WDC	325A	Tx2	38-57-17	77-00-17	TA-2335-DAB-H	310	297	6	1107
Washington DC	WDC	327A	Tx1	39-01-40	77-08-26	TA-2350-T6	0	187	0	1247
Washington DC	WDC	329A	Tx1	39-08-50	76-50-51	TA-2350-T6	0	105	0	1588
Washington DC	WDC	337B	Tx1	39-02-26	77-03-18	TA-2350-T6	0	329	0	600
Washington DC	WDC	401B	Tx1	39-17-14	76-36-52	TA-2350-DAB	0	420	0	894
Washington DC	WDC	402D	Tx1	39-19-54	76-39-28	TA-2335-DAB-H	0	320	0	1150

Exhibit A. XM Repeater Network Technical Parameters for Operation under 30-day STA

CITY	CITY ABBR.	SITE NO.	ANTENNA NUMBER	SITE LATITUDE (DEG N)	SITE LONGITUDE (DEG W)	ANTENNA TYPE	ANT ORIENTATION (DEG AZ)	ANT HEIGHT (FT. AGL)	ANT DOWNTILT (DEG)	TOTAL AVERAGE EIRP (W)
Washington DC	WDC	402D	Tx2	39-19-54	76-39-28	TA-2335-DAB-H	120	110	4	390
Washington DC	WDC	402D	Tx3	39-19-54	76-39-28	TA-2335-DAB-H	240	320	0	1150
Washington DC	WDC	405A	Tx1	39-24-03	76-35-55	TA-2304-2-DAB(160)	0	280	0	1074
Washington DC	WDC	407E	Tx1	39-19-58	76-41-55	TA-2335-DAB-H	270	162	0	3170
Washington DC	WDC	408A	Tx1	39-13-44	76-39-46	TA-2335-DAB-H	180	166	0	2826
Washington DC	WDC	409A	Tx1	39-12-08	76-37-49	TA-2335-DAB-H	180	130	0	3320
Washington DC	WDC	410E	Tx1	39-19-26	76-32-55	TA-2304-2-DAB(120)	90	410	0	2576
Washington DC	WDC	414B	Tx1	39-22-39	76-43-20	TA-2304-2-DAB(120)	330	194	0	2192
Washington DC	WDC	430A	Tx2	39-09-54	76-36-18	TA-2335-DAB-H	130	189	3	2042
Washington DC	WDC	434A	Tx1	39-10-41	76-52-32	TA-2350-T6	0	163	0	1002
Washington DC	WDC	500B	Tx1	38-48-54	77-03-09	TA-2350-DAB	0	113	0	314
Washington DC	WDC	501B	Tx1	38-47-28	77-03-51	TA-2335-DAB-H	180	178	0	4376
Washington DC	WDC	502A	Tx1	38-59-32	76-52-54	TA-2350-T2	0	221	0	1234
Washington DC	WDC	504B	Tx1	39-01-24	77-06-17	TA-2350-T6	0	292	0	1384
Washington DC	WDC	507C	Tx1	38-53-09	76-59-52	TA-2350-DAB	0	84	0	1150
Washington DC	WDC	510B	Tx1	38-57-31	76-52-08	TA-2350-T6	0	135	0	1234
Washington DC	WDC	513A	Tx1	38-52-47	77-10-17	TA-2335-DAB-H	200	270	0	3900
Washington DC	WDC	515A	Tx1	39-16-01	76-47-37	TA-2350-T6	0	112	0	1400
Washington DC	WDC	517A	Tx1	38-56-15	77-10-41	TA-2350-T6	0	144	0	1552
Washington DC	WDC	519A	Tx1	38-53-45	77-08-07	TA-2335-DAB-H	210	290	6	1482
Washington DC	WDC	519A	Tx2	38-53-45	77-08-07	TA-2335-DAB-H	310	290	6	1482

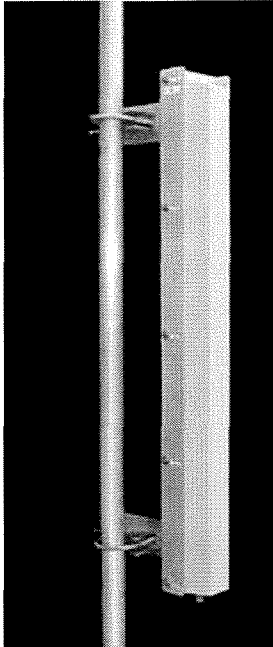
Exhibit B

Antenna Specification Sheets



TIL-TEK

TA-2304-2-DAB 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: (dBi) 18 @ 45° 17 @ 60° 15 @ 90°
14 @ 120° 13 @ 160°
VSWR: 1.3:1 max.
Front/Back Ratio: 15 dB @ 180° ± 35°
Polarization: Linear Vertical
Power Rating: 200 Watts average, 800 Watts peak
H-Plane Beamwidth (-3 dBd):
Field Adjustable 45, 60, 90, 120, 160 degrees
E-Plane Beamwidth (-3 dBd): 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)

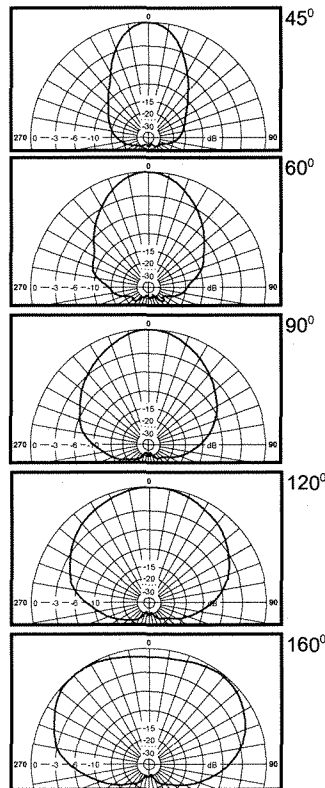
Mechanical Specifications

Length: 40 in. (1016 mm)
Width: 6.5 in. (165 mm)
Depth: 3.5 in. (89 mm)
Weight (Incl. Clamps): 10 lb. (4.5 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 150 lb. (68 kg)
Mounting Pipe: 0.75 - 3.0 in. (19 - 76 mm)

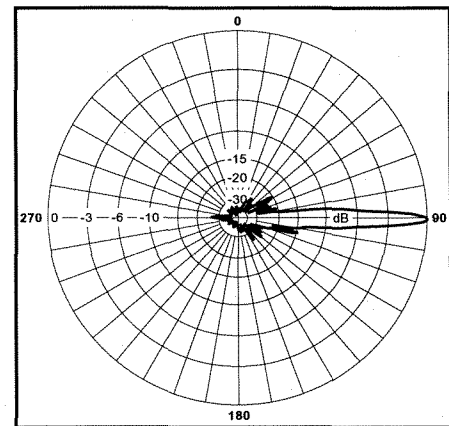
Materials

Radiating Elements: Tin plated copper on PCB
Reflector: Irridated aluminum
Radome: Gray UV stabilized ASA
Clamps: HDG steel

H-Plane



E-Plane

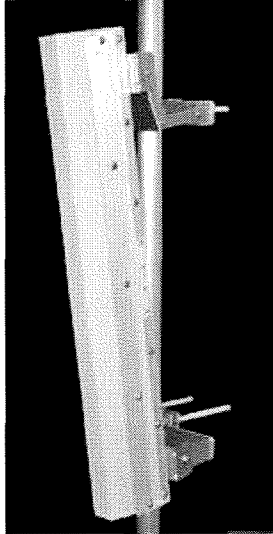




TA-2304-2-DAB-H

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: (dBi) 18 @ 45° 17 @ 60° 15 @ 90°
 14 @ 120° 13 @ 160°
VSWR: 1.3:1 max.
Front/Back Ratio: 15 dB min.
Polarization: Linear Vertical
Power Rating: 2000 Watts avg., 8000 Watts peak
H-Plane Beamwidth (-3 dBd):
 Field Adjustable 45, 60, 90, 120, 160 degrees
E-Plane Beamwidth (-3 dBd): 7 degrees
Cross Pol. Discrimination: 20 dB
Impedance: 50 ohms nominal
Termination: 7/8" EIA

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

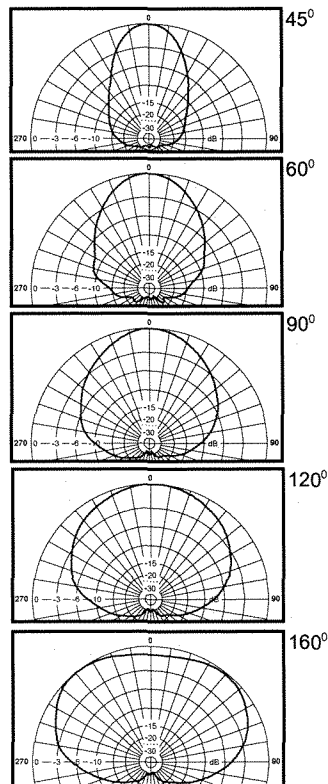
Mechanical Specifications

Length: 40 in. (1016 mm)
Width: 5 in. (127 mm)
Depth: 8.1 in. (206 mm)
Weight (Incl. Clamps): 15 lb. (6.8 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 86 lb. (39 kg)
Mechanical Tilt: 5° up, 15° down
Mounting Pipe: 0.75 - 3.0 in. (19 - 76 mm)

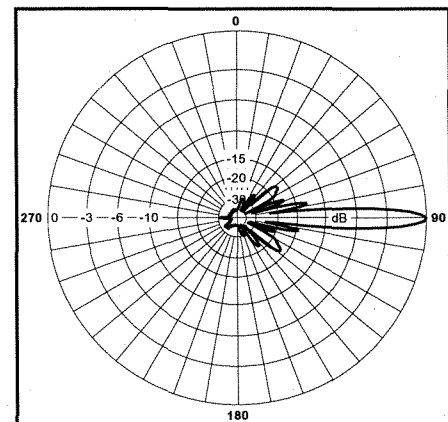
Materials

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

H-Plane



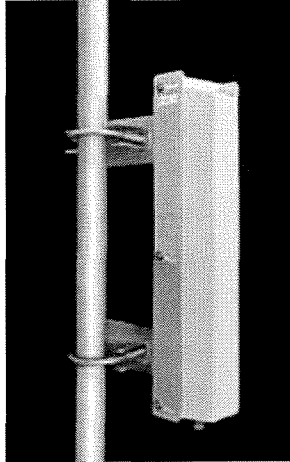
E-Plane





TIL-TEK

TA-2304-DAB Adjustable Sector 2330 - 2345 MHz



The TA-2304-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: (dBi) 18.5 @ 45° 14 @ 60° 13 @ 90°
12 @ 120° 10.5 @ 160°
VSWR: 1.4:1 max.
Front/Back Ratio: 20 dB @ 180° ± 35°
Polarization: Linear Vertical
Power Rating: 200 Watts average, 800 Watts peak
H-Plane Beamwidth (-3 dBd):
Field Adjustable 45, 60, 90, 120, 160 degrees
E-Plane Beamwidth (-3 dBd): 15 degrees
Cross Pol. Discrimination: 15 dB
Impedance: 50 ohms nominal
Termination: 7/16 DIN female

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

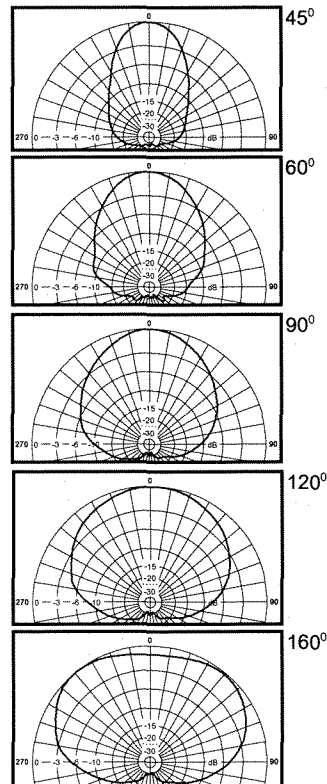
Mechanical Specifications

Length: 21 in. (533 mm)
Width: 6.5 in. (165 mm)
Depth: 3.5 in. (89 mm)
Weight (Incl. Clamps): 6 lb. (2.7 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 79 lb. (35.8 kg)
Mounting Pipe: 0.75 - 3.0 in. (19 - 76 mm)

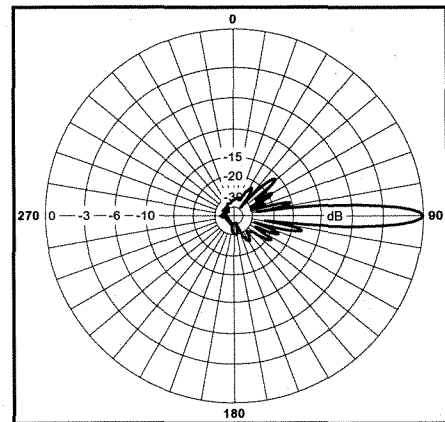
Materials

Radiating Elements: Tin plated copper on PCB
Reflector: Irridated aluminum
Radome: Gray UV stabilized ASA
Clamps: HDG steel

H-Plane



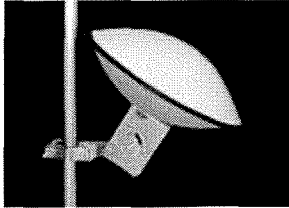
E-Plane





TIL-TEK

TA-2324-LHCP Circular Polarized Solid Parabolic 2330 - 2345 MHz



The TA-2324-LHCP is a left hand circular polarized solid parabolic intended specifically as a receive antenna for satellite signals. The antenna elements are at DC ground to aid in lightning protection.

Electrical Specifications

Frequency Range: 2330-2345 MHz
Gain: (dBic) 21
VSWR: 1.3:1 max.
Polarization: Left Hand Circular
Power Rating: 200 Watts
Elevation (-3 dB): 13.5 degrees
Front to Back Ratio: 25 dB @ $180^\circ \pm 35^\circ$
Axial Ratio: 2.5 dB
Impedance: 50 ohms nominal
Termination: 7/16 DIN female (Extended Barrel)

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

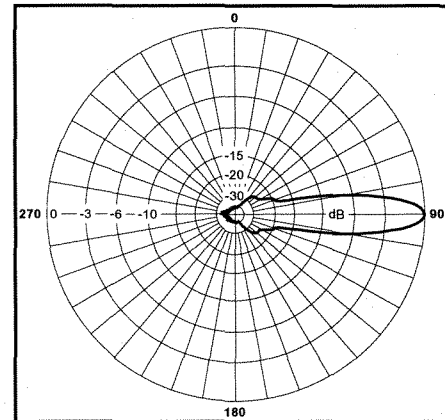
Mechanical Specifications

Diameter: 26 in. (660 mm)
Weight (Incl. Clamps): 28 lb. (12.7 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 127 lb. (57.6 kg)
Mechanical Tilt: Field adjustable from $+25^\circ$ to $+60^\circ$ using clamps supplied
Mounting Pipe: 1.75 - 4.0 in. (44.5 - 102 mm)

Materials

Radiating Elements: Tin plated copper on PCB
Radome: Gray ASA UV stabilized
Reflector: Painted Aluminum
Clamps: HDG steel

Elevation

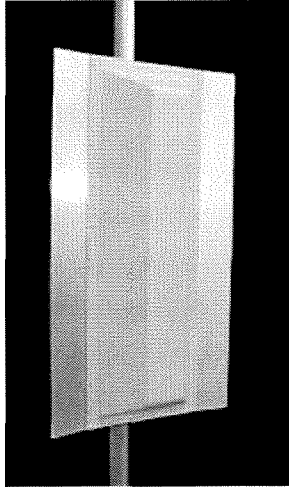




TA-2335-DAB-H

High Power Sector

2330 - 2345 MHz



The TA-2335-DAB-H is a high power vertically polarized Sectoral antenna specifically designed for Digital Audio Broadcast transmission. The antenna is also designed to provide a shaped azimuth beamwidth of 95 degrees by use of shaped reflector phasing enabling multi-sector applications. The antenna elements are at DC ground to aid in lightning protection.

Electrical Specifications

Frequency Range: 2330-2345 MHz
Gain: (dBi) 15
VSWR: 1.4:1 min.
Front/Back Ratio: 20 dB
Polarization: Linear Vertical
Power Rating: 1000 Watts avg. 4000 peak
H-Plane Beamwidth: 95° @ -3dB, 120° @ -10dB
E-Plane Beamwidth: 7°
Cross Pol. Discrimination: 20 dB
Impedance: 50 ohms nominal
Termination: 7/16 DIN Female (extended barrel)

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

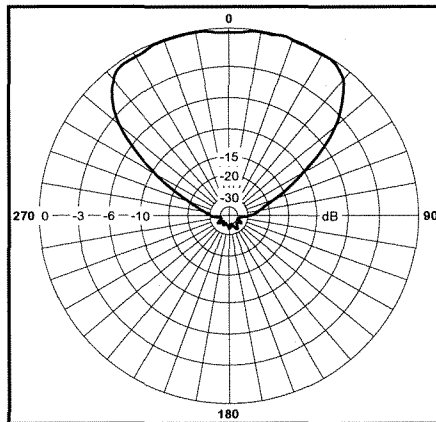
Mechanical Specifications

Length: 38 in. (965 mm)
Width: 21 in. (533 mm)
Depth: 8 in. (203 mm)
Weight (Incl. Clamps): 33 lb. (15 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 344 lb. (156 kg)
Mechanical Tilt: 5° up, 10° down
Mounting Pipe: 0.75 - 3.0 in. (19 - 76 mm)

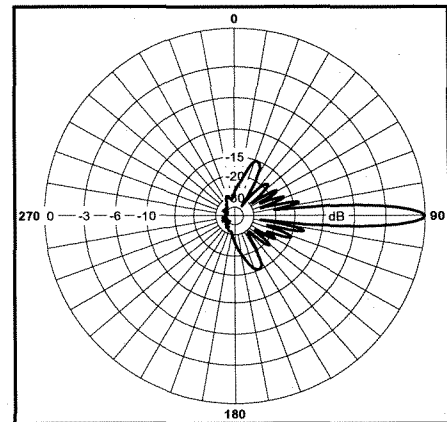
Materials

Radiating Elements: Gold-plated copper on PCB
Reflector: Irridated aluminum
Radome: Gray UV stabilized ASA
Clamps: HDG steel

H-Plane



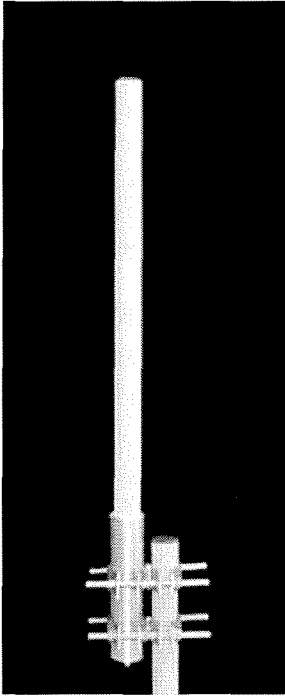
E-Plane





TIL-TEK

TA-2350-DAB 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: (dBi) 10
VSWR: 1.4:1 max.
Polarization: Linear Vertical
Power Rating: 200 Watts average, 800 Watts peak
H-Plane Beamwidth: 360 degrees
E-Plane Beamwidth: 8 degrees
Electrical Downtilt: 2 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)

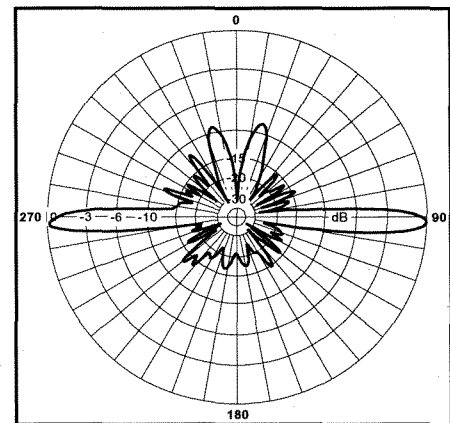
Mechanical Specifications

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
Base: Irridited Aluminum
Clamps: HDG steel

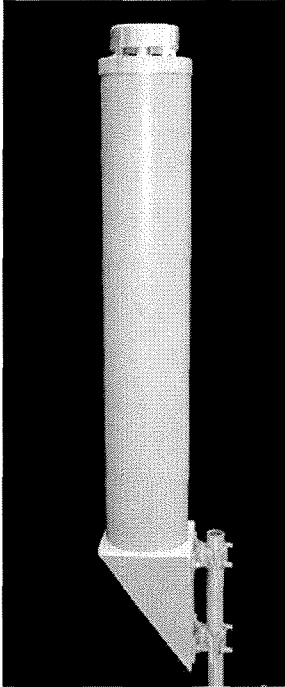
E-Plane





TIL-TEK

TA-2350-DAB-H High Power Omnidirectional 2330 - 2345 MHz



The TA-2350-DAB-H is a high 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: (dBi) 10
VSWR: 1.3:1 min.
Polarization: Linear Vertical
Power Rating: 2000 Watts avg. 8000 peak
H-Plane Beamwidth: 360 degrees
E-Plane Beamwidth: 8 degrees
Cross Pol. Discrimination: 15 dB
Electrical Downtilt: 2 degrees
Null Fill: -20 dB (1st Null)
Impedance: 50 ohms nominal
Termination: 7/8" EIA Flange

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

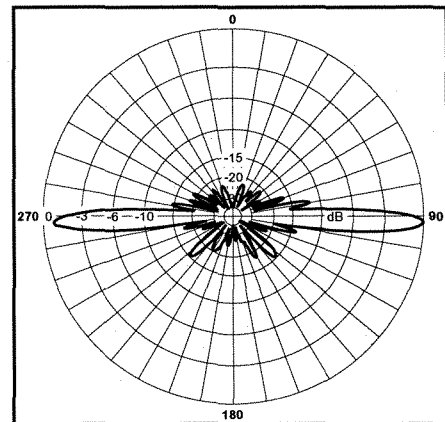
Mechanical Specifications

Length: 64 in. (1625 mm)
Diameter: 8 in. (203 mm)
Weight (Incl. Clamps): 49 lb. (22.3 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 148 lb. (67 kg)
Mounting Pipe: 1.75 - 4.0 in. (44.5 - 102 mm)

Materials

Radiating Elements: Tin-plated copper on PCB
Reflector: Irridited aluminum
Radome: Gray Fiberglass
Clamps: HDG steel

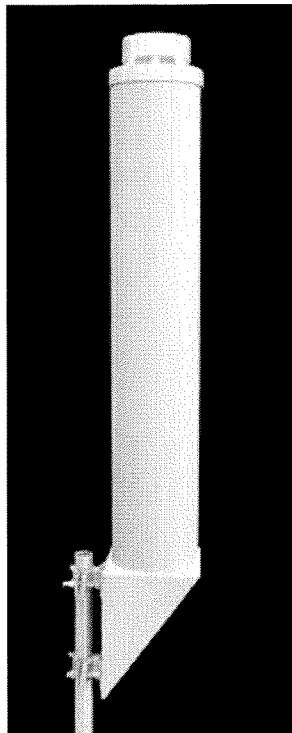
E-Plane





TA-2355-LCC

Shaped Gain Omnidirectional 2330 - 2345 MHz



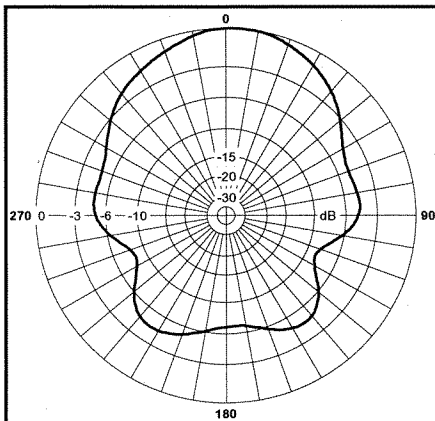
The TA-2355-LCC is a medium power vertically polarized shaped gain omnidirectional antenna specifically designed for Digital Audio Broadcast transmission. The antenna consists of a phased corporately fed broadband dipole array which is configured to provide electrical beam downtilt, null fill and proprietary LCC radiation pattern envelopes. The antenna elements are at DC ground to aid in lightning protection.

Electrical Specifications

Frequency Range: 2330-2345 MHz
Gain: (dBi) $13 \pm 1 @ 0^\circ \pm 50^\circ$
 $7 \pm 1 @ 180^\circ \pm 120^\circ$
VSWR: 1.4:1 min.
Polarization: Linear Vertical
Power Rating: 200 Watts avg., 800 Watts peak
H-Plane Beamwidth(-3 dB): $0^\circ \pm 50^\circ$
H-Plane Beamwidth(-6 dB arc): $180^\circ \pm 120^\circ$
E-Plane Beamwidth(-3dB): 8°
Cross Pol. Discrimination: 20 dB
Electrical Downtilt: 2°
Null Fill: -20 dB (1st Null)
Impedance: 50 ohms nominal
Termination: 7/16 DIN Female

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

H-Plane



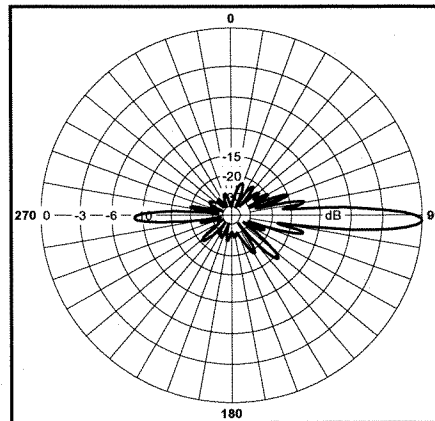
Mechanical Specifications

Length: 64 in. (1625 mm)
Diameter: 8 in. (203 mm)
Weight (Incl. Clamps): 49 lb. (22.3 kg)
Rated Wind Velocity: 125 mph (200 km/h)
Hor. Thrust at rated wind: 148 lb. (67 kg)
Mounting Pipe: 1.75 - 4.0 in. (44.5 - 102 mm)

Materials

Radiating Elements: Tin-plated copper on PCB
Reflector: Irridited aluminum
Radome: Gray Fiberglass
Clamps: HDG steel

E-Plane



Antenna Type: HMD8V360-R05-H



Description: HMD Antenna, R Band Narrow, 8 Bay, Vertical
Polarization, Omnidirectional Pattern, High Power, 0.5
Degrees Beamtilt

Electrical Specifications

Frequency Designation	R Band Narrow
Frequency Band, MHz	2320 - 2345
Number of Bays	8
Gain, dBi	11.0
Azimuth Pattern Type	Omnidirectional
Elevation Beamwidth, degrees	7
Polarization Type	Single, Vertical
Beamtilt, degrees	0.5
Impedance, nominal ohms	50
Return Loss, dB (VSWR)	> 14 (< 1.5)
Maximum Input Power, Watts	1000 **
Lightning Protection	Top Mounted Finial Included
Connector	7/8 " EIA
Connector Position	Bottom

Mechanical Specifications

Dimensions H x Radome Diameter, mm (in)	1118 (44.0) x 127 (5.0)
Weight, kg (lb)	25.0 (55.0)
Radome Material	Fiberglass, Pressurizable
Radome Color	White
Pressurization, kPa (lb / sq in)	70 (10)

Environmental Specifications

Survival Wind Speed, km/h (mph)	180 (112)
Wind Shear, N (lbf)	614 (138)
Overturning Moment, N.m (ft-lb)	495 (367)
Temperature Range	- 40° C to + 50° C **
Humidity	Up to 100%

Mounting Information

Mount Type *	A Type Special With Adjustment
Mount Description	Side Mounted at Top of Tower
Mounting Pipe Diameter, mm (in)	76 (3.0)

* See Catalog 38, pp 305 to 310 for further information

** Maximum input power derates linearly from 1000 to 750 watts as temperature increases from 25 to 50° C

Table 1

Table 1. Customer Impact Summary

Repeaters without Obvious STA Authority						
Market Area	Repeater Site ID	Avg. EIRP in Watts	Customer Environment Impacted	Satellite Coverage	Customer Impact (See Note 1)	Action Taken prior to 9/29/06
Boston	BOS101E	14,000	Shadowed Core Urban (Downtown Boston)	poor	1	Continue Operation @ current power
Buffalo	BUF004A	1,220	Shadowed Core Urban (Downtown Buffalo)	poor	1	Continue Operation @ current power
Detroit	DET549A	160	Shadowed Core Urban (Downtown Ann Arbor)	poor	1	Continue Operation @ current power
Providence	PRO001B	1,220	Shadowed Core Urban (Downtown Providence)	poor	1	Continue Operation @ current power
Birmingham	BIR008A	2,000	Shadowed High Traffic Route (I-459)	good	2	Turned off
Cincinnati	CIN039B	4,280	Shadowed High Traffic Route (I-75)	poor	2	Turned off
Detroit	DET301A	3,170	Shadowed High Traffic Route (I-96/Rte.39)	poor	2	Turned off
Detroit	DET302A	3,170	Traffic Route (I-75/I-696 intersection)	poor	2	Turned off
Detroit	DET303A	3,170	Shadowed High Traffic Route (I-696)	poor	2	Turned off
New York	NYC163C	1,250	High Traffic Route (Palisades Pky/Rte 9W)	poor	2	Turned off
New York	NYC630A	990	High Traffic Route (Palisades Pky/Rte 9W)	good	2	Turned off
St Louis	STL005C	2,000	High Traffic Route (I-55)	good	2	Turned off
Cleveland	CLE029A	4,330	High Traffic Route (I-271)	poor	3	Turned off
Minneapolis	MIN005B	2,460	High Traffic Routes (I-94/I-694)	good	3	Turned off
Nashville	NAS042A	3,320	Traffic Route (I-24) & Med. Density Suburban	good	3	Turned off
New York	NYC123B	1,570	High Traffic Routes (I-287/I-684)	poor	3	Turned off
Raleigh	RAL011B	2,860	High Traffic Route (I-440)	good	3	Turned off
San Francisco	SFX251D	2,270	High Traffic Route (I-680) & Suburban	good	3	Turned off
Washington DC	WDC418A	1,290	High Traffic Route (I-70/Rte 29) & Suburban	good	3	Turned off
						15 total turned off
Repeaters exceeding Authorized EIRP						
Market Area	Repeater Site ID	Avg. EIRP in Watts	Customer Environment Impacted	Satellite Coverage	Customer Impact (See Note 1)	Action Taken prior to 9/29/06
Nashville	NAS020A	25,440	High Traffic Routes (I-440/I-24/I-65)+Suburban	good	1	Continue Operation @ current power
New York	NYC012B	4,830	High Traffic (Rtes 1/9)+ dense suburban	poor	1	Continue Operation @ current power
New York	NYC172A	2,490	Shadowed Core Urban (Manhattan)	poor	2	Reduce power to STA Level
New York	NYC205A	2,850	High Traffic (I-87) and dense urban (Bronx)	poor	2	Reduce power to STA Level
Sacramento	SAC001C	10,900	Moderate Traffic (Rte. 99) and suburban	good	2	Reduce power to STA Level
San Francisco	SFX152C	6,750	High Traffic (Rte 101)+ dense urban (Santa Clara)	good	2	Reduce power to STA Level
Washington DC	WDC230A	3,120	High Traffic (I-66/I-495) + dense suburb (Merrifield)	good	2	Reduce power to STA Level
New York	NYC019F	2,140	High Traffic (Garden St. Pkwy) + dense suburban	poor	3	Reduce power to STA Level
New York	NYC035A	2,490	High Traffic (I-87/I-95) dense urban (Manhattan)	poor	3	Reduce power to STA Level
Pittsburgh	PIT004D	780	High Traffic (I-376) and urban (university)	good	3	Reduce power to STA Level
Pittsburgh	PIT046A	1,970	Low Density Suburban (Carnegie)	good	3	Reduce power to STA Level
						9 total reduced in power
Notes:						
1. Customer Impact Categories:						
	1	High	Loss of XM signal to significant portion of market city			
	2	Medium	Loss of XM signal on high traffic volume road(s) and/or in dense urban area(s) covered by repeater			
	3	Low	Loss of XM signal on lower traffic volume roads and/or less dense urban area(s) covered by repeater			

Declaration of Jeffrey Snyder
XM Satellite Radio, Inc.'s Senior Vice President, Space Systems

Declaration of Jeffrey Snyder

1. I, Jeffrey Snyder, am currently Senior Vice President, Space Systems of XM Satellite Radio, Inc. At the time XM's terrestrial repeater network was built, I was the Vice President of Repeater Engineering and Operations, and in that capacity I was involved with all phases of the design and implementation of XM's ground repeater network.

2. The following provides a summary of the process for design and deployment of XM's repeater network.

3. To provide a satisfactory listener experience in cities, it was understood by all parties from the time SDARS service was first contemplated, that terrestrial repeaters would be required in major cities and selected other areas. These repeaters would provide reinforcement of an SDARS signal to overcome satellite signal blockage from buildings and other obstacles that would limit the service availability in the mobile environment.

4. XM developed a proprietary modulation format to be used by its terrestrial transmitters to support an optimum single frequency simulcast repeater network (Single Frequency Network or SFN). XM also developed a repeater link budget through analysis as well as extensive field testing. The results of this field testing were used to develop a repeater network design for each of the top 70 US metropolitan markets. These single frequency simulcast terrestrial repeater network designs were dependent on repeater transmit power, antenna gain, antenna orientation, site location, transmit data launch timing, and overall effective radiated power. Once these terrestrial repeater network designs were developed for each market, each site location in the design was used to determine a search ring that the deployment team then used to identify potential real-world candidate locations for each site. As actual site availability information became available, this network design was refined and converted to a real-world design based on where acceptable sites were available. At the time XM filed its STA application in July 2001, the information contained in that filing represented our best understanding of the repeater network as we expected it to be completed and operated.

5. After XM's engineers identified obtainable candidate sites for each site, drive tests were conducted for each site candidate to assess unique coverage footprints for each individual site. This data was used to finalize the site selection for each site. The drive test results were also used to define a correction factor in the propagation model used in the network design tools for each site. The coverage area of each site was studied to determine areas where there was overlapping repeater coverage, in which case XM worked to minimize the overlap. Another key factor in determining the actual repeater coverage requirements for each market was that XM conducted drive tests to determine areas where the satellite signal was not sufficient to meet the target service availability. The satellite drive test results allowed XM to eliminate repeater sites from the network in areas where the satellite signal provided adequate coverage.

6. Once sites were actually constructed, comprehensive network drive tests were conducted. These drive tests were performed using a test receiver that allowed for measurement

of the service availability provided by the combination of the XM satellite signal and repeater network, as well as the SFN specific performance characteristics of the repeater network. Because the repeater network operates as a single frequency network, each site's signal has to be synchronized to every other site in that particular market. In areas where the repeater signals overlap, it is critical to tightly control the time of arrival of the individual repeater signals at the receiver as well as the relative power relationship of the signals. The method of controlling the relative time of arrival of each signal is to add a delay to each site's signal. However, the method of controlling the relative power from individual sites had its limitations and XM determined a need to re-direct signal propagation by either sectorizing omni antennas, downtilting antennas, or re-orienting existing panels.

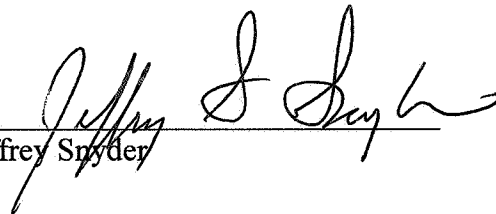
7. In many cities, XM could not locate the repeater where planned, either because of difficult zoning processes or restrictions or because sites simply were not available. For instance, in Boston, many of the locations that required a repeater did not offer suitable sites. This problem led XM's engineers to make BOS101E (the market's core site) a high power site. Without this site, it would have been impossible for XM to provide an acceptable listener experience within the city, as the satellite signal frequently would have been blocked. This was a common issue within the northeastern US markets where XM found limited site locations for the repeater providing primary coverage in the center of the urban core.

8. As XM completed deployment of its repeaters in each city in the late summer of 2001, its engineers continued to conduct drive tests to further optimize the network coverage to meet the target service availability of >99.5%. Timing changes (used to synchronize single frequency network sites) did not completely eliminate the intra-system interference that was encountered. This led to the further modification of the network design and use of panel antennas to re-direct the energy and was the genesis of the 'fish-scale' design. This type of network design enabled XM to implement an anchor site that was typically an omni-directional site covering a large area located in the center of the target coverage area. Then additional sites were used around that core site to fill in coverage gaps. The fish-scale design provided the optimum control over the relative power level and time of arrival of the XM repeater signals, and enabled a more "tuneable" network. In the majority of the markets where XM has deployed repeater networks, this anchor site is located in the core of the urban area.

9. Additionally, some sites required panel antennas because they were situated along the Canadian border where XM needed to ensure that its signal did not bleed into Canada. Detroit and Buffalo are two examples of cities where panel antennas were needed to contain the signal along the border.

10. In conclusion, XM's terrestrial repeater network buildout continued to evolve after its initial design and the July 2001 STA, due to interference among sites being built, the results of additional drive testing, zoning and leasing issues, and requirements of other administrations such as Canada.

I declare under penalty of perjury that the foregoing is true and correct.



Jeffrey Snyder

Executed on October 2, 2006