ORIGINAL

SIRIUS
Satellite Radio

April 20, 2007

VIA HAND DELIVERY

FILED/ACCEPTED
APR 20 2007
Federal Communications Commission
Office of the Secretary

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

Re: Sirius Satellite Radio Inc. Request to operate a terrestrial repeater at the BMW National Aftersales Conference in Las Vegas, NV; IBFS File No. SAT-STA-20070327-00057

Dear Ms. Dortch:

Sirius Satellite Radio Inc. ("Sirius") hereby supplements the application for Special Temporary Authority to operate a terrestrial repeater at the BMW National Aftersales Conference in Las Vegas, NV from April 27, 2007 to May 1, 2007, IBFS File No. SAT-STA-20070327-00057.

Specifically, Sirius provides details on the operation of the repeater and the potential for exposure to radiofrequency emissions resulting from this operation. As shown herein, any radiofrequency exposure that might occur is below acceptable limits. In addition, please note that the repeater will operate at 25 feet, not 45 feet as the initial application indicated.

Sincerely,

/s/Patrick L. Donnelly

Patrick L. Donnelly
Executive Vice President and General Counsel
Sirius Satellite Radio Inc.

RF Exposure Analysis

BMW National Aftersales Conference Signal Coverage
April 27 - May 1
MGM Las Vegas

This technical addendum is to support the BMW National Aftersales Conference STA request, IBFS File No. SAT-STA-20070327-00057. This event is being held at the MGM Grand Hotel in Las Vegas.

The transmitter set up for the show is illustrated in the figures below:

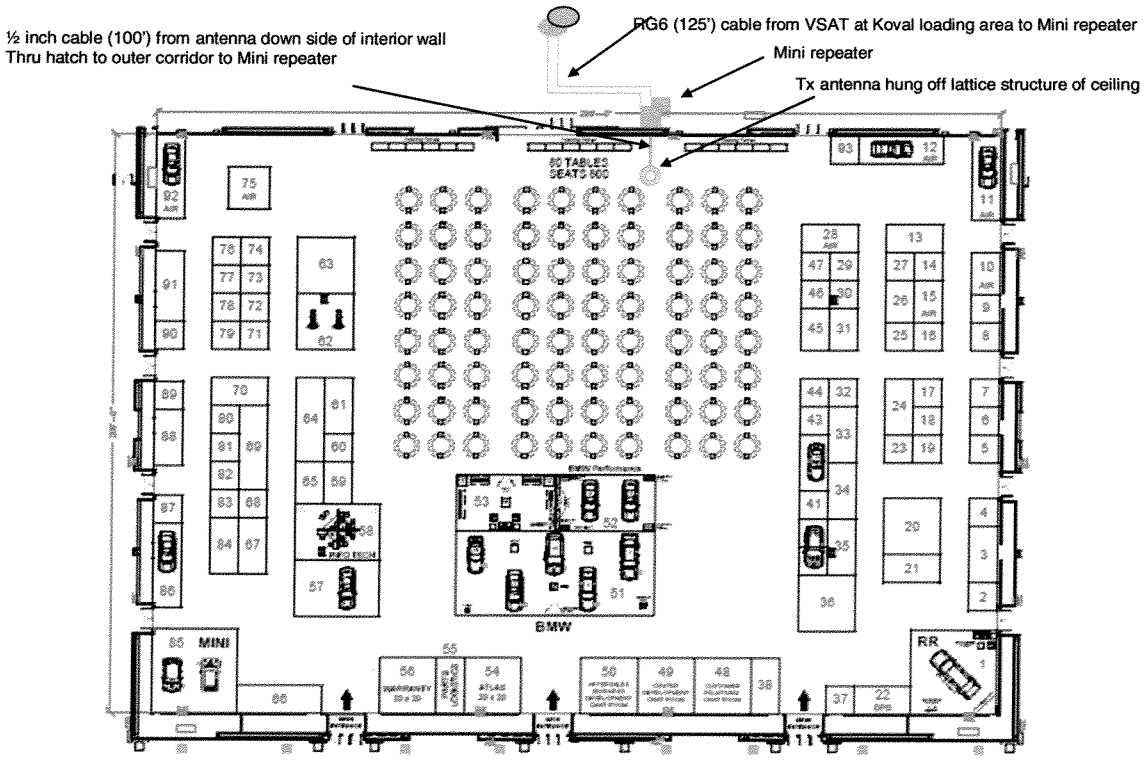


Figure 1. Diagram of show floor

Figure 2. MGM Ballroom

To establish the RF exposure environment for this request the following process has been used to establish that there is no general population exposure over the allowed limit:

1. The location of the antenna and the transmission parameters have been established. The antenna is placed 25 feet above the show floor as seen in Figure 2. A 20 watt (average), 90 watt (peak) (maximum) power transmitter is used. Together with the assumed length and type of cable feeding, the antenna (which is omni directional), and the type and gain of the antenna used, this leads to an effective isotropically radiated power (EIRP) of 200 watts (average) and 900 watts (peak). This calculation is summarized in Table 1. The transmitter operates at 2.326.25 GHz which is the carrier frequency allocated to the Sirius repeater network. At this frequency the FCC has established a limit of 1 mW/square centimeter for general population exposure (OET 65).

2. Using the calculation methods described in OET 65 and the EIRP's derived as described in (1) a calculation is made of the power density at various distances from the antenna for both the average and peak powers involved. The distance of 18 feet was chosen as the minimum distance criteria for exposure by taking the height of the antenna (25 feet) and subtracting a 7 foot allowance for the height of any individuals who may be present on the show floor. This distance represents the closest point that a member of the general population could approach this repeater antenna. Table 2 summarizes the results of the normal calculation (using the formula Power Density=EIRP/(4*Π*R^2) from OET 65) and also a more conservative formula which takes into account reflection (the formula PD= 2.56*EIRP/(4*Π*R^2)) also from OET 65. In order to provide a comprehensive view, values are included separately for the regular case (average and peak power based) and for the reflective case (peak power based).

Summary

A very conservative approach shows no exposure issue. Several worst case assumptions were made as follows:

1. No allowance was made for the significant reduction in power density that will occur due to the attenuation of the antenna pattern at the location immediately under the antenna, the location to which the minimum distance of 18 feet applies.
2. No allowance was made in the case of peak level calculations for the fact that these levels occur a very small fraction of the overall time of transmission.
3. The maximum transmitter power of 20 watts was used although in practice Sirius has determined from more recent studies of the location and more recent information from BMW on the intended applications that the transmitter will be operated at a level at or below 10 watts which will provide adequate margin for the demonstrations involved.
4. There is no access to the ceiling area where the antenna is mounted except with a construction lift.
5. The highest level of exposure, involving the potential for additive reflection and peak level EIRP was used as the exposure criteria.

Table 1. Transmit chain loss budget

	Average (watts)	Average (dBW)	Peak (watts)	Peak (dBW)
Transmitter output power	20	13.0	90	19.5
Cable Loss (db)		2		2
Antenna gain dBi (max)		12		12
EIRP (max)	200.0	23.0	900.0	29.5

The effective isotropic radiated power (EIRP) is calculated by taking the transmitter output power, subtracting the cable loss and adding the antenna gain.

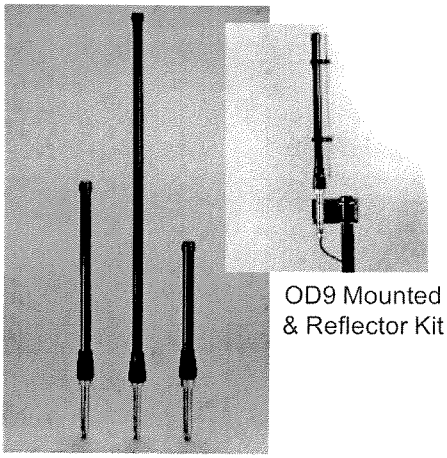
The peak power is determined by applying the peak to average factor of the OFDM waveform to the average power of the transmitter. This peak level occurs less than 1/1000th of the time for the Sirius waveform for this transmitter type.

Table 2. Calculations for power density

- Power Density = EIRP/(4piR^2) (Equation 4, page 19 of OET 65)
- Power Density adjusted for reflection = 2.56*Power Density (Equation 7, page 21 of OET 65)

As can be seen from this table, even under very conservation transmission assumptions, the general population exposure limits are not exceeded at the worst case location, being a maximum of 63% of the acceptable limit.

Radial Distance from Antenna (Feet)	Power Density (Average) mW/square cm	Power density (Peak) mW/square cm	Peak power density with 2.56 multiplier (Max reflection)	Worst Case Safety Margin over exposure standard (times)
18	0.05	0.25	0.63	1.59
23	0.03	0.15	0.39	2.60
28	0.02	0.10	0.26	3.85
33	0.02	0.07	0.19	5.35
38	0.01	0.06	0.14	7.09
43	0.01	0.04	0.11	9.08
48	0.01	0.03	0.09	11.31
53	0.01	0.03	0.07	13.79
58	0.01	0.02	0.06	16.51
63	0.00	0.02	0.05	19.48
68	0.00	0.02	0.04	22.70
73	0.00	0.01	0.04	26.16
78	0.00	0.01	0.03	29.86
83	0.00	0.01	0.03	33.82
88	0.00	0.01	0.03	38.01
93	0.00	0.01	0.02	42.46
98	0.00	0.01	0.02	47.14
103	0.00	0.01	0.02	52.08



OD9 Mounted & Reflector Kit

OD9, OD12, OD6 Shown

OD Series Omni Antenna

For WLAN, Video and Data Systems

- 3 dBi, 6 dBi, 9 dBi & 12 dBi antennas provide uniform omni coverage
- Unique design allows economical build out
- Mounting kit includes all hardware needed
- Reflector option provides directional beamshaping & increased performance

The OD Series Antennas are optimized for use in a wide variety of wireless systems. Typical uses include WLAN access points or bridge (802.11b/g), and surveillance transmitters.

These antennas consist of a collinear array with elements stacked vertically. Unique phasing cancels out-of-phase current distribution, improving system performance. This design maintains an omni pattern in the horizontal plane. The OD Series are free space antennas; no ground plane is required.

An option for the OD series is a reflector kit that beam shapes the omni pattern into a directional cardioid shape. This can result in improved directional gain, and isolation for reduced interference.

The low profile black radome (1" diameter) makes the antennas durable and rugged. They can withstand the harshest environments of snow, wind, rain and ice. The feed assembly is made of precision machined aluminum components and is irridited for weather protection. The antennas comes with all the hardware needed to install it to a mast. The OD antennas normally terminate with a female N connector. Optional models include pigtail cable with connector. For ISM, Part 15 compliant connectors are available (reverse polarized), please consult factory.

Model Numbers

Model	Freq.(MHz)	Gain	Applications
OD3-2400	2400-2485	3 dBi	WLAN, ISM, Video
OD6-2400	2400-2485	6 dBi	WLAN, ISM, Video
OD9-2400	2400-2485	9 dBi	WLAN, ISM, Video
OD12-2400	2400-2485	12 dBi	WLAN, ISM, Video

For pigtail cable options and special frequencies, please consult factory for latest model numbers and configurations.

Options	Model
Add-on kit for 6 dBi models	ODR6-Kit
Add-on kit for 9 dBi models	ODR9-Kit
Add-on kit for 12 dBi models	ODR12-Kit
Rev TNC with 1 ft Cable option	add -PTA to OD model
Rev BNC with 4 ft Cable option	add -PT2 to OD model

Specifications

Frequency & Gain:	See above
Bandwidth @2:1 VSWR:	See above
Nominal Impedance:	50 ohms
Max. Power (continuous):	100 watts
Vertical Beamwidth (-3 dB point):	
3 dBi Model	55 degrees
6 dBi Model	25 degrees
9 dBi Model	14 degrees
12 dBi Model	7 degrees
Wind Loading (flat plate equiv.):	30-40 sq. inches
Rated Wind Velocity:	100+ mph
Lightning Protection:	External suggested
Antenna Diameter:	1", main mast
Length/Weight:	
3 dBi Models	16 inches, 1.5 lbs
6 dBi Models	19 inches, 1.5 lbs
9 dBi Models	27 inches, 2.0 lbs
12 dBi Model	41 inches, 2.5 lbs
OD Series Interface:	N female connector
Mounting Kit:	Mast mount kit included
Mounting Dimensions:	Use mast up to 2" OD
Material:	Polycarbonate with aluminum body, fiberglass radome on OD12 with aluminum body
Options:	Reflector Option Kit Pigtail Cable Option Part 15 Reverse Connectors

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Visit our web page at www.mobilemark.com. Specifications subject to change without notice (2/2002).

CERTIFICATE OF SERVICE

I, Christine Peyton, do hereby certify that on April 20, 2007, I served a copy of Sirius' **Supplement to Request for Special Temporary Authority** upon the following parties by U.S. first-class mail, postage pre-paid:

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