



SATELLITE
RADIO

DUPLICATE

SAT-STA-20030409-00076
XM Radio Inc.

April 9, 2003

DELIVER VIA COURIER TO MELLON BANK

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

FCC/MELLON
APR 09 2003

Received

**Re: XM Radio Inc.
Request for Special Temporary Authority to Operate In-Store Signal
Boosters in the Satellite Digital Audio Radio Service**

JUN 4 2003
Policy Branch
International Bureau

Dear Ms. Dortch:

XM Radio Inc. ("XM Radio"), one of the two Satellite Digital Audio Radio Service ("SDARS") licensees in the United States, pursuant to Section 25.120 of the Commission's rules,¹ hereby requests Special Temporary Authority ("STA") to operate up to 5000 in-store signal boosters with an Effective Isotropically Radiated Power ("EIRP") of 0.0001 watts in its licensed frequency band (2332.5 - 2345 MHz) at retail outlets.² This STA is requested for a period of 180 days or until the date on which permanent rules become effective for the operation of SDARS terrestrial repeaters, whichever occurs first.

Background. On July 12, 2001, XM Radio filed a request for an STA to operate SDARS terrestrial repeaters for commercial service.³ Included in this STA request was a list of the markets in which XM Radio sought to operate terrestrial repeaters pursuant to the STA. On September 17, 2001, the International Bureau granted this STA request pursuant to certain conditions.⁴

¹47 C.F.R. § 25.120.

²XM Radio has included the following technical information for each of the signal boosters it seeks to operate pursuant to this STA: (1) antenna type; (2) antenna beamwidth; (3) total EIRP; and (4) Height Above Ground Level (AGL).

³XM Radio Inc., Request for Special Temporary Authority, File No. SAT-STA-20010712-00063 (July 12, 2001).

⁴See XM Radio Inc., *Order and Authorization*, File No. SAT-STA-20010712-00063, DA 01-2172 (Sept. 17, 2001) ("*XM Radio STA Order*").

Description of STA Requested. With this application, XM Radio requests authority to operate up to 5000 in-store signal boosters with an EIRP of 0.0001 watts in its licensed frequency band (2332.5 - 2345 MHz). The signal boosters will transmit inside of retail stores. An antenna will be located on the roof or mounted on the outside walls of these stores to receive the SDARS satellite and, where available, terrestrial rebroadcast signals. The signal will then be fed via coaxial cable to an inline amplifier and subsequently to an in-store antenna which will amplify the signal. These in-store signal boosters are essentially S-band radio frequency amplifiers. Thus, the transmitted carriers have a center frequency and frequency stability identical to the received satellite and terrestrial carriers.

In addition to receiving and amplifying the XM Radio satellite and terrestrial signals, these in-store signal boosters will also amplify the satellite and terrestrial signals of Sirius Satellite Radio Inc. ("Sirius"). XM Radio notes that Sirius is filing concurrently an application for an STA to operate these signal boosters in its licensed frequency band (2320 – 2332.5 MHz). Thus, upon approval from the Commission, these signal boosters will be authorized to amplify the signals of both SDARS licensees.

Ownership and Control of In-Store Signal Boosters. XM Radio will have joint ownership of each of the in-store signal boosters with Sirius. Each licensee will have full operational control of these in-store signal boosters to the extent the in-store signal booster operates in its licensed frequency band.

The in-store signal boosters will be distributed to retail stores along with an Installation Manual. Retail stores will be required to install the signal boosters pursuant to an Installation Manual. Attached hereto as Exhibit A is an illustrative Installation Manual.⁵ The signal boosters cannot be adjusted by employees of the retail establishments. Pursuant to contractual arrangements, XM Radio and Sirius will maintain operational control of each of these in-store signal boosters and will retain the right to shut down any in-store signal booster upon a complaint of interference, upon direction of the Commission, or upon finding that an in-store signal booster has not been installed in accordance with the Installation Manual.

Public Interest Considerations. Satellite radio is at a critical stage in its development. Prompt grant of this STA is crucial for the continued success of satellite radio. This STA will serve the public interest by allowing XM Radio to provide a clear signal for reception by SDARS receivers located within retail outlets. Due to blockage from walls and ceilings, it is often difficult to provide quality reception of SDARS satellite and even terrestrial signals inside of retail establishments. These difficulties with providing in-store coverage require SDARS radios to be displayed with hard wire connections, thus conveying the impression to consumers that SDARS is not a completely mobile service. In addition, the need for a hard wire connection

⁵See Exhibit A.

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limits the options retail outlets have for displaying SDARS receivers. Finally, SDARS satellite and terrestrial signals are usually unable to penetrate installation bays where SDARS radios are installed in vehicles, thus requiring vehicles to be moved outside of the installation bay in order to test for reception.

Operation of in-store signal boosters will overcome the obstacles to indoor satellite and terrestrial SDARS reception. Based on consumer reactions, retail outlets have expressed a need for this type of in-store reception capability in order to demonstrate the mobility of SDARS. In addition, eliminating the need for a hard wire connection will provide retail outlets with more flexibility in displaying SDARS radios. Without the need for a hard wire connection, satellite radios can be displayed in any area of a store, including high traffic areas. Finally, store employees installing SDARS receivers in vehicles will be able to verify that the SDARS receiver is working properly while the vehicle is located in the installation bay. This will result in time-saving efficiencies for installers and ensure that vehicles are returned to consumers with properly functioning SDARS radios.

Technical Parameters. Attached as Exhibit B is a list of technical parameters for the in-store signal boosters XM Radio seeks to operate pursuant to this STA. XM Radio has included the following information: (1) antenna type; (2) antenna beamwidth; (3) total EIRP; and (4) approximate maximum height Above Ground Level (AGL). XM Radio notes that manufacturers of these boosters may change, but the specifications for EIRP, out-of-band emissions, antenna beamwidth, etc. will remain the same.

XM Radio has not included geographic coordinates for each of these in-store signal boosters. As demonstrated in Exhibit B, the in-store signal boosters will operate at such a low EIRP that they will not cause blanketing interference to any Wireless Communications Service ("WCS") receivers – even ones operated very close to the signal boosters. Thus, the location of each signal booster does not constitute part of the "full particulars of the proposed operation" which must be submitted with an application for STA. 47 C.F.R. § 25.120(a). Furthermore, it would be impractical for XM Radio to list the retail outlets nationwide at which it plans to deploy these in-store signal boosters or to modify this STA every time XM Radio were to operate an in-store signal booster at a new retail establishment. To the extent that the Commission determines that location information is required, XM Radio respectfully requests that the Commission waive this requirement. 47 C.F.R. § 1.3.

Interference Considerations. The in-store signal boosters will not cause harmful interference to other radio services. With regard to in-band interference, XM Radio acquired its

license pursuant to an auction held in 1997 and has exclusive use of its licensed frequency band.⁶ Thus, there is no potential for in-band interference.

Regarding adjacent band interference to WCS licensees in the 2305-2320 MHz and 2345-2360 MHz band, as set forth in Exhibit C, assuming the worst case scenario for interference to WCS operations (*i.e.*, WCS equipment operating on a frequency adjacent to the upper edge of XM Radio's licensed frequency band and operating within 5.3 feet of the signal booster), WCS licensees will have a margin of 19 dB, which is sufficient for any digital fixed wireless or mobile use. Moreover, where WCS equipment operates outside of the store where the booster is located, the margin will increase by another 9 dB as a result of wall or ceiling attenuation, providing additional protection to any possible outdoor WCS receivers.

In addition, as required by the attached Installation Manual, the SDARS roof or wall-mounted receive antenna and the signal booster antenna will be installed with sufficient isolation to avoid reflection.

Certifications. XM Radio certifies that its operation of in-store signal boosters will comply with the conditions the Commission imposed on XM Radio in granting its original STA to operate terrestrial repeaters. *See XM Radio STA Order* ¶ 18. Specifically, XM Radio certifies the following:

- (a) Any actions taken as a result of this STA are solely at XM Radio'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 signal boosters authorized pursuant to this STA is on a non-interference basis with respect to all permanently authorized radiocommunication facilities;
- (c) The signal boosters 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 signal boosters shall be completed with all affected Administrations prior to operation, in accordance with all applicable international agreements including those with Canada and Mexico;

⁶ 47 C.F.R. § 25.202(a)(6) (stating the 2320-2345 MHz band is allocated exclusively for SDARS).

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- (e) The signal boosters will comply with Part 17 of the Commission's rules regarding antenna structures;
- (f) The signal boosters will comply with Part 1 of the Commission's rules, Subpart I - Procedures Implementing the National Environmental Policy Act of 1969, including the guidelines for human exposure to radio frequency electromagnetic fields as defined in Sections 1.1307(b) and 1.1310 of the Commission's rules;
- (g) The out-of-band emissions of the signal boosters will be limited to $75 + \log(\text{EIRP})$ dB less than the transmitter EIRP.

XM Radio 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 Radio has attached hereto a Form 159 and a check made payable to the Federal Communications Commission for the sum of \$705.

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Please direct any questions regarding this matter to the undersigned.

Very truly yours,

A handwritten signature in black ink, appearing to read "Lon C. Levin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Lon C. Levin
Senior Vice President

cc: Stephen Duall, FCC

Exhibit A

Illustrative Installation Manual

Interoperable SDARS Wireless Repeater System Retail & Commercial Installation Instructions for XMSSR923WR

WARNING
INSTALLATION OF ANTENNA NEAR POWER LINES IS DANGEROUS.
FOR YOUR SAFETY, FOLLOW THE INSTALLATION INSTRUCTIONS.

Check for all parts listed before beginning assembly.
Note any shortages – Call Antenna Specialists (ph. 440-349-8400).

Parts List:

<u>Item</u>	<u>Description</u>	<u>Figure</u>
A	Pole Assembly	1
B	Antenna on Bracket	2-3
C	Two U-bolts	4
D	Kit Bag with tar tape & tie wraps	5
E	100 ft RF-195 Cable (QTY. 2)	6
F	100 ft RG-58 Cable	6
G	41 dB Amp w/DC By-Pass	8
H	DC Injector	9
I	Combiner with male/male adapter	7
J	39 dB Amp w/DC Bypass	8
K	45 ft Cable	6
L	Passive Interior Antenna on small bracket	12

Parts needed: (not supplied)

1. (6) 5/16 x 3" lag screws to mount pole to building
2. (6) 5/16" washers for the lag screws
3. Additional cable straps. (Various lengths for attaching the cable)
4. Mounting hardware to ground the 41 dB amp

Tools needed: (not supplied)

1. Compass – Highly recommended
2. ½" Wrench
3. Electric Drill
4. Bubble Level

NOTES:

- ASSEMBLY PROCEDURE MUST BE FOLLOWED, STEP BY STEP IN ORDER.
- LENGTHENING OR SHORTENING OF CABLES MAY DEGRADE SIGNAL PERFORMANCE.



31225 Bainbridge Road • Cleveland, Ohio 44139-2281
Phone 440-349-8400 • FAX 440-349-8407 www.antenna.com

Step 1.

Wall or roof mounting (roof mounting configuration shown in FIG. 1). Adjust the Pole Assembly so that the pole is in a vertical position at the top. Tighten bolts once vertical position has been achieved. Check with a level.

NOTE: Remember when doing any installation, keep the mast plumb.

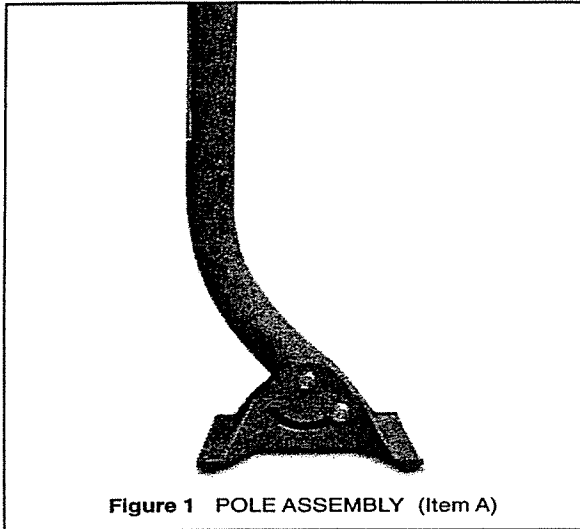


Figure 1 POLE ASSEMBLY (Item A)

NOTE: Ground the Pole Assembly to building following the National Electrical Code (NEC). Check local codes and ordinances. Professional Installation is highly recommended.

Step 2.

Position the antenna bracket assembly (Item B) on top of the vertical pole assembly (Item A) so that the center section of the bracket is horizontal, as shown. Feed the pole through hole in the bracket to assist in keeping it level (check using a level). Do not feed the pole through the bracket more than 1/8" (Bracket assembly is preformed for proper antenna elevations. **DO NOT ADJUST BRACKET POSITION**). Using a compass, align antenna assembly such that the XM Antenna faces South and the Sirius Antenna faces North, use arrows on bracket to assist in pointing North.

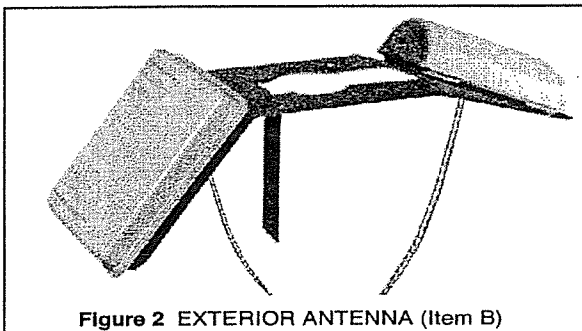


Figure 2 EXTERIOR ANTENNA (Item B)

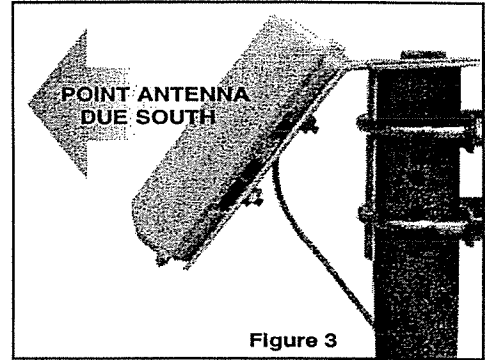


Figure 3

Fasten the antenna bracket to the pole assembly, using the U-bolts (Item C). Make certain the U-bolts are tightened securely to prevent rotation of bracket. Recommended torque on bolts is 10 to 15 in-lbs. Use one tie wrap to strap the antenna cable to the pole.

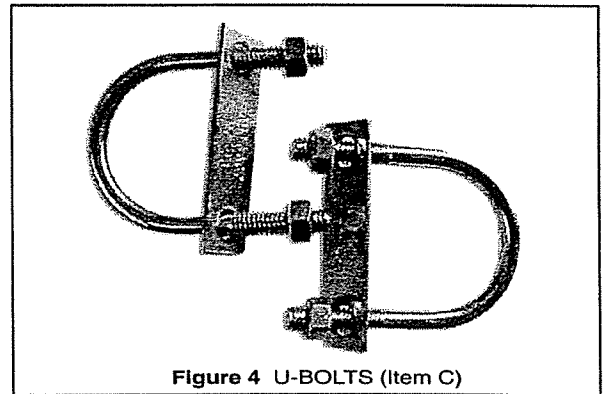


Figure 4 U-BOLTS (Item C)

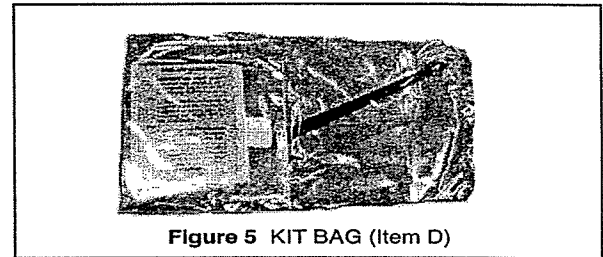
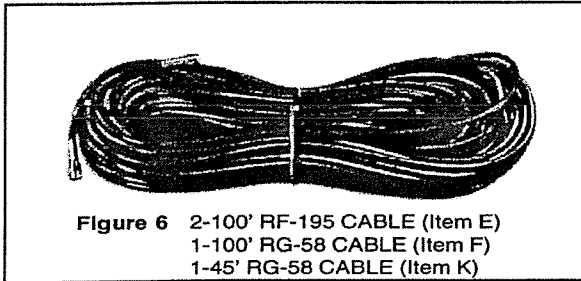


Figure 5 KIT BAG (Item D)

Step 3.

Attach one end of each 100' RF-195 cable (Item E) to each antenna cable. (verify that both are 100' RF-195 type cable by reviewing the label on each RF-195 type cable) Hand-tighten connectors until fully seated.

Remove the Vapor Wrap (tar) tape from the kit bag and remove from plastic covering. Remove the release liner from both sides. Wrap the black tape around the connectors until both sets of connectors are fully enclosed and are completely weather-sealed. Attach the cable along the pole assembly with remaining tie wraps.

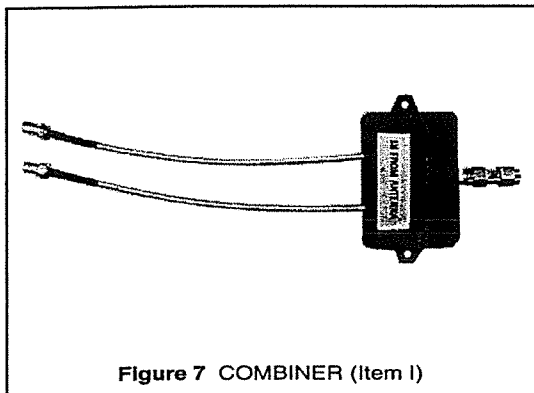


Step 4.

Begin feeding both 100' cables (Item E) into the building or enclosure. Route cable toward the location of where the passive antenna will be located. Secure cables along the wall or beams, being careful not to puncture, pinch or smash the cable. NOTE: Avoid sharp bends or kinks in cable. Straighten all kinks if they occur during installation.

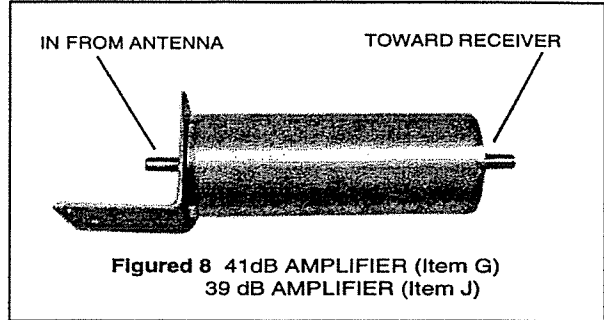
Step 5.

Connect both 100' RF-195 cables to the two (2) small cables of the combiner (item I).



Step 6.

If the small male to male adapter is not attached to the single female connector coming out of the combiner, reattach it. Review the orientation of the 41 dB Amp w/ DC By-Pass, (Item G). Attach Amplifier by mating the connector end labeled "in from antenna" to the male/male adapter of the combiner.



Step 7.

Using the bracket located on the Amp, attach Amp to the building ground. Use the NEC as a reference. Support and mount the Amp to a wall, pole or beam so that the weight of the Amp is not straining on the cable.

Step 8.

Attach one end of the 100' RG-58 cable (Item F) to the other end of the Amp (Item G), the non-antenna end. Feed cable toward the passive antenna location. Bundle any extra cable (**Do not cut**). Secure cables along the wall or beams, being careful not to puncture, pinch or smash the cable, avoiding sharp bends or kinks during installation.

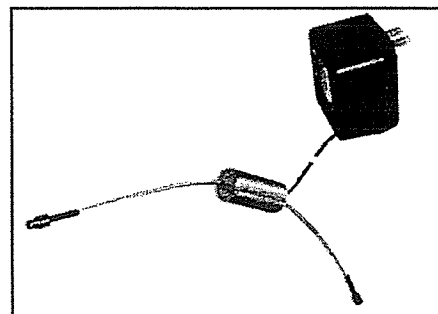
Step 9.

Attach the other end of the 100' RG-58 cable to the "in from antenna" side of the 39 dB in-line amplifier with DC bypass (item J).

Step 10.

Caution: Do not plug in the AC adapter of Item H before all connections are made. Equipment damage may occur. Attach the other end of the 39 dB in-line amplifier to the male connector of the DC-injector (item H) (the connector on the same side of the DC power pack).

Attach the 45' cable (item K) to the female SMA of the DC-Injector.



Step 11.

Select a suitable mounting location for the Passive Antenna (item L). This antenna provides a 70 degree horizontal by 60 degree vertical coverage pattern and should be located within 150 ft. but not closer than 20 ft. of the receivers to be covered. The table shown provides sample coverage dimensions based on the distance from the receivers. The antenna should be elevated so as to provide an unobstructed view of the receiver area(s) to be covered.

Step 12.

Attach the other connector of the 45' cable into the passive antenna (item L).

Step 13.

Verify all connections have been made before plugging in the AC adapter (Item H) into a standard 110 VAC wall receptacle.

Plug AC adapter of Item H into a standard 110 VAC wall receptacle.

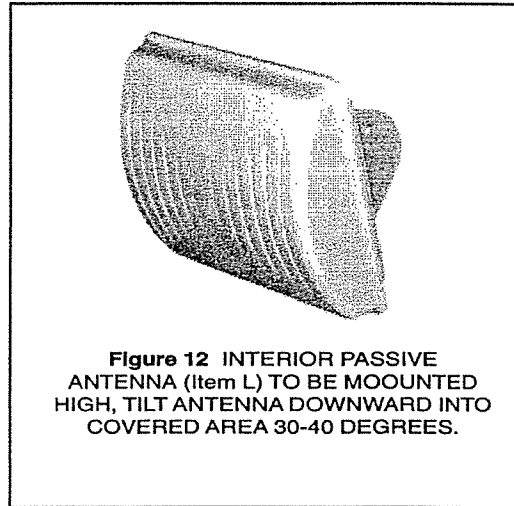
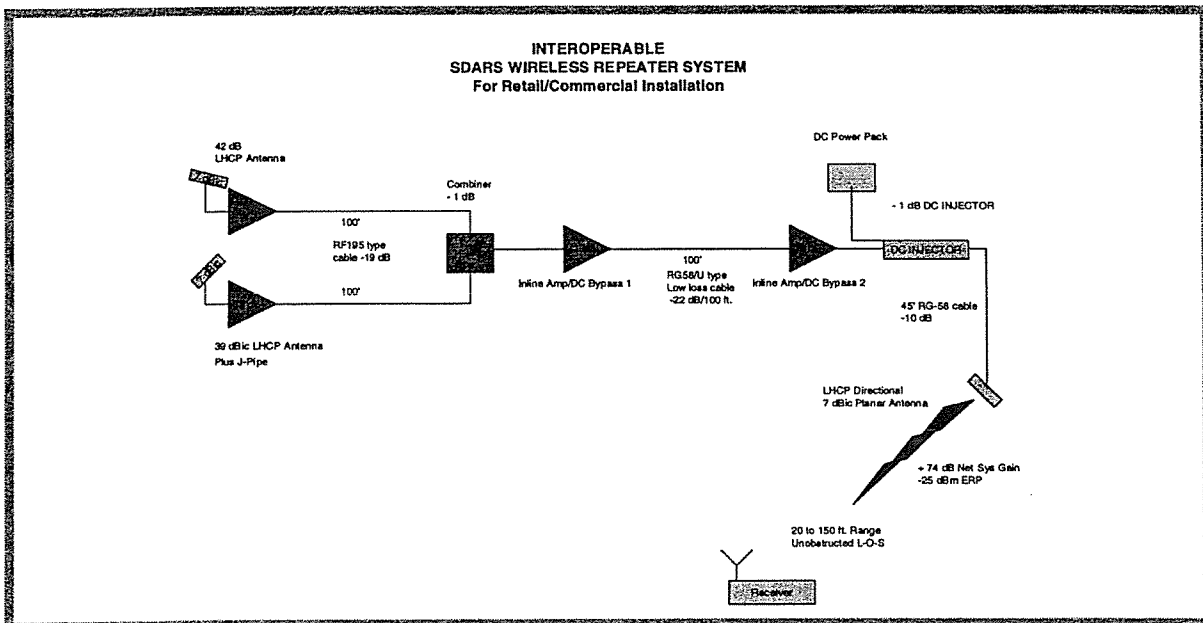


Figure 12 INTERIOR PASSIVE ANTENNA (Item L) TO BE MOUNTED HIGH, TILT ANTENNA DOWNWARD INTO COVERED AREA 30-40 DEGREES.

150	210	173
80	112	92
40	56	46
20 MINIMUM	28	23
DISTANCE TO RECEIVERS (FEET)	HORIZONTAL COVERAGE (FEET)	VERTICAL COVERAGE (FEET)



Interoperable SDARS Wireless Repeater System Operation and System Test Instructions for XMSSR923WR

General

The XMSSR923WR is a Wireless Satellite Radio Repeater system designed to provide signal to XM and Sirius Satellite Radio receivers in the display areas in the retail environment. This system provides signal for both satellite radio service provider receivers and supports multiple receivers in the covered area.

System Description

The XMSSR923WR system consists of two receive antennas, an antenna combiner, two line amplifiers, a DC Injector, a transmit antenna and 4 cable assemblies to interconnect the components. The following section briefly describes each component of the system:

1. Receive Antennas

The Sirius and XM receive antennas are supplied with a mounting bracket and J-Pipe. Both antennas are LHCP, 7 dB gain, patch antennas with built in low noise amplifiers. The XM antenna LNA has a gain of 32 dB and the Sirius antenna LNA gain is 35 dB. The antennas are provided already connected in the correct locations of the mounting bracket so as to provide the proper elevation for each antenna (XM at 45 degrees and Sirius at 15 degrees from horizontal). For optimal system performance, these antennas must be fastened to the supplied J-Pipe and oriented with the Sirius antenna pointing toward the North. The antennas are connected to a combiner via two low loss RF195 type cables and the DC power for the internal amplifiers is supplied via the same cable.

2. Antenna Combiner

The antenna combiner combines the two receive antennas through the two antenna cables from two female SMA connectors at the combiner input to a single female SMA output connector at the combiner output. The combiner feeds DC to both antennas and delivers the combined signal to one of the two system line amplifiers.

3. Line Amplifier

Two line amplifiers are used in the XMSSR923WR (one with 41 dB and one with 39 dB of gain). The line amplifiers provide sufficient gain to offset the cable attenuation and to increase the signal level for retransmission inside a building. The line amplifiers amplify the RF signal from the combiner while providing a DC Bypass to deliver DC operating voltage to the rest of the system.

4. DC Injector

The DC Injector is a bias Tee with a built in AC adapter. The AC adapter portion supplies the system with the required DC voltage (7.5 VDC at 1000 mA.) and the Bias Tee portion injects the DC voltage into the system coax to bias the active components while isolating the RF signal from the AC adapter. The DC injector only supplies DC from one side (the side where the AC adapter cable exits) the other port blocks DC while RF signals pass through the device with only about 1 dB of attenuation.

5. Transmit Antenna

The transmit antenna used in the XMSSR923WR system is a passive version of the same LHCP, 7 dB Gain antenna design used in the receive antennas described above. This directional antenna provides a 70 degree by 60 degree signal beam that may be pointed toward the display area where the receivers are located. This antenna radiates the Satellite Radio signals to allow the radios in the covered display area to function properly.

System operation

The XMSSR923WR system is designed to receive Satellite Radio signals from the SDARS satellites via two, external, roof or wall mounted antennas, route the signals into the building via coaxial cables, amplify the signals to overcome cable attenuation and retransmit the signals to provide coverage to a portion of a building. The repeater is designed to have sufficient system gain to provide adequate signal inside retail establishments.

The system has no operator controls and is not adjustable by the end user. Proper system operation is controlled through the orientation and location of the receive and transmit antennas. See the Installation Instructions for additional information. Once the system is installed and the AC adapter is connected to the 120 volt supply, the system may be tested by connecting automotive antennas to an XM and a Sirius receiver in the covered display area, powering up the receivers and listening to the stereos. Additional coverage information may be obtained by installing a Delphi Sky Fi receiver in a battery operated Boom Box and analyzing the signal information using the "Antenna Aiming" feature of the radio. This feature provides Satellite and Terrestrial signal indications for XM signals.

Exhibit B

Attached is the following information for each of the in-store signal boosters XM Radio seeks to operate pursuant to this STA.

- (1) antenna type;
- (2) antenna beamwidth;
- (3) total EIRP; and
- (4) approximate height Above Ground Level (AGL)

City	Antenna Type	Antenna Beamwidth	EIRP Total in Watts	Height AGL
Various	Antenna Specialists XMSSR923WR	75 degrees	0.0001	< 50 feet

The transmitted carriers have a center frequency and frequency stability identical to the received SDARS satellite or terrestrial carriers. Frequency accuracy is controlled by the satellite or terrestrial repeater and not by the booster.

EXHIBIT C

Calculation of Free-Space Loss

$$\begin{aligned}\alpha(\text{in dB}) &= 36.6 + 20 \log (f) + 20 \log (d) \\ f &= \text{transmission frequency in MHz} \\ d &= \text{separation distance in miles}\end{aligned}$$

Assuming the *worst case* frequency (*i.e.*, 2345 MHz) and 0.001 miles (*i.e.*, 5.3 feet) separation:

$$\begin{aligned}\alpha(\text{in dB}) &= 36.6 + 20 \log (2345) + 20 \log (0.001) \\ &= 36.6 + 67.4 - 60.0 \\ &= 44 \text{ dB}\end{aligned}$$

Calculation of Signal Power Received (P_R) By WCS Receiver Assuming It Has Omni-Directional (0 dBi) Antenna

$$P_R(\text{in dBW}) = \text{EIRP}_{\text{MP}} - \alpha$$

EIRP_{MP} is the output of the booster at beampeak (*i.e.*, 0.0001 watts or -40 dBW) (antenna beamwidth at 3 dB pattern points is 75°).

$$\begin{aligned}P_R(\text{in dBW}) &= -40 \text{ dBW} - 44 \text{ dB} \\ &= -84 \text{ dBW}\end{aligned}$$

Calculation of Margin at WCS Receiver (Assuming A Well-Designed Unit Operates Unimpaired With OOB Interference Of -65 dBW)

$$\begin{aligned}\text{Margin} &= -65 \text{ dBW} - (-84 \text{ dBW}) \\ &= 19 \text{ dB}\end{aligned}$$

Notes:

- (1) The calculation is done on a line-of-sight (*i.e.*, 5.3 feet) co-polarized basis.
- (2) The booster is for indoor operation and no wall/ceiling attenuation, which would normally exist, has been added to the margin. Where WCS equipment operates outside of the store where the booster is located, the margin will increase by another 9 dB as a result of wall or ceiling attenuation, providing additional protection to any possible outdoor WCS receivers.
- (3) Near field effects should be negligible. Locations at other than beampeak receive even lower P_R levels.

READ INSTRUCTIONS CAREFULLY
BEFORE PROCEEDING

FEDERAL COMMUNICATIONS COMMISSION
REMITTANCE ADVICE

Approved by OMB
3060-0589
Page No 1 of 1

(1) LOCKBOX #
358210

SPECIAL USE

FCC USE ONLY

SECTION A - PAYER INFORMATION

(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card)
Shaw Pittman LLP

(3) TOTAL AMOUNT PAID (U.S. Dollars and cents)
705.00

(4) STREET ADDRESS LINE NO. 1
2300 N Street, NW

(5) STREET ADDRESS LINE NO. 2

(6) CITY
Washington

(7) STATE
DC

(8) ZIP CODE
20037 -

(9) DAYTIME TELEPHONE NUMBER (include area code)
(202) 663-8000

(10) COUNTRY CODE (if not in U.S.A.)

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(11) PAYER (FRN)
0004-9727-82

(12) PAYER (TIN)
53-0233137

IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B
IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)

(13) APPLICANT NAME
XM Radio Inc.

(14) STREET ADDRESS LINE NO. 1
1500 Eckington Place, NE

(15) STREET ADDRESS LINE NO. 2

(16) CITY
Washington

(17) STATE
DC

(18) ZIP CODE
20002 -

(19) DAYTIME TELEPHONE NUMBER (include area code)
(202) 380-4000

(20) COUNTRY CODE (if not in U.S.A.)

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(21) APPLICANT (FRN)
0007-7145-79

(22) APPLICANT (TIN)
52-2259588

COMPLETE SECTION C FOR EACH SERVICE, IF MORE BOXES ARE NEEDED, USE CONTINUATION SHEET

(23A) CALL SIGN/OTHER ID

(24A) PAYMENT TYPE CODE
CRY

(25A) QUANTITY
1

(26A) FEE DUE FOR (PTC)
705.00

(27A) TOTAL FEE
705.00

FCC USE ONLY

(28A) FCC CODE 1

(29A) FCC CODE 2

(23B) CALL SIGN/OTHER ID

(24B) PAYMENT TYPE CODE

(25B) QUANTITY

(26B) FEE DUE FOR (PTC)

(27B) TOTAL FEE

FCC USE ONLY

(28B) FCC CODE 1

(29B) FCC CODE 2

SECTION D - CERTIFICATION

(30) CERTIFICATION STATEMENT

I, _____, certify under penalty of perjury that the foregoing and supporting information is true and correct to the best of my knowledge, information and belief. SIGNATURE _____ DATE _____

SECTION E - CREDIT CARD PAYMENT INFORMATION

(31) MASTERCARD

MASTERCARD/VISA ACCOUNT NUMBER:

EXPIRATION

VISA

I hereby authorize the FCC to charge my VISA or MASTERCARD for the service(s)/authorization herein described.

SIGNATURE _____ DATE _____