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June 29, 2001

VIA HAND DELIVERY
Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

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JUN 29 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

RE: *Ex Parte* Presentation of Sirius Satellite Radio Inc. and XM Radio Inc.
ET Docket No. 98-42

Dear Ms. Salas:

During a meeting held on June 19, 2001 among representatives of the Commission's Office of Engineering and Technology ("OET") and representatives of Sirius Satellite Radio Inc. ("Sirius") and XM Radio Inc. ("XM Radio"), Mr. John Reed of the OET presented the attached calculation of the distance between a Fusion RF lighting device and a satellite digital audio radio service ("DARS") receiver needed to avoid interference to the DARS receiver. *See* Exhibit A.

In response to Mr. Reed's analysis, Robert Briskman of Sirius and Phil Barsky of XM Radio hereby submit the attached revised calculation. *See* Exhibit B. While Sirius and XM Radio agree with Mr. Reed's methodology and calculations, they disagree with the following parameters in Mr. Reed's analysis:

- 1) Sirius and XM disagree with the "multipath effect" removal. This does not represent the worse case interference, which would be at the emission level.
- 2) The actual thermal thresholds for both Sirius and XM Radio receivers were used in the attached revised calculations.
- 3) Receive antenna gain of 3.5 dBi was included in the attached revised calculations.
- 4) Mr. Reed's methodology assumed a C/I of 0 dB, which would cause harmful interference to a satellite DARS receiver. Instead, Sirius and XM employed a Carrier/Interference ratio required to avoid interference to DARS reception equal to minus 10 dB in the attached revised calculations.

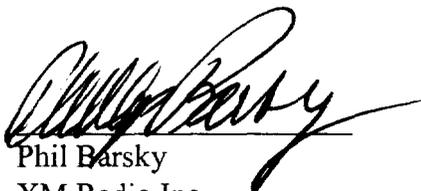
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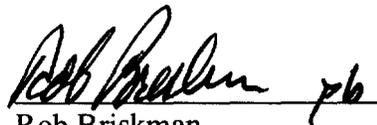
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With these changed parameters, Sirius and XM Radio have re-calculated the required separation distance necessary were RF lighting devices, such as Fusion's, permitted to operate at a field strength of $500\mu\text{v}/\text{m}$ @ 3 meters. This calculation demonstrates that an RF lighting device operating at that power level would have to be 280 meters from a DARS receiver to avoid interference.

Please contact the undersigned with questions regarding this calculation.



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XM Radio Inc.
202-380-4090



Rob Briskman
Sirius Satellite Radio Inc.
212-584-5210

cc: John Reed, OET
Attached Service List

cc: Donald Abelson
Rosalee Chiara
Ira Keltz
Julius Knapp
Geraldine Matisse
Chris Murphy
Rockie Patterson
Bruce Romano
Karen Rackley
John Reed
Ronald Repasi
Tom Tycz
Attached Service List

Exhibit A

John Reed's Calculations

Present Part 15 Emission Limit = -41.25dBm/MHz	
Removing Multipath Effect = -47.25dBm/MHz	
Thermal Threshold of DARS Receivers:	
Sirius (4MHz BW) = -108dBm	XM (2MHz BW) = -111dBm
Noise Figure = 2 db	Noise Figure = 2 db
Noise Floor = -106 dBm / 4MHz	Noise Floor = -109dBm / 2MHz
Fusion Level allowed = -41.23dBm / 4MHz	Fusion Level allowed = -44.24 dBm/ 2MHz
Path Loss required : 64.8 db	Path Loss required : 64.8 db
Free Space Distance @2300MHz = 18 m	Free Space Distance @2300MHz = 18 m

$$\text{Path Loss} = 20 \log (4 * \pi * D * f) / c$$

Exhibit B

Sirius and XM Revised Calculations

Present Part 15 Emission Limit = -41.25dBm/MHz (- 38.25 dBm / 2 MHz; -35.25 dBm / 4MHz)	
Removing Multipath Effect = -41.25 dBm/ MHz [1]	
Thermal Threshold of DARS Receivers: [2]	
Sirius (4MHz BW) = -110.6 dBm /4MHz	XM (2MHz BW) = -113.6 dBm / 2MHz
Receive Antenna Gain = 3.5 dBi	Receive Antenna Gain = 3.5 dBi
Fusion Level at antenna = - 35.25 dBm / 4MHz	Fusion Level at antenna = - 38.25 dBm / 2 MHz
Fusion Level at receiver = - 31.75 dBm / 4MHz	Fusion Level at receiver = - 34.75 dBm / 2 MHz
Path Loss required for C/I = -10dB [3] : 88.85 dB	Path Loss required for C/I = -10 dB [3] : 88.85 dB
Free Space Distance @2300MHz = 280 m	Free Space Distance @2300MHz = 280 m

Notes:

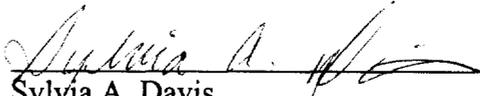
[1] Since Fusion's emission is noise like, there is no multi-path correlation, and therefore no correction.

[2] Values shown include the Noise Figure (calculated value assumes 158 degrees K System Noise Temperature)

[3] C/I for Single Emitter

CERTIFICATE OF SERVICE

I hereby certify that on this 29th day of June, 2001, I caused copies of the foregoing *Ex Parte* Presentation in ET Docket No. 98-42 to be mailed via first-class postage prepaid mail to the following:


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