Other Particulars of Application for Modification (Item 3)

By this application for modification, Satellite CD Radio, Inc. (a subsidiary of Sirius Satellite Radio, hereinafter "Sirius"), seeks an experimental license to begin testing of a terrestrial repeater network as part of its satellite digital audio radio service (DARS) nationwide buildout. The purpose of the requested modification to Sirius' license is to construct operational terrestrial repeater sites in major urban cities across the country to ensure the delivery of high service levels in dense urban cores. Sirius' initial construction plans require repeaters at approximately 105 sites in 56 cities. Sirius also plans to install additional very low power radiators to overcome other local obstructions, such as tunnels, long underpasses, and ravines.

The equipment that Sirius plans to install will operate at power levels at or below 46 dBW (40 kW EIRP or 24.4 kW ERP), which is less than the current authorization of 50 kW ERP. Sirius will utilize patented amplifier linearization technology and extensive high power filtering at each transmitter site to achieve unprecedented levels of suppression of out of band emissions and ensure appropriate reception of the satellite signal by a satellite DARS receiver.

Specifically, Sirius plans:

1. To deploy repeaters with three different transmitter rms power levels:
   (a) 350 Watts
   (b) 650 Watts
   (c) 1000 Watts

2. To deploy three types of vertically polarized antenna configurations (note: gains are net and include cable loss):

(a) Omni, 10 dBi gain

(b) Single Sector, 16 dBi gain, 120 degree 3 dB beamwidth

(c) Multiple sector, 16 dBi gain

Front to back ratio of sectorized antenna: >20 dB

FCC FORM 442
EXHIBIT TWO
JUNE 2000

Description of Experiment (Item 10)

Satellite CD Radio, Inc. (a subsidiary of Sirius Satellite Radio, hereinafter "Sirius"), seeks authorization to construct and test a terrestrial repeater network as part of its state of the art satellite broadcast system. The purpose of this modification application is to construct and test terrestrial repeater sites, plus very low power gap-filler radiators, in major urban cities across the continental United Sates. Sirius would then test these facilities to ensure that a satellite DARS receiver can receive the satellite signal as well as a terrestrial transmitter site operating at power levels at or below 46 dBW (40 kW EIRP). The requested authorization is necessary to conduct tests for the delivery of high service levels in urban areas where satellite transmissions may be blocked or subject to severe multipath.

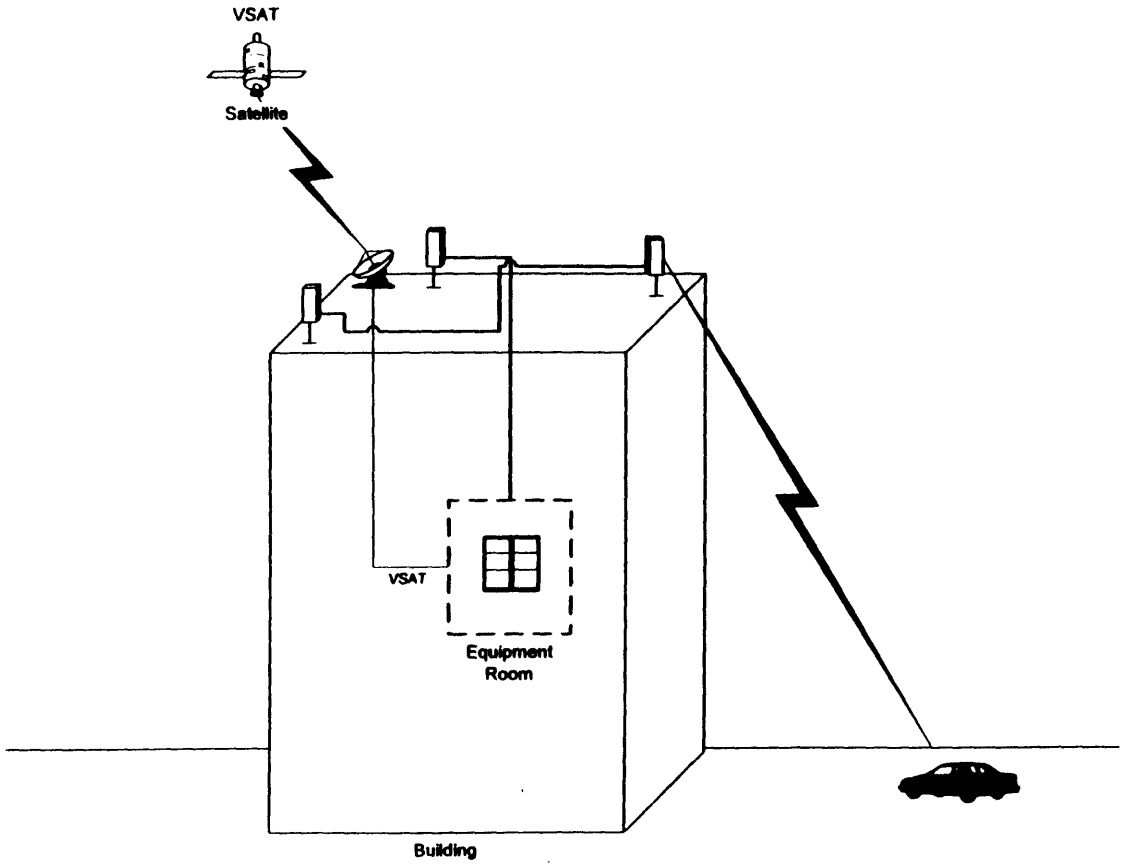
As noted in Exhibit One of this Application for Modification, Sirius plans to deploy the following equipment:

1. Patented amplifier linearization technology and extensive high power filtering to suppress out of band emissions and ensure proper reception of the satellite signal by the satellite DARS receivers.

2. Terrestrial repeaters with 350 Watts, 650 Watts, or 1000 Watts rms power levels.

3. Vertically polarized antenna configurations with (1) Omni, 10 dBi gain, (2) Single Sector, 16 dBi gain, 120 degree 3 dB beamwidth, and (3) Multiple Sector, 16 dBi gain. The gains are net and include cable loss. The front to back ratio of the sectorized antennas is >20 dB.

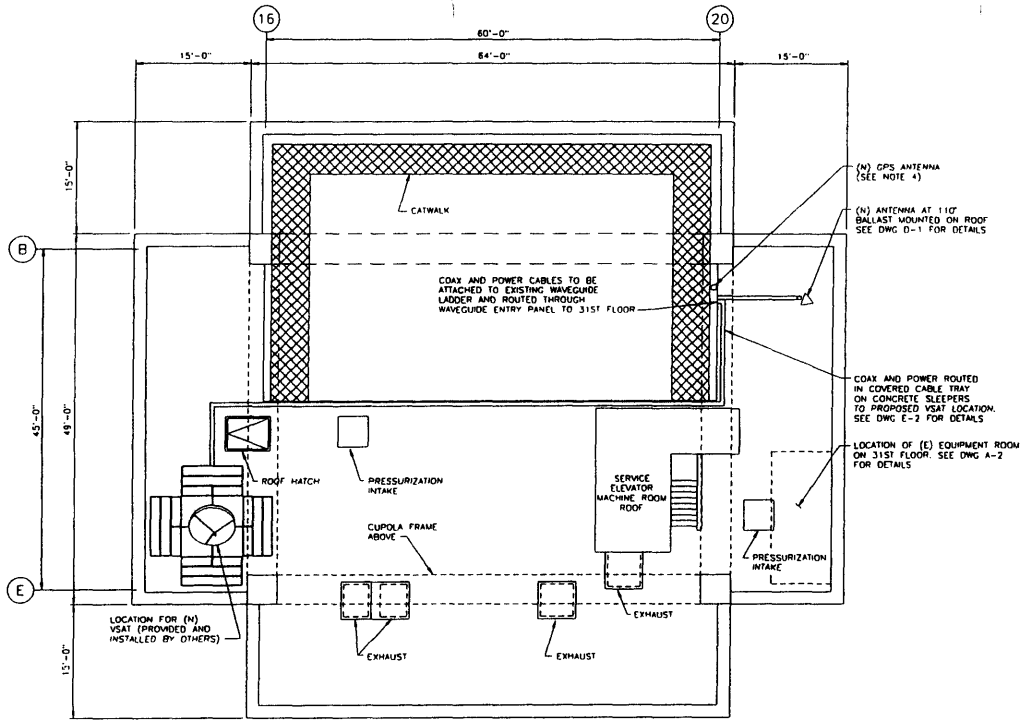
Deployment Scenario - Building



FCC Form 422
Exhibit Four
June 2000

Typical Terrestrial Repeater Site Plans

Roof Plan
Building Elevation
Antenna Mount



ROOF PLAN

8' 4' 0 8' 16'

1/8"=1'-0"

N

COAXIAL CABLE/ANTENNA SCHEDULE

	ANTENNA				COAX CABLE		JUMPER AT ANTENNA		JUMPER AT EQUIPMENT	
	MODEL	BEAMWIDTH	AZIMUTH	DOWNTILT	TYPE/SIZE	LENGTH (ft)	TYPE/SIZE	LENGTH (ft)	TYPE/SIZE	LENGTH (ft)
SECTOR 1	HWD8V90-R05-H	90°	110°	4°	HJ7-50A	90	HJ5-50	6	HJ5-50	6
VSAT	BY OTHERS	BY OTHERS	BY OTHERS	BY OTHERS	BY OTHERS	185	BY OTHERS	BY OTHERS	BY OTHERS	BY OTHERS

NOTES:

1. REFER TO RF CONNECTION DIAGRAM FOR SPLITTER/CONNECTOR DETAILS.
2. TYPE AND SIZES OF THE ANTENNA CABLES ARE BASED ON ESTIMATED LENGTH. PRIOR TO ORDERING CABLE, SUBCONTRACTOR TO VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY ENGINEER IF ACTUAL LENGTH EXCEEDS ESTIMATED LENGTHS.
3. AS-BUILT DRAWINGS TO BE COMPLETED BY FIELD ENGINEER WITH ACTUAL LENGTHS.
4. AZIMUTHS ARE ORIENTED CLOCKWISE FROM TRUE NORTH
5. UPON SATISFACTORY COMPLETION OF A SWEEP TEST, THE SUBCONTRACTOR SHALL WEATHERPROOF THE EXPOSED ENDS OF THE COAXIAL CABLES.

CONSTRUCTION NOTES

1. INSTALL NEW COAX CABLES FROM ANTENNAS TO RADIO EQUIPMENT LOCATED IN (E) EQUIPMENT ROOM.
2. POWER ROUTED TO (N) VSAT LOCATION SHALL BE COILED (10' MIN) FOR FUTURE CONNECTION.
3. FIELD ROUTE POWER AND TELCO TO (N) EQUIPMENT LOCATION. SEE DRAWING E-1.
4. SUBCONTRACTOR TO INSTALL THE GPS UNIT PROVIDED BY SIRIUS AND FIELD LOCATE PER BVTI CONSTRUCTION MANAGER.
5. SUBCONTRACTOR SHALL PROVIDE AND INSTALL ALL WARNING SIGNS AS REQUIRED BY RFE REPORT.

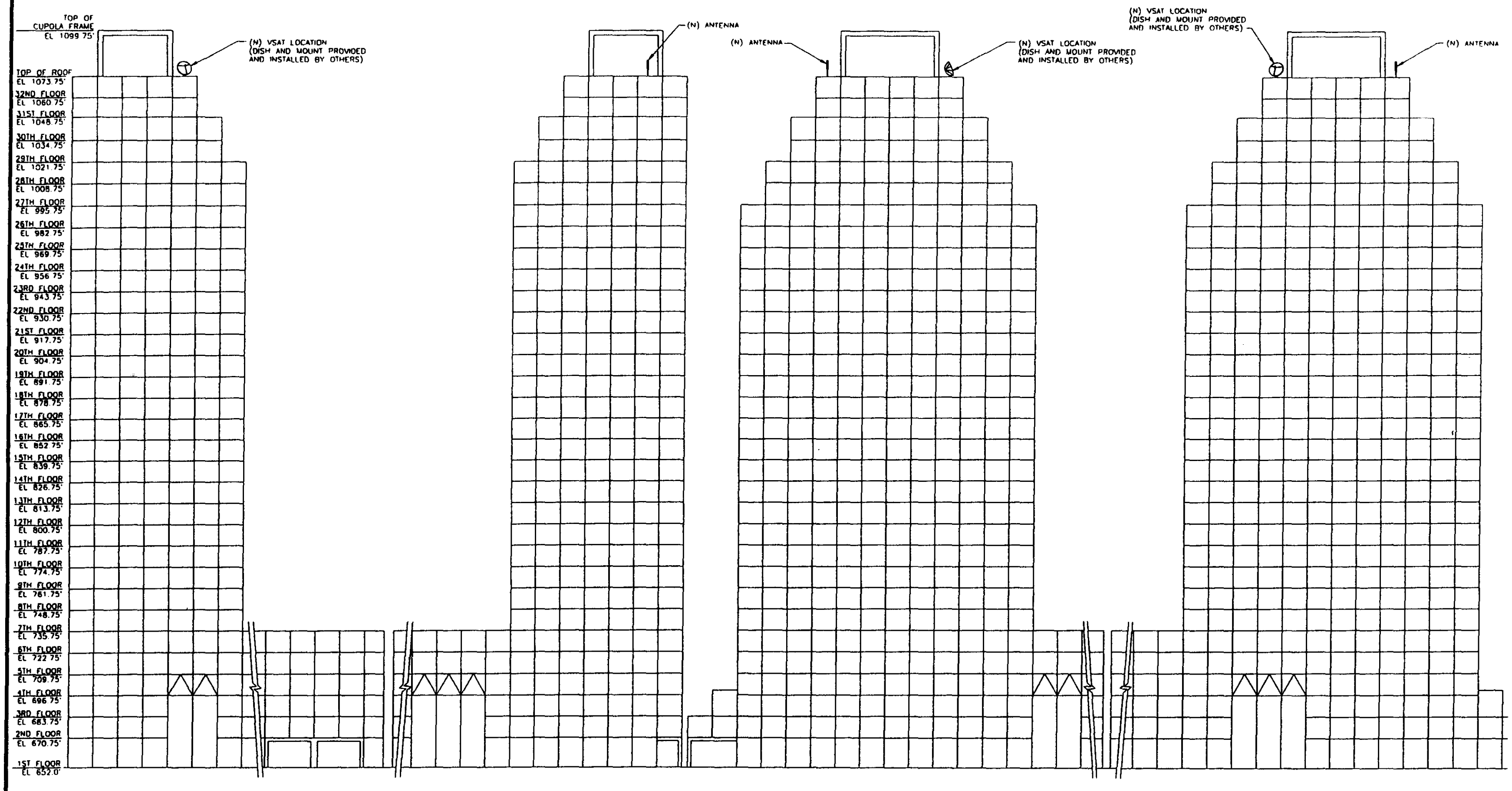
GENERAL NOTES

1. COMPLY WITH ALL BUILDING CODES OF THE AUTHORITIES HAVING JURISDICTION
2. NOTIFY THE BUILDING OWNER AND BUILDING MANAGER OF THE CONSTRUCTION START WELL IN ADVANCE OF THE CONSTRUCTION START DATE. THE BUILDING WILL BE OCCUPIED DURING CONSTRUCTION.
3. COORDINATE THE CONSTRUCTION STAGING AREA WITH THE BUILDING OWNER AND BUILDING MANAGER WELL IN ADVANCE OF THE CONSTRUCTION START DAT
4. COORDINATE THE USE OF THE SERVICE ELEVATOR WITH THE BUILDING MANAGER WELL IN ADVANCE OF TIMES NEEDED. ONLY USE THE ACCESS TO THE CONTRACT AREAS DESIGNATED BY THE OWNER AND THE MANAGER.
5. PROTECT THE EXISTING FACILITIES AT ALL TIMES. THE SUBCONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION OPERATIONS.
6. TAKE SPECIAL PRECAUTION TO PROTECT THE EXISTING ROOF AT ALL TIMES. ANY DAMAGE TO THE EXISTING ROOF MUST BE REPORTED AND PROPERLY REPAIRED IMMEDIATELY. ADVISE OWNER AND ENGINEER IMMEDIATELY IF DAMAGES OCCUR. ANY ROOF AND WALL PENETRATIONS TO OR FROM EXTERIOR OF THE BUILDING ARE TO BE MADE WATERTIGHT. USE ROOFER APPROVED BY OWNER IF ROOF IS UNDER WARRANTY. USE ONLY A MANUFACTURER APPROV ROOFER. CHECK WITH OWNER FOR APPROVAL. DO NOT VOID ANY EXISTING MANUFACTURER WARRANTIES.
7. CONFINE OPERATION TO AREAS OF NEW CONSTRUCTION.
8. PROVIDE FOR COMPLETE TELEPHONE AND ELECTRICAL SERVICE AS INDICATED ON THE DRAWINGS. COORDINATE WITH BUILDING OWNER AND AUTHORITIES HAVING JURISDICTION AS INDICATED ON SITE INFORMATION SHEET.
9. DO NOT INTERRUPT ANY BUILDING SERVICE AT ANY TIME WITHOUT THE BUILDING OWNER AND OR BUILDING MANAGER'S APPROVAL.
10. SUBCONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND COORDINATE THE INSTALLATION OF NEW UTILITIES AS INDICATED ON SITE INFORMATION SHEET.
11. SUBCONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS AND PLAN DIMENSIONS, AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES
12. THE SUBCONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
13. MAINTAIN THE INTEGRITY OF ALL EXISTING FIRE RATED WALLS, FIRE SEAL ANY PENETRATIONS WITH U.L. APPROVED ASSEMBLY MATCHING THE RATING OF THE EXISTING BUILDING.
14. THE EQUIPMENT LOCATIONS SHOWN SHALL NOT BE VARIED WITHOUT THE REVIEW APPROVAL OF THE ENGINEER. AVOID CONCENTRATED LOADS DURING CONSTRUCTION.
15. DO NOT MODIFY OR ATTACH TO THE EXISTING BUILDING STRUCTURE WITHOUT THE APPROVAL OF THE ENGINEER.

2

NOTES:

1. EXISTING ANTENNAS NOT SHOWN FOR CLARITY.
2. REFER TO DRAWING A-1 FOR PLAN LOCATIONS AND DRAWING D-1 FOR MOUNTING DETAILS.



WEST ELEVATION
NTS

EAST ELEVATION
NTS

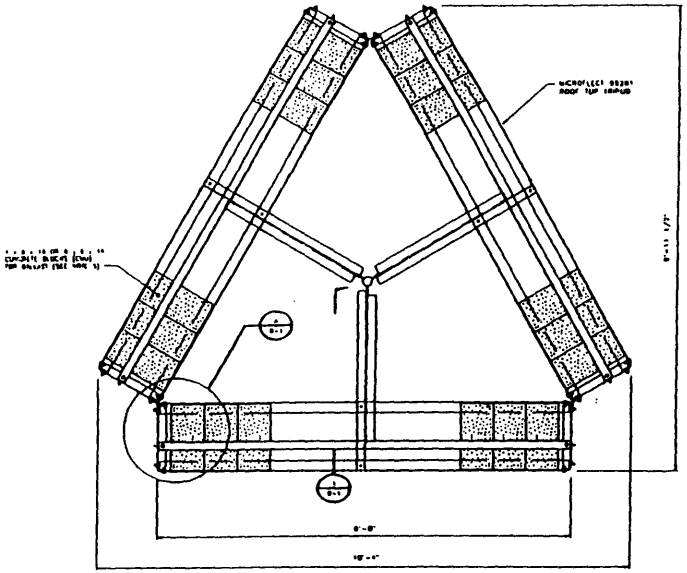
NORTH ELEVATION
NTS

SOUTH ELEVATION
NTS

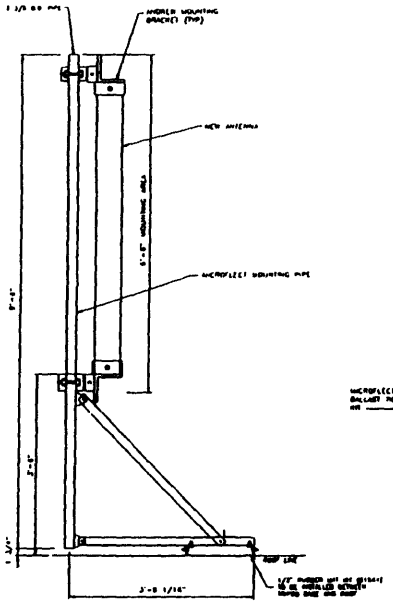
62357-38-01-A3
ch31523
OUTLINE
05/19/00 10:49:16
ACAD 14.01
1=1

NOTES:

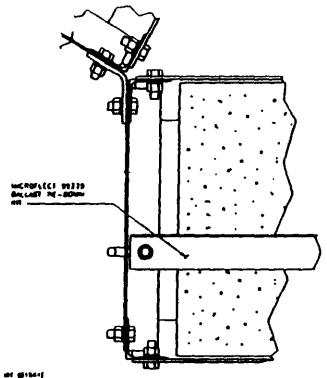
1. STRUCTURAL STEEL & ... SHAPES AND PLATE SHALL BE ASTM A36, GALVANIZ... | NOTED OTHERWISE.
2. FABRICATION AND ER... STEEL TO BE IN ACCORDANCE WITH AISC "MANUAL O... CONSTRUCTION" NINTH EDITION.
3. TOUCH UP FIELD CUTS WITH ZINC-RICH PAINT.
4. SUBCONTRACTOR IS TO FIELD VERIFY ANY EXISTING CONDITIONS AND PLAN DIMENSIONS, AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
5. EACH BALLAST TRAY SHALL CONTAIN A MINIMUM OF 115 LBS OF CONCRETE BLOCK BALLAST (57.5 LBS EACH END OF TRAY). TOTAL BALLAST IS 345 LBS FOR 3 TRAYS.



PLAN VIEW
N.T.S.



SECTION 1
N.T.S.



DETAIL "A"
N.T.S.