Exhibit A
Experiment Objectives and Operations

XM Radio Inc. ("XM Radio") intends to utilize a System Validation Single Frequency Network (SV-SFN) of eight fixed locations to test the deployment of its terrestrial repeater system. The terrestrial network will retransmit the satellite Digital Audio Radio Service (DARS) system signal. Satellite signals at S-Band do not fully provide coverage to urban areas due to the severe blockage from buildings. Consequently, a terrestrial network will retransmit the satellite service signal to provide coverage in those urban areas where the satellite signal is blocked. To optimize the network planning, XM Radio plans to conduct a series of tests in New York beginning by August 25, 2000.

Testing of the SV-SFN transmitter system will be for the purpose of channel characterization, including signal power and multi-path characteristics, to assist in establishing and validating propagation and channel models for a single frequency network. Consequently, on any given field testing day, one transmitter may be operating or several repeaters could be transmitting simultaneously. These measurements will help verify techniques and equipment. The test team will have access to all the transmitter locations so they can monitor and control the equipment.

Testing is planned for the period of late August through late February 2001. XM Radio will conduct the tests twenty-four hours per day, seven days per week.

Exhibit B
Transmitter Locations and Transmitter Technical Parameters

The System Validation Single Frequency Network (SV-SFN) proposed herein will consist of eight fixed transmitters located around New York, New York. The specific geographic and site parameters and technical characteristics of the repeaters are provided below. The antennas for the standard transmitters will be located on controlled access rooftops, top floor equipment rooms, or towers. The antennas will not extend more than 6 meters above the building height. Information regarding the "Ground Elevation Above Mean Sea Level," "Transmitter Height Above Ground Level," and "Height Above Average Terrain" is provided below.

Site	Latitude	Longitude	Ground Elevation AMSL (ft)	Transmitter Height AGL (ft)	Height Above Average Terrain (ft)	EIRP (dBm)	EIRP (Watts)	Orientation	Beam-width (deg.)
1	40-44-20 N	73-59-07 W	30	180	168	58	631.5	omni	360
2	40-45-21 N	73-59-26 W	44	22	220	58	631.5	omni	360
3	40-57-39 N	73-55-23 W	441	220	661	58	631.5	omni	360
4	40-45-42 N	73-49-04 W	72	110	120	58	631.5	omni	360
5	40-53-31 N	73-51-10 W	185	170	355	58	631.5	omni	360
6	40-43-40 N	73-51-07 W	85	330	415	58	631.5	omni	360
7	40-40-4.8 N	73-57-36.8 W	116	335	451	58	631.5	omni	360
8	40-36-44 N	73-58-8.6 W	30	80	110	58	631.5	omni	360

Characteristics Common to All Repeaters:

Component/Parameter	**Value**	**Notes**
Transmit Frequency	2332.5 - 2345 MHz	Adjustable center frequency within range
Signal & Modulation	Continuous Wave/MCM	

Exhibit C
Radio Frequency Exposure Compliance

Because the transmitter antennas will be located on controlled access building roof tops, top floor equipment rooms, or towers, the exposure to humans will be limited. The transmitters can be turned off when roof top or tower activities close to the antennas are required by maintenance or other workers. In addition, the antennas will be situated such that the distance to near-by buildings will be greater than that indicated by the calculations listed below. Consequently, the FCC radio-frequency field exposure limits will not be exceeded.

For the purposes of predicting RF field strength and power density levels, the following equations from the OET Bulletin 65[1] are used:

$$S = \frac{EIRP}{4\Pi R^2}$$

where: S= Power Density (mW/ sq cm)
EIRP = Transmit Power (mW) x Antenna Gain (relative it isotropic radiator)
R = distance to the center of radiation of the antenna (m)

As a worst case prediction, 100% reflection of the incoming radiation is assumed. This is representative of a roof top environment. This results in a four fold increase in power density giving:

$$S = \frac{EIRP}{\Pi R^2}$$

Based on the FCC limits outlined in OET Bulletin 65 for maximum permissible exposure (MPE) for a frequency of 2340 MHz, the maximum allowable power density is calculated to be:

General Population Exposure =	1.0 mW/ sq cm
Occupational Exposure =	5.0 mW/ sq cm

[1] *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, FCC OET Bulletin 65, Ed. 97-01, August 1997.

Using these limits, the minimum separation distance required to receive this power density is calculated as a function of the antenna discrimination and shown in Table 1.

Table 1. RF Exposure Limit Ranges

Angle Below Main Beam (Deg)	Antenna Gain (dBi)	Occupational (m)	General Pop (m)
0	10	2.52	5.64
5	6	1.59	3.56
10	-6	0.40	0.89
15	-2	0.63	1.42
20	-6	0.40	0.89
25	-3	0.56	1.26
30	-8	0.32	0.71
35	-5	0.45	1.00
40	-9	0.28	0.63
45	-5	0.45	1.00
50	-14	0.16	0.36
55	-8	0.32	0.71
60	-9	0.28	0.63
65	-18	0.10	0.22
70	-9	0.28	0.63
75	-8	0.32	0.71
80	-9	0.28	0.63
85	-10	0.25	0.56
90	-13	0.18	0.40

This is a worse case RF Exposure calculation.

Exhibit D
Emission Isolation to Existing Systems

XM Radio recognizes that the experimental transmitters are not allowed to cause harmful interference to nearby stations including systems operating in adjacent bands. In addition, XM Radio understands that space communications (Deep Space Network (DSN) in the 2290-2300 MHz band) and Radioastronomy (ARECIBO in the 2370-2380 MHz band) as well as aeronautical telemetry systems (>2360 MHz) operate in nearby bands. As noted in the Wireless Communications Service Report and Order (FCC 97-112), some existing multipoint distribution service and instructional television fixed service systems (MDS/ITFS) have a poor front-end design with limited frequency selectivity and are thus susceptible to out-of-band emissions. XM Radio analysis, however, indicates that there is a very low probability for causing interference to existing systems both at the frequency of operation and in adjacent bands.

Because the experimental transmitters will be located on roof tops or on towers, they may be situated near base stations for systems such as MDS/ITFS. Preliminary measurements of the high power amplifier indicate that harmonics will be - 55 dBc and spurious emissions less than -60dBc. This combined with other reductions to out-of band emissions (e.g., filtering at input to HPA, coupling loss to antenna) will dramatically reduce any emission outside the 2320 - 2345 MHz band.

Technical Certification

I, John (Jack) Wormington, Senior Vice President, Engineering and Operations of XM Radio Inc. ("XM Radio"), hereby certify the following under penalty of perjury:

I have reviewed the foregoing "Request of XM Radio Inc. for Special Temporary Authority in the Experimental Radio Service to Conduct Test Operations of S-band Digital Audio Radio Service Terrestrial Repeaters." The information contained in this application is true and correct to the best of my belief.

John (Jack) Wormington

Dated: July 24, 2000