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OCT 18 2000

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

October 18, 2000

Magalie Roman Salas, Secretary
Federal Communications Commission
445 12th Street, SW
12th Street Lobby, TW-A325
Washington, DC 20054

Re: *Ex Parte* Presentation in ET Docket No. 98-42

Dear Ms. Salas:

On Monday, October 16, 2000, Robert Briskman, Patrick Donnelly, Mark Gaudino, Carl Frank, and John Papandrea representing Sirius Satellite Radio, Inc. ("Sirius"); Lon Levin, Steve Berman, and Phil Barsky representing XM Radio Inc. ("XM Radio"); and Kent Kipling, Michael Ury, Terry Mahn, and Robert Ungar representing Fusion Lighting, Inc. ("Fusion") met with Julius Knapp, John Reed, Karen Rackley, and Rebecca Dorch of the FCC's Office of Engineering and Technology ("OET"). The purpose of the meeting, which followed an exchange of technical questions among the parties, was to discuss the issues of potential interference/susceptibility between RF lighting devices and satellite DARS receivers operating in the 2320-2345 MHz band. The substance of this meeting is summarized below.

At the meeting, Fusion provided an overview of its business plan and its RF lighting technology. Fusion then discussed recent preliminary equipment tests it had conducted and provided an explanation of the results of those tests. Fusion's test results are included as Attachment 1 to this letter.

Sirius and XM Radio also provided an overview of their businesses. Engineers from the two companies then discussed results of XM Radio's recent analysis of an RF lighting installation at the Department of Energy in Washington, D.C., which is included as Attachment 2 to this letter. Sirius and XM Radio explained at the meeting that the tests suggested that outdoor RF lights would impose unacceptable levels of interference on satellite DARS receivers. Fusion then noted that the DOE installation uses an experimental switching power supply and light pipe diffuser that are more benign to the RF environment than its conventional lamps. Fusion also explained that its RF lights will not always be at the same height outdoors and that it was

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impossible to generalize about interference based on one test involving one particular light since the company produces RF lights of varying power levels.

The parties then discussed the possibility of employing shielding devices to reduce interference. Fusion mentioned that it had studied the possibility of using shielding to decrease in-band interference, but determined that the approach was undesirable due to the accompanying reduction in lighting efficacy that filtering entails. Fusion noted that it had not explored narrow band filtering, but that it would do so.

All parties in ET Docket No. 98-42 have received copies of this letter. Should you have any questions regarding the above-discussed meeting with FCC staff on RF lighting issues, please contact the undersigned.

Respectfully yours,

Carl R. Frank
John F. Papandrea
Counsel to Sirius Satellite Radio, Inc.

cc: Donald Abelson
Rosalee Chiara
Rebecca Dorch
Ari Fitzgerald
Anna Gomez
Linda Haller
Dale Hatfield
Anna Gomez
Julius Knapp
Rockie Patterson
Karen Rackley
John Reed
Ronald Repasi
Tom Tycz
Attached Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that on this 18th day of October, 2000, 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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The Wireless LAN Alliance
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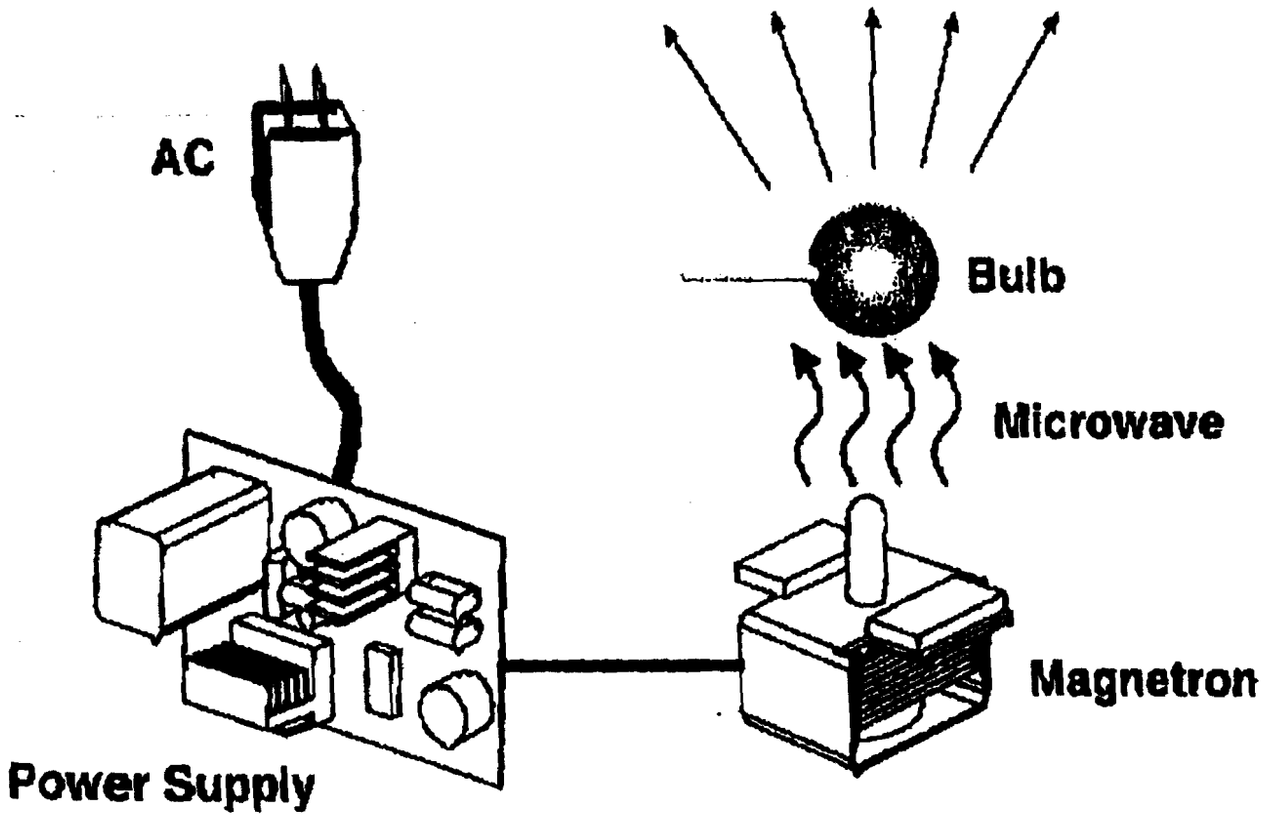
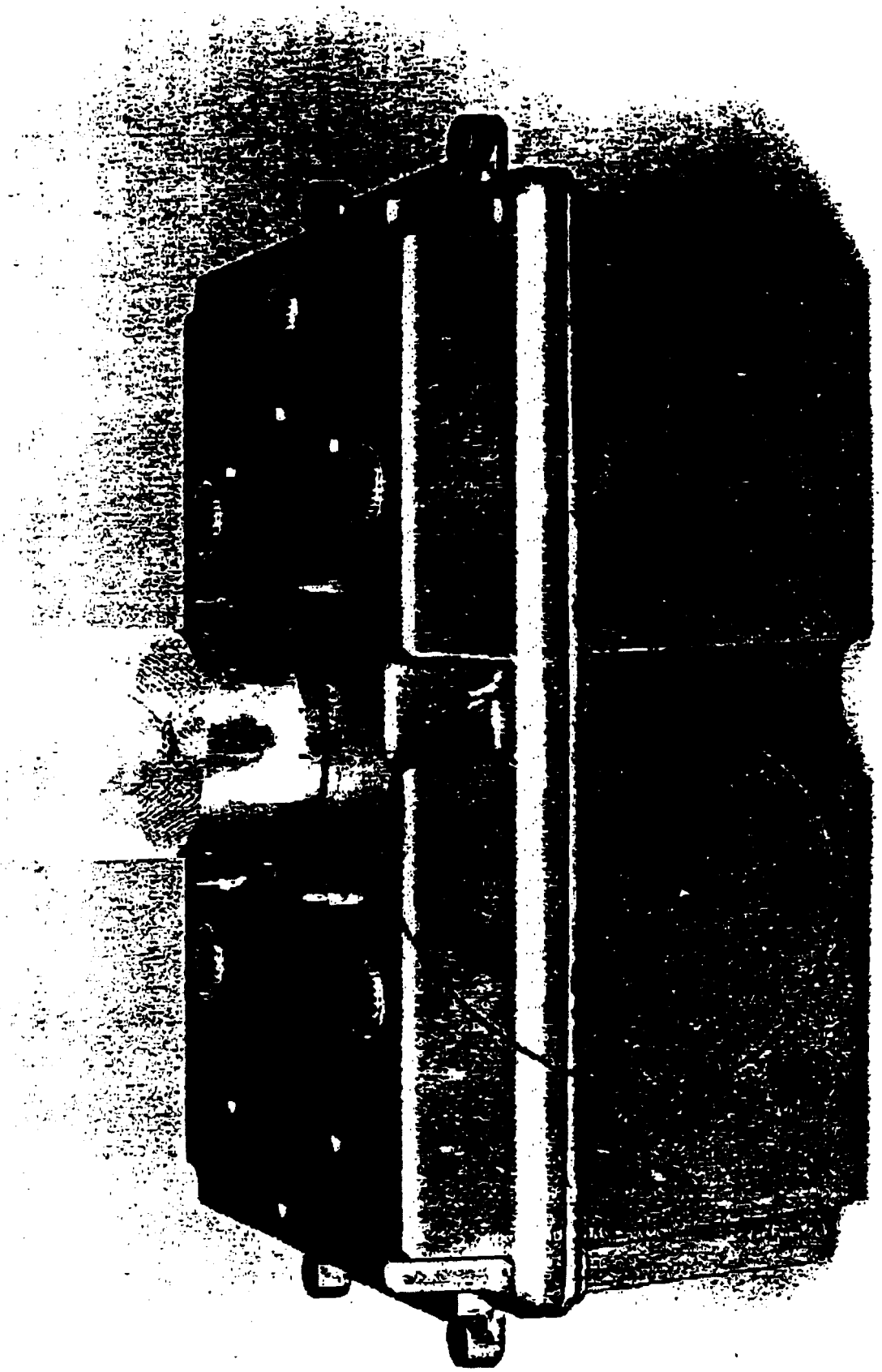
TECHNOLOGY

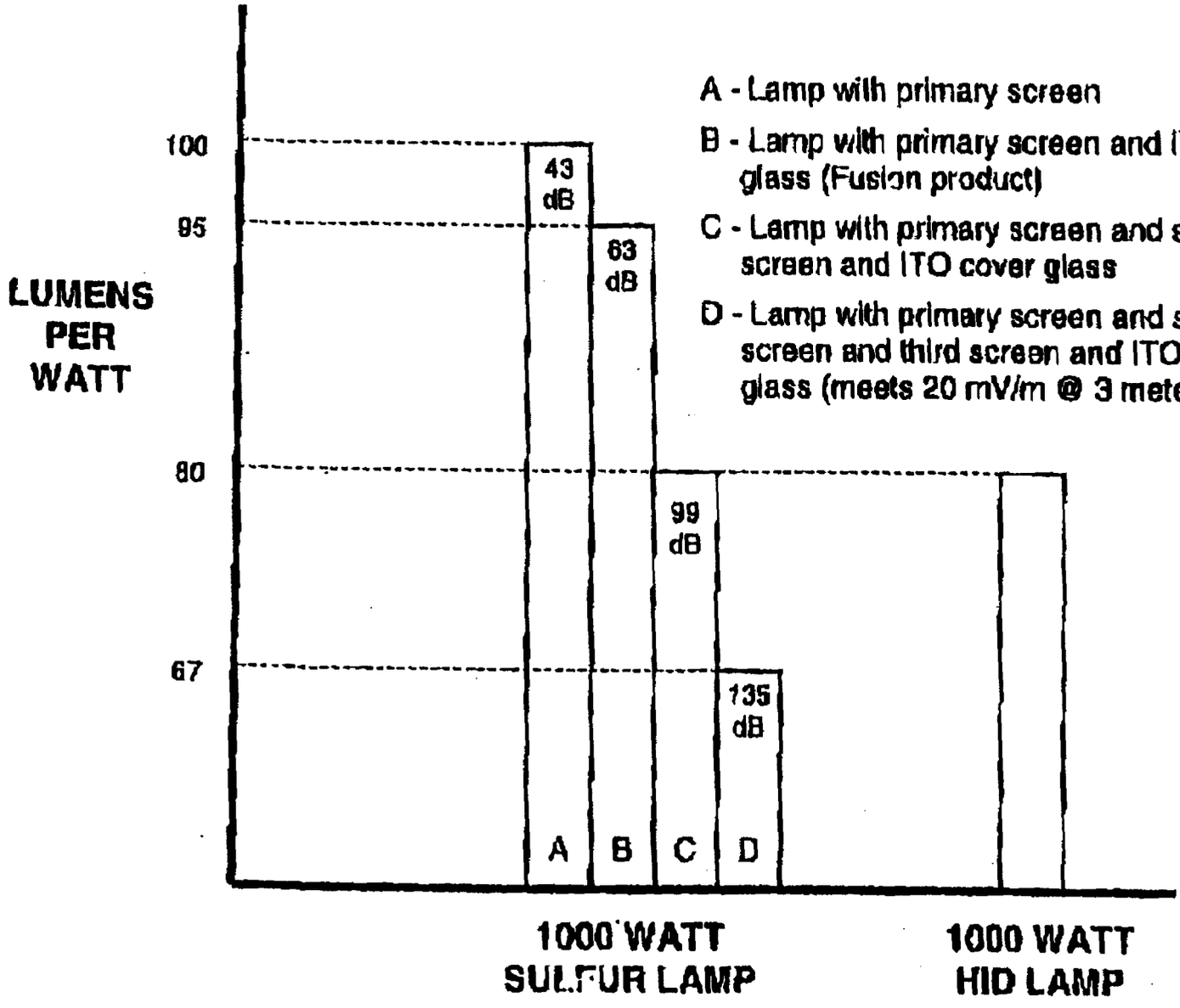


fusionlighting



EFFICACY vs. RF SHIELDING

fusionLighting



A - Lamp with primary screen

B - Lamp with primary screen and ITO cover glass (Fusion product)

C - Lamp with primary screen and secondary screen and ITO cover glass

D - Lamp with primary screen and secondary screen and third screen and ITO cover glass (meets 20 mV/m @ 3 meter limit)

FUSION SOLAR 1000 W/ 60 HZ PS

MKR 2.332 45 GHz

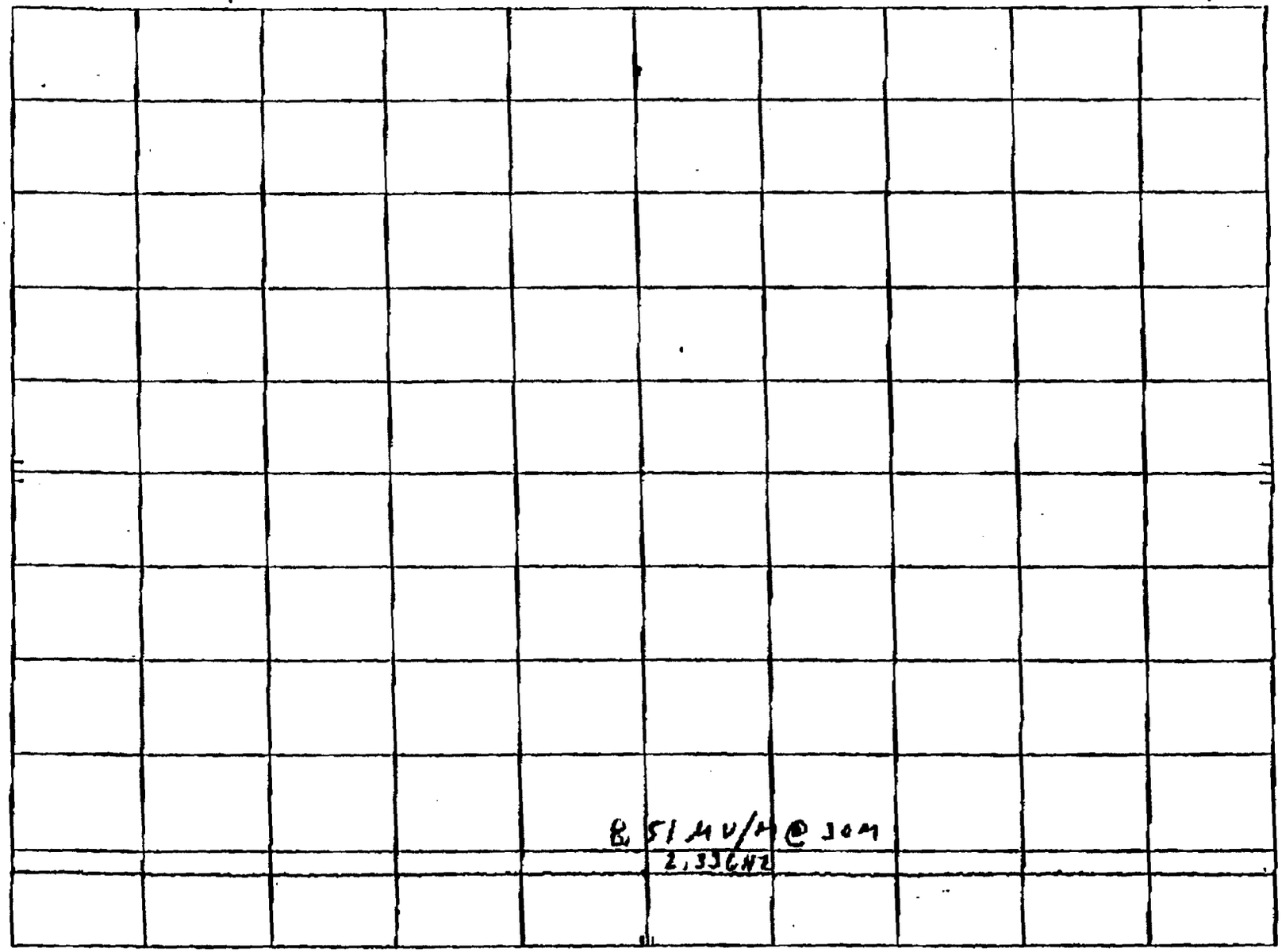
hp REF 47.0 dBμV ATTEN 10 dB

0.80 dBμV

5 dB/

POS PK

OFFSET
-33.0
dB



START 2.320 0 GHz

STOP 2.345 0 GHz

RES BW 1 MHz

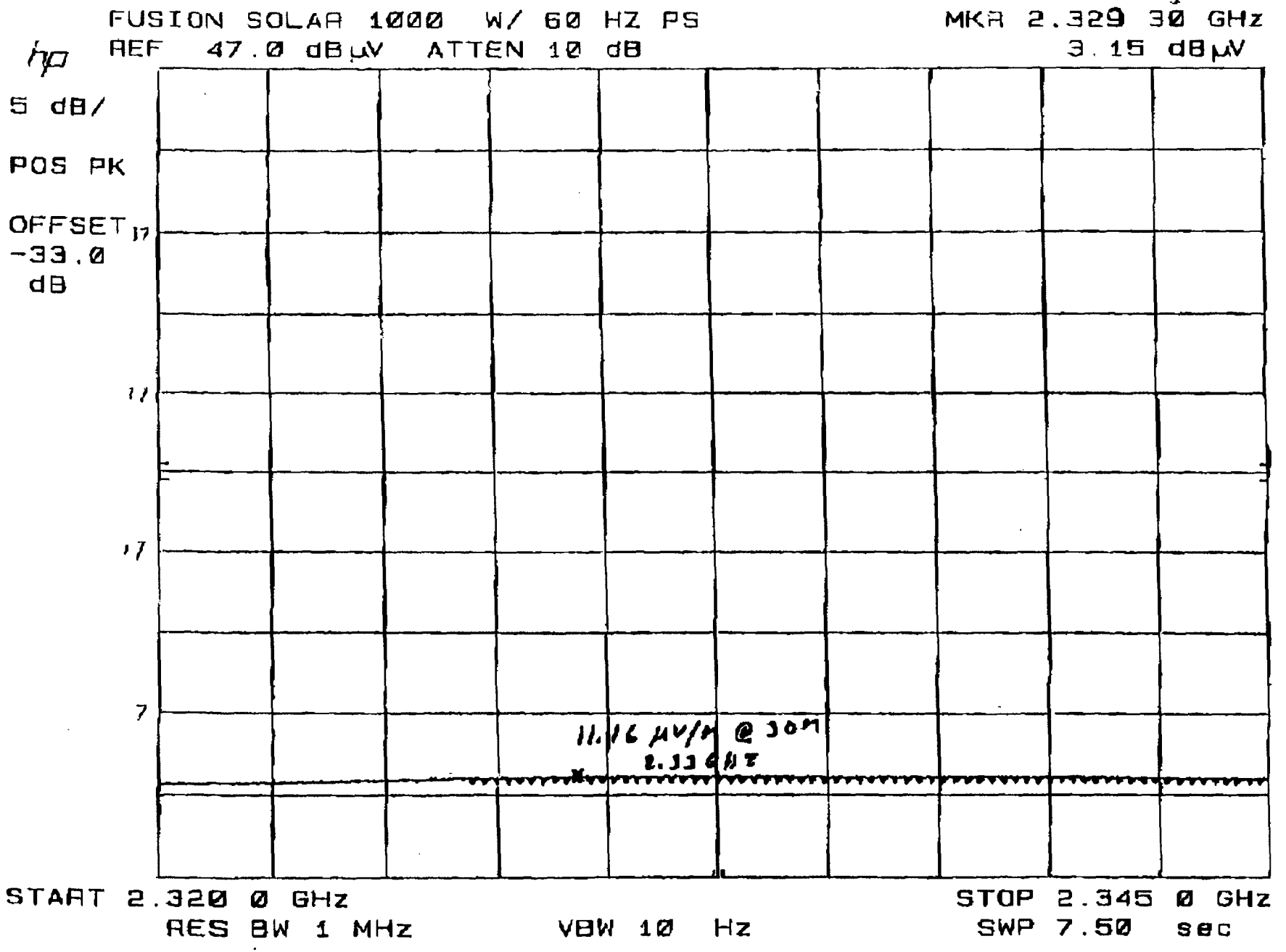
VBW 10 Hz

SWP 7.50 sec

LAMP OFF

B

Ferromagnet - Avg

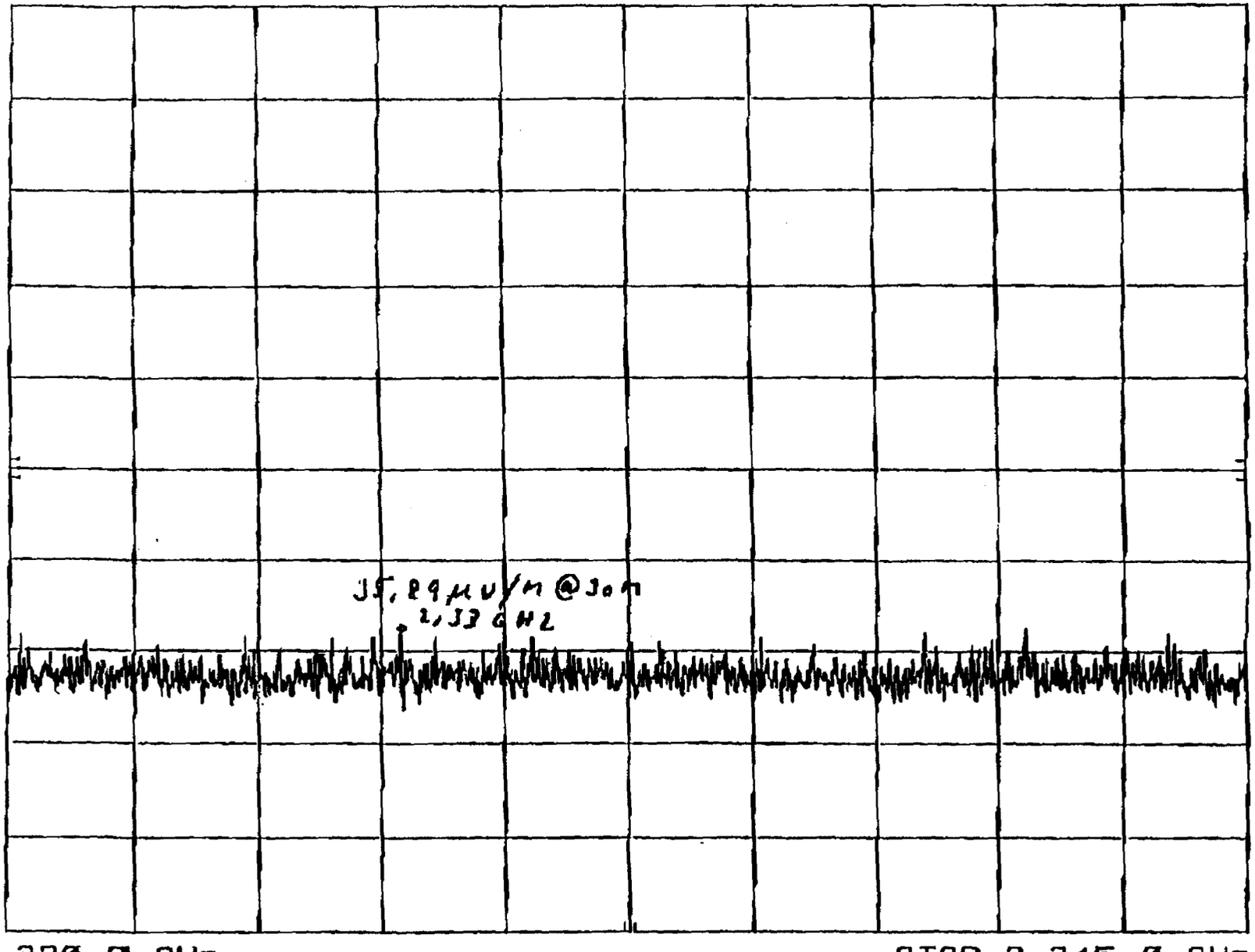


FUSION SOLAR 1000 W/ 60 HZ PS

MKR 2.327 90 GHz

REF 47.0 dBμV ATTEN 10 dB

13.30 dBμV



5 dB/

POS PK

OFFSET
-33.0
dB

START 2.320 0 GHz

RES BW 1 MHz

VBW 1 MHz

STOP 2.345 0 GHz

SWP 20.0 msec

LAMP OFF

10/17/00 14:34
10/17/2000 13:55

☎202 783 2331
301-309-8783

F & R - WASH.,DC
FUSION LIGHTING

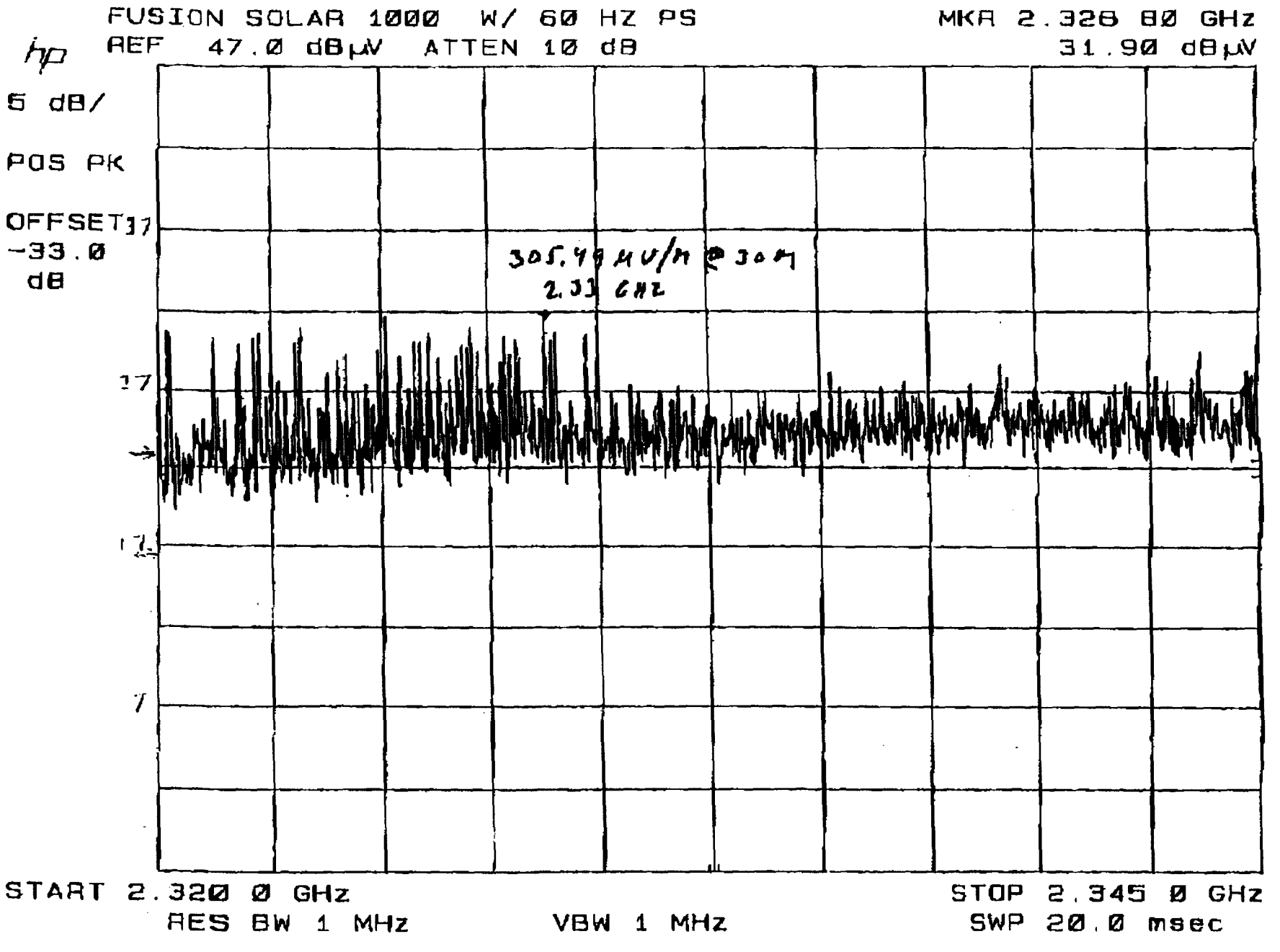
PAGE 08

008

3

D

Ferromagnet - Peak



FUSION SOLAR 1000 W/ SWITCHING PS

hp

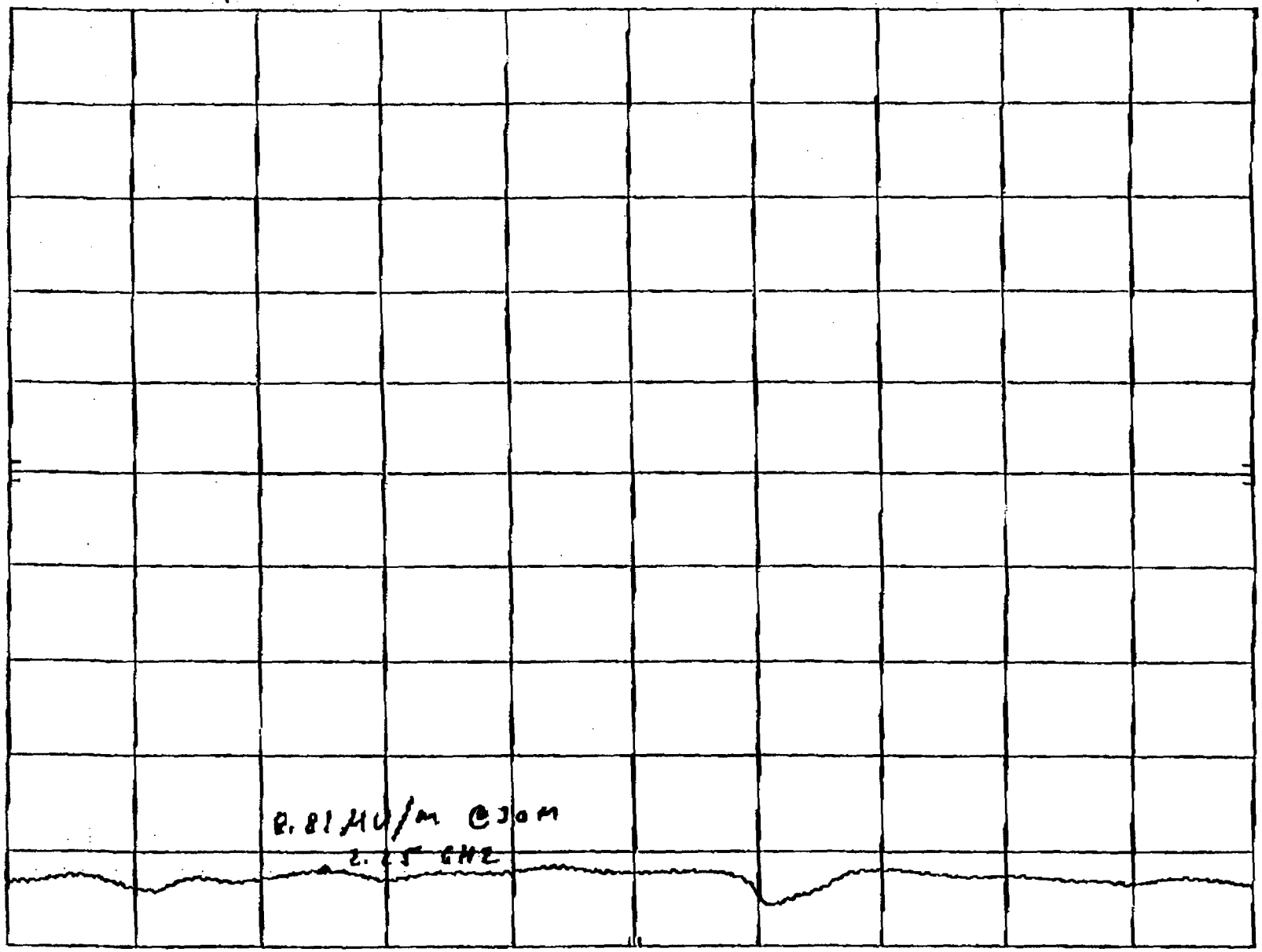
REF 47.0 dBμV ATTEN 10 dB

MKR 2.250 GHz
1.10 dBμV

5 dB/

POS PK

OFFSET
-33.0
dB



START 2.00 GHz
RES BW 1 MHz

VBW 10 Hz

STOP 3.00 GHz
SWP 300 sec

Lamp off

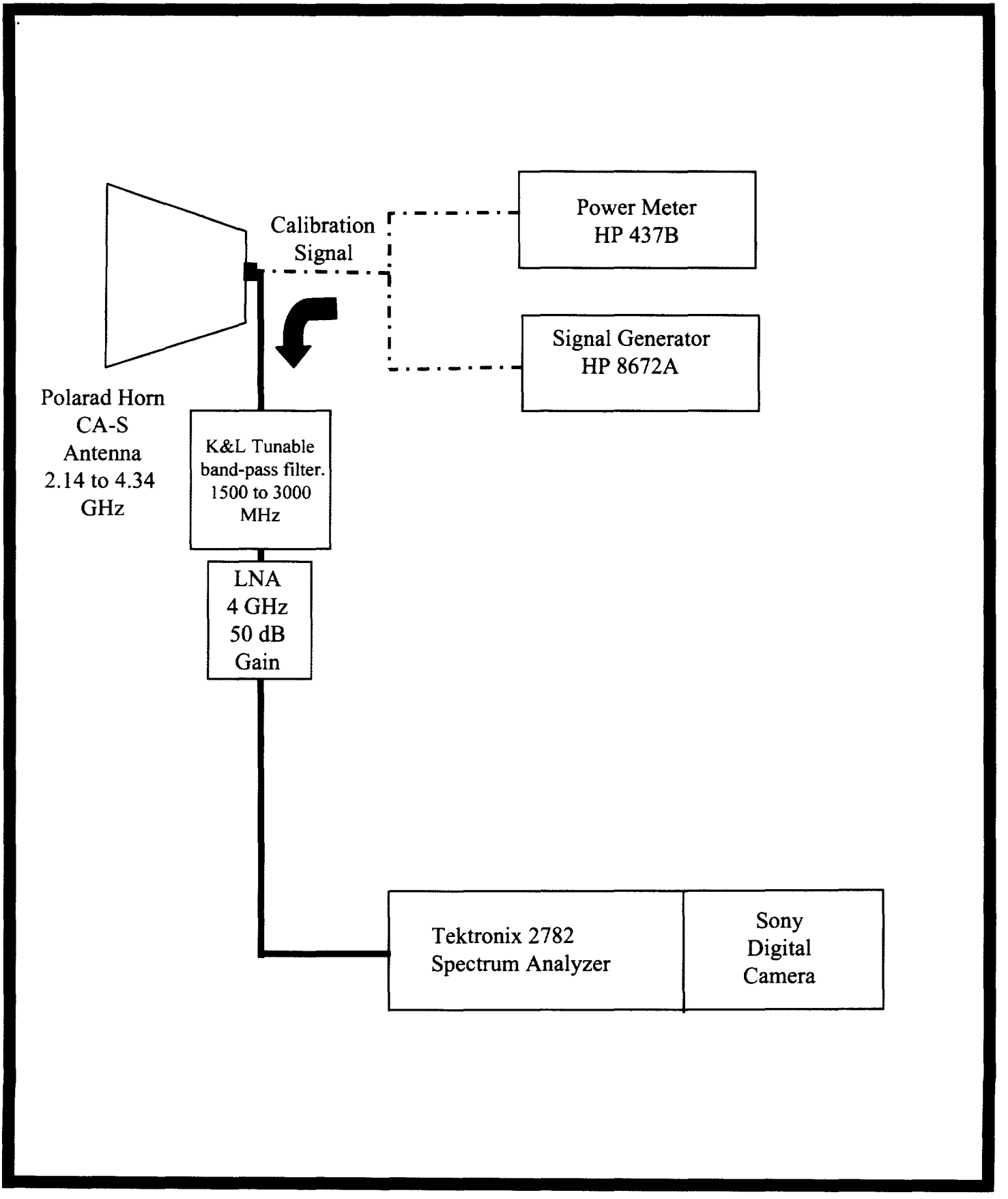


Figure 1 Receive Test Equipment Block Diagram

COMSEARCH

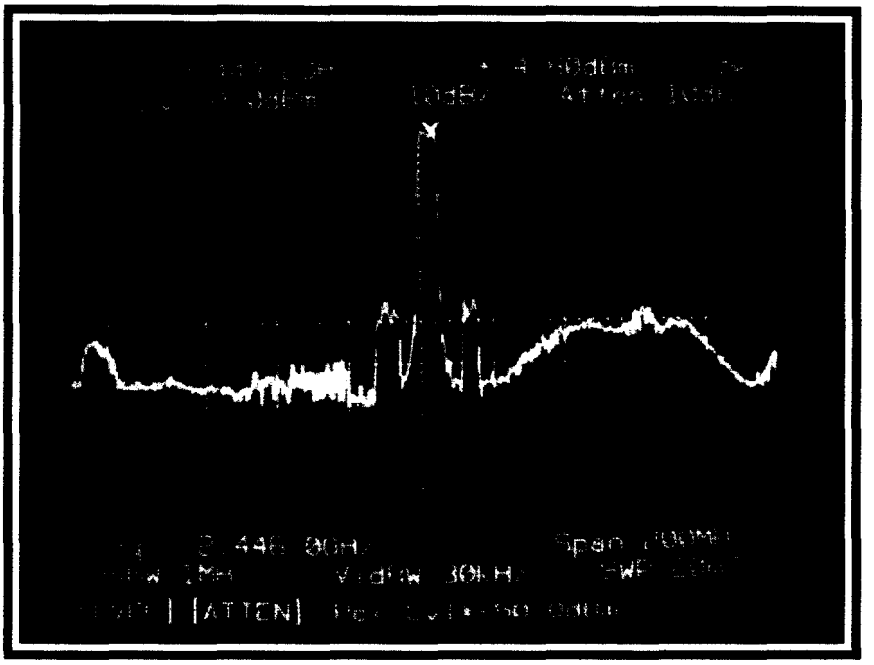
Washington D.C. Department of Energy

Reference Level dBm

4' Below Light

X-M Satellite Radio

-20



Date: October 12, 2000
Time of Day: 19:30
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 200 MHz.

Peaked on 2446 MHz at –24.8 dBm being emitted from light.

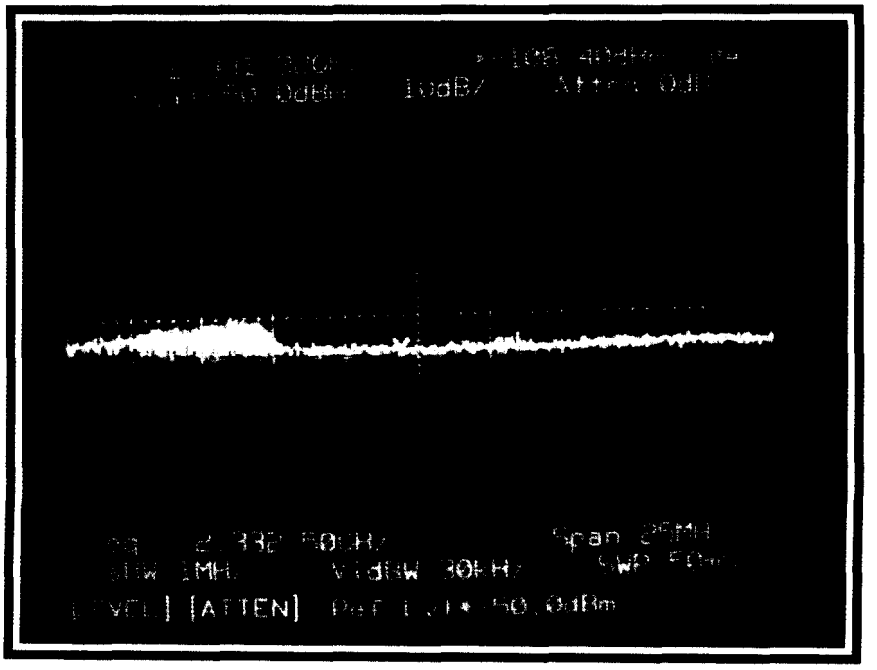
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 20:31
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest.
Noise floor –128 dBm
Amplifier and filter used.

RF noise pulses from light. Highest level measured was -120 dBm at 2326.25 MHz.

(B)

Figure 3-1 Spectrum Analysis

Washington D.C. Department of Energy

Reference Level dBm_I

4' Below Light

X-M Satellite Radio

-70

Date: October 12, 2000
Time of Day: 19:50
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 100 MHz or 10 MHz per division.

Centered at 2332.5 MHz.

Between the arrows is the band of interest.

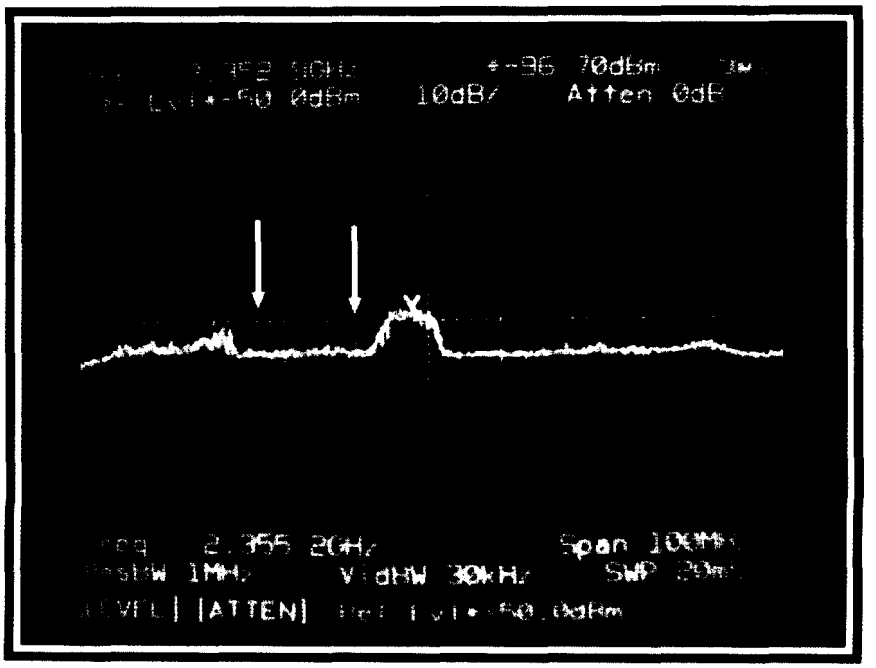
Amplifier and filter used.

RF noise pulses from light. Highest level measured was 2327 MHz at –123 dBm.

(A)

Reference Level dBW_I

-70



Date: October 12, 2000
Time of Day: 20:00
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 100 MHz or 10 MHz per division.

Centered at 2355.2 MHz. Between the arrows is the band of interest. Amplifier and filter used.

Strong signal next to the upper end of band of interest. Signal is centered at 2352.8 MHz at a level of –116.7 dBm

(B)

Figure 3-2 RF Spectrum Analysis

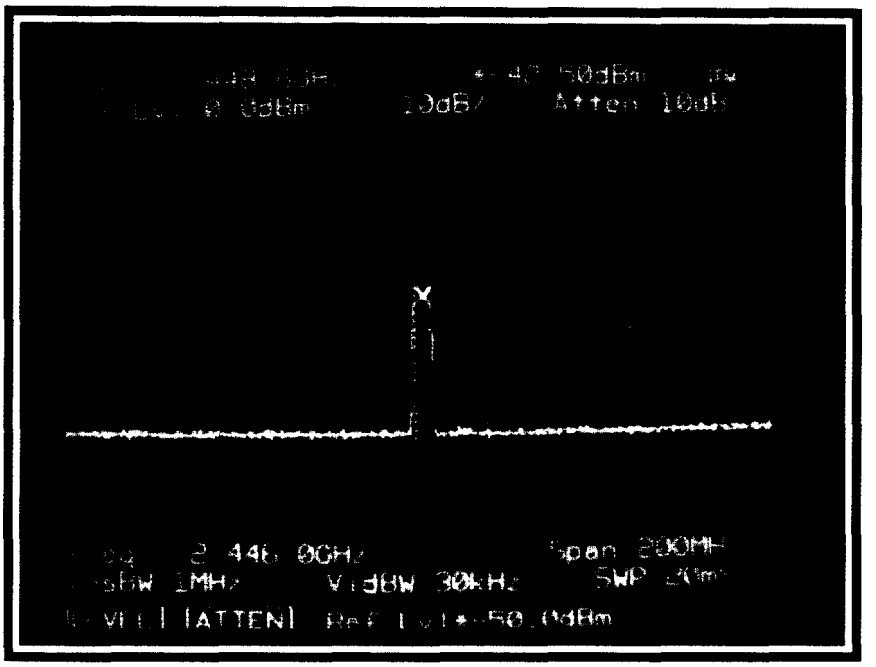
Washington D.C. Department of Energy

12' Below Light

X-M Satellite Radio

Reference Level dBm

-20



Date: October 12, 2000
Time of Day: 20:40
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 200 MHz.

Peaked on 2448 MHz at –62.5 dBm being emitted from light.

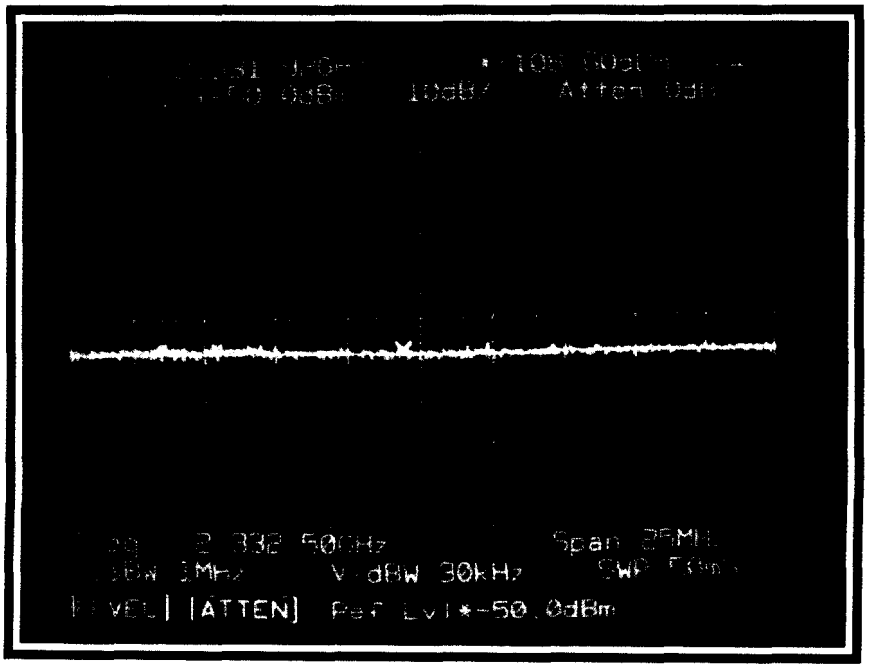
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 20:35
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest.
Noise floor –128 dBm
Amplifier and filter used.

RF noise pulses from light.
Highest level measured was 2326.25 MHz at -126 dBm.

(B)

Figure 3-3 RF Spectrum Analysis

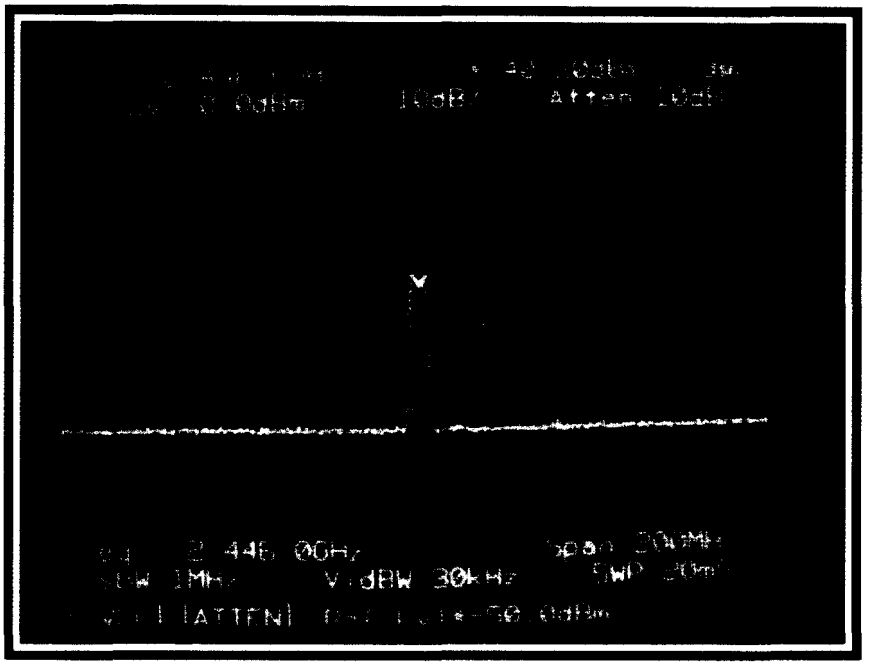
Washington D.C. Department of Energy

Reference Level dBm_I

16' Below Light

X-M Satellite Radio

-20



Date: October 12, 2000
Time of Day: 20:42
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 200 MHz.

Peaked on 2448 MHz at –60.6 dBm being emitted from light.

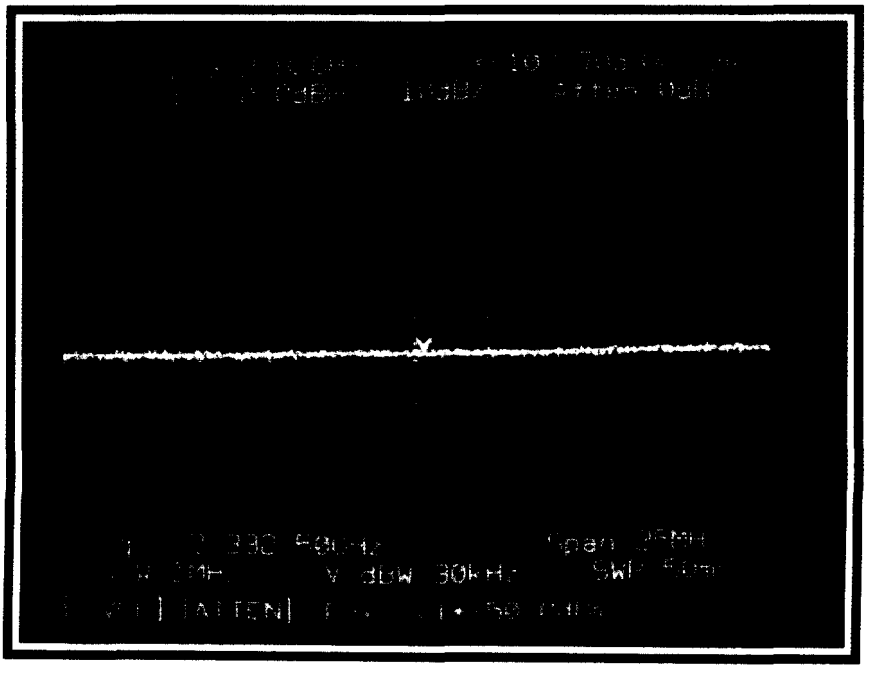
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm_I

-70



Date: October 12, 2000
Time of Day: 20:47
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest.
Noise floor –128 dBm
Amplifier and filter used.

No interference from light source noted above noise floor.

(B)

Figure 3-4 RF Spectrum Analysis

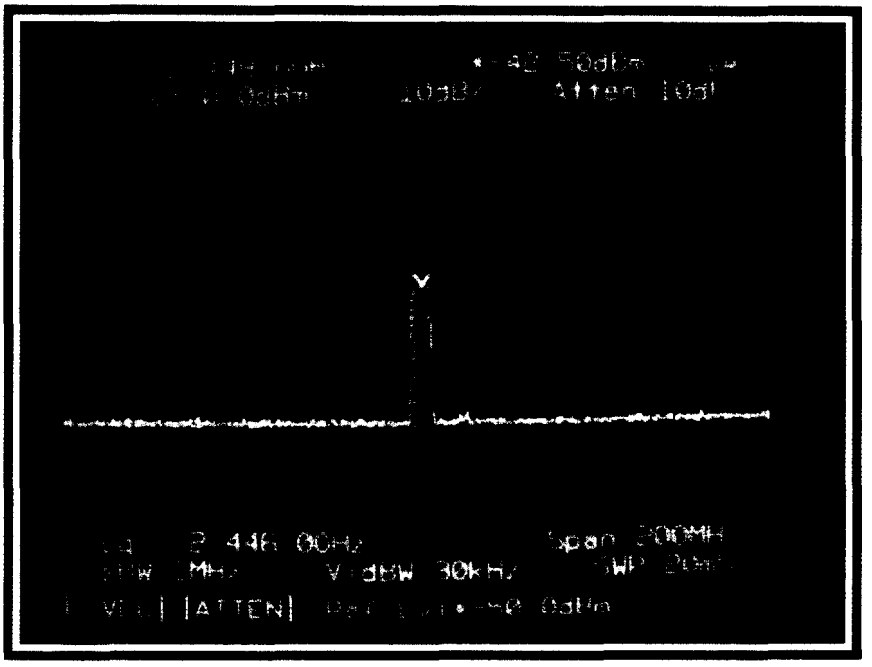
Washington D.C. Department of Energy

18' Below Light

X-M Satellite Radio

Reference Level dBm

-20



Date: October 12, 2000
Time of Day: 20:55
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 200 MHz.

Peaked on 2448 MHz at –62.5 dBm being emitted from light.

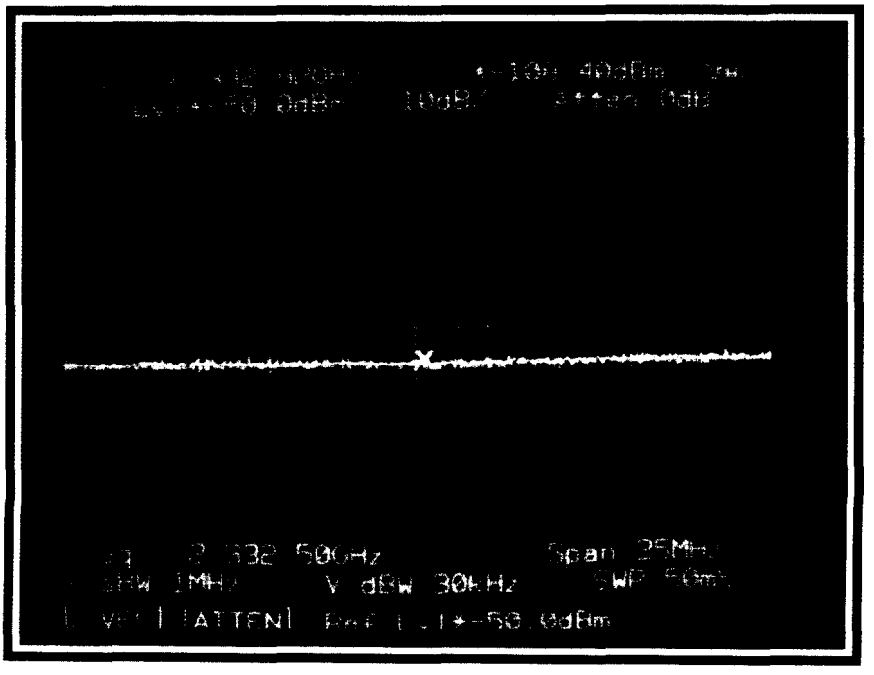
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 20:58
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest.
Noise floor –128 dBm
Amplifier and filter used.

No interference from light source noted above noise floor.

(B)

Figure 3-5 RF Spectrum Analysis

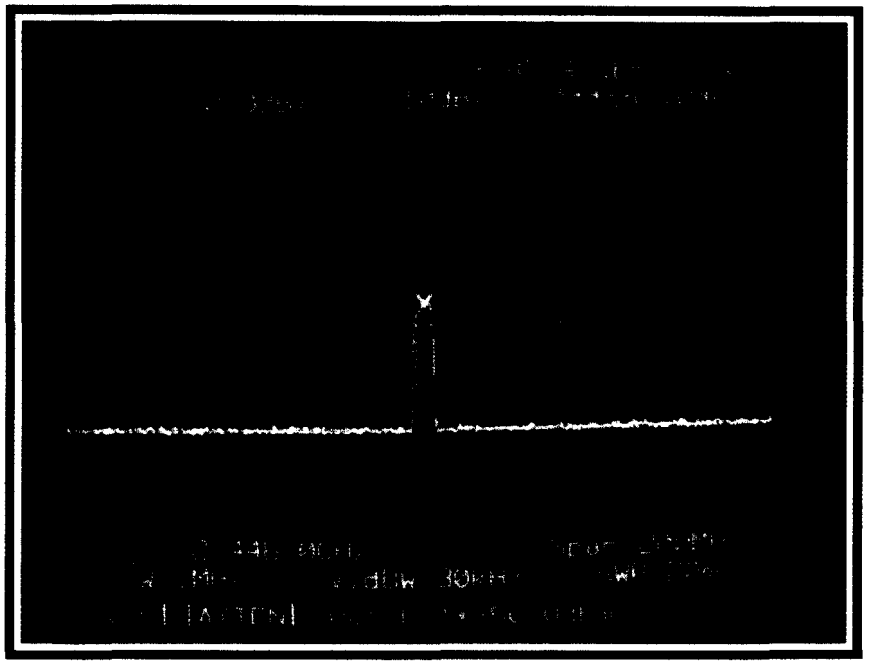
Washington D.C. Department of Energy

Reference Level dBm

20' Below Light

X-M Satellite Radio

-20



Date: October 12, 2000
Time of Day: 20:51
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 200 MHz.

Peaked on 2448 MHz at –65.4 dBm being emitted from light.

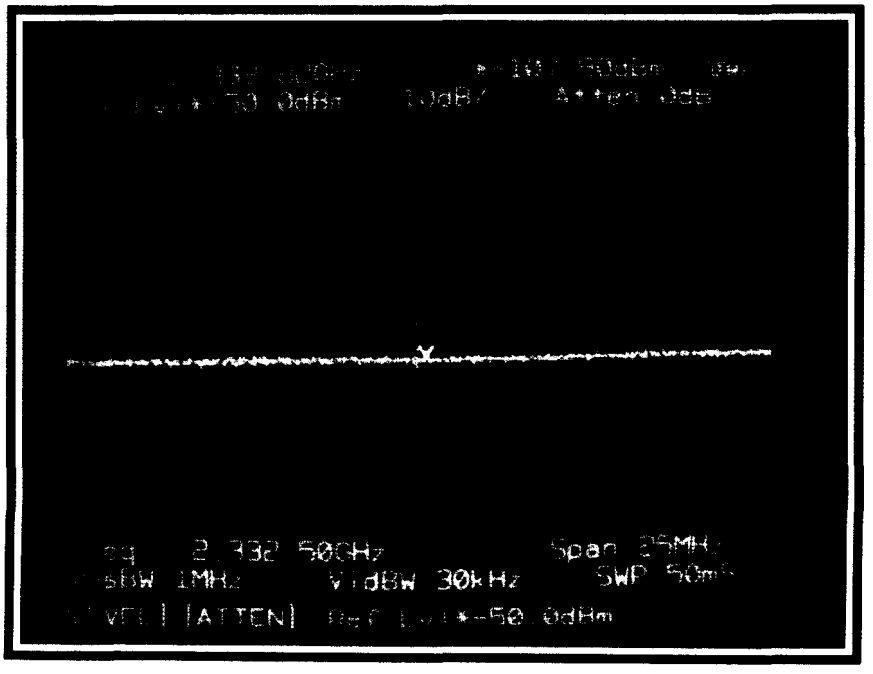
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 20:49
Ant. Polarization: N/A

Test antenna positioned directly below end of light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest.
Noise floor –128 dBm
Amplifier and filter used.

No interference from light source noted above noise floor.

(B)

Figure 3-6 RF Spectrum Analysis

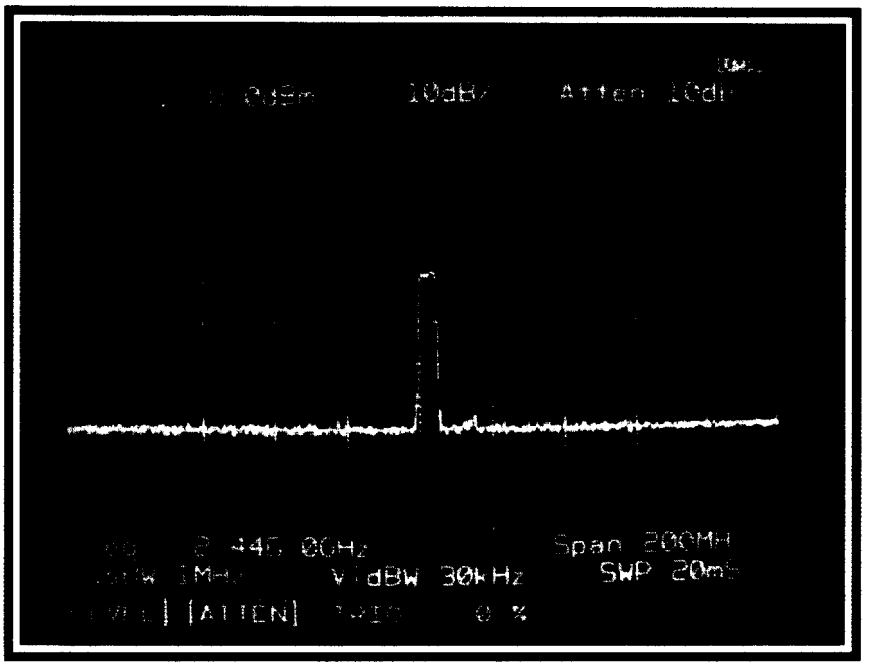
Washington D.C. Department of Energy

30' Diagonally to the Light

X-M Satellite Radio

Reference Level dBm

-20



Date: October 12, 2000
Time of Day: 21:25
Ant. Polarization: V

Test antenna positioned directly towards the end of the light. Span at 200 MHz.

Peaked on 2448 MHz at –58.2 dBm being emitted from light.

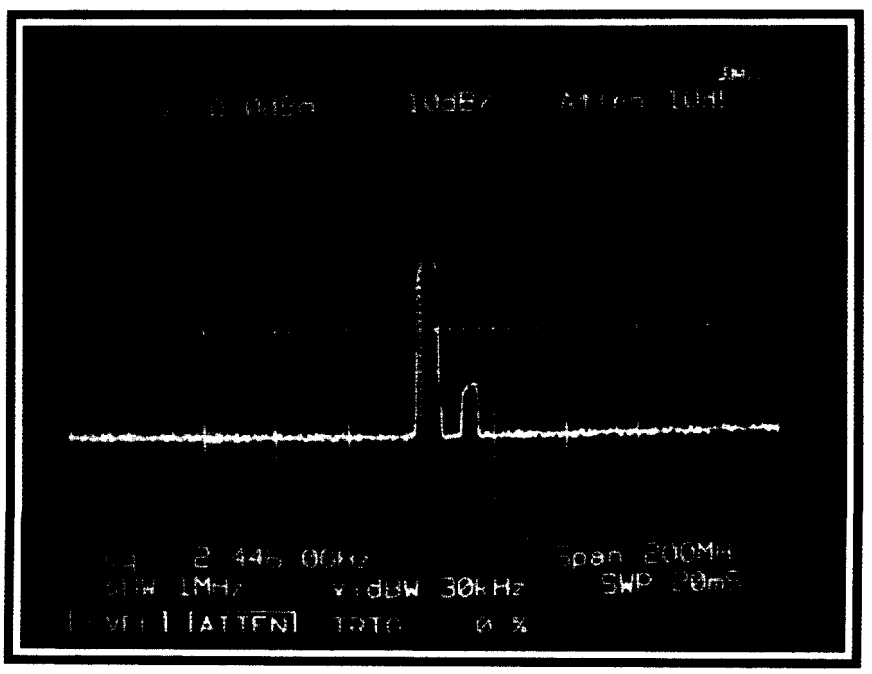
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm

-20



Date: October 12, 2000
Time of Day: 21:26
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 200 MHz.

Peaked on 2448 MHz at –54.2 dBm being emitted from light.

The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(B)

Figure 3-7 RF Spectrum Analysis

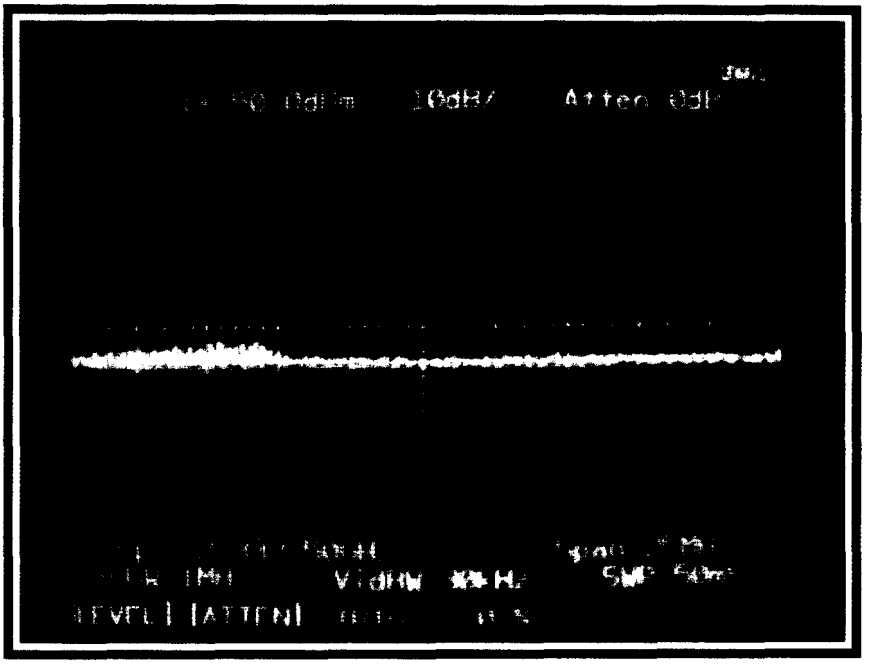
Washington D.C. Department of Energy

Reference Level dBm

30' Diagonally to the Light

X-M Satellite Radio

-70



(A)

Date: October 12, 2000
Time of Day: 20:22
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest. Noise floor –129 dBm Amplifier and filter used.

RF noise pulses from light. Highest level measured was 2326.25 MHz at -124 dBm.

Figure 3-8 RF Spectrum Analysis

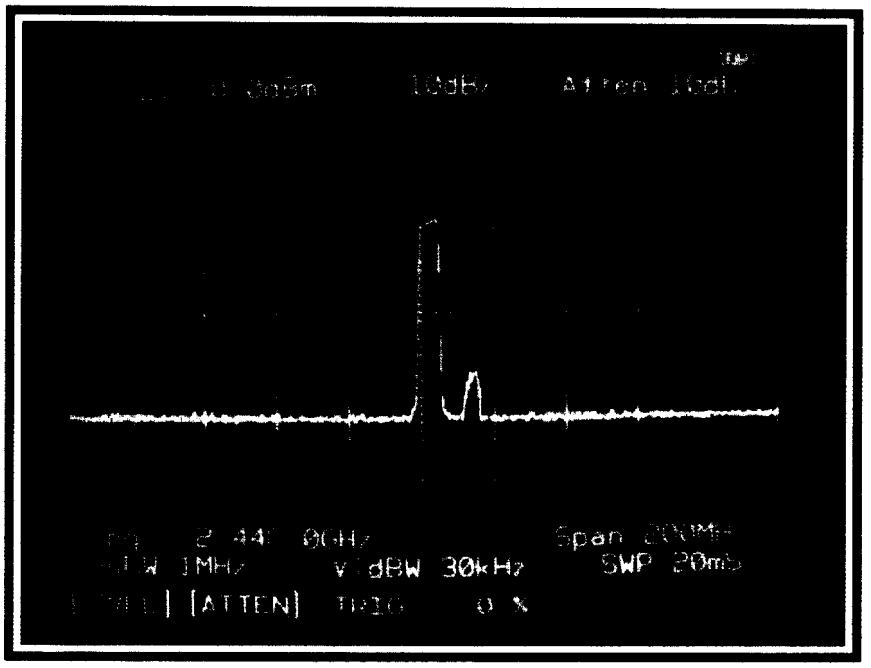
Washington D.C. Department of Energy

30' Parallel to the Light

X-M Satellite Radio

Reference Level dBm_I

-20



Date: October 12, 2000
Time of Day: 21:40
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 200 MHz.

Peaked on 2448 MHz at –48.2 dBm being emitted from light.

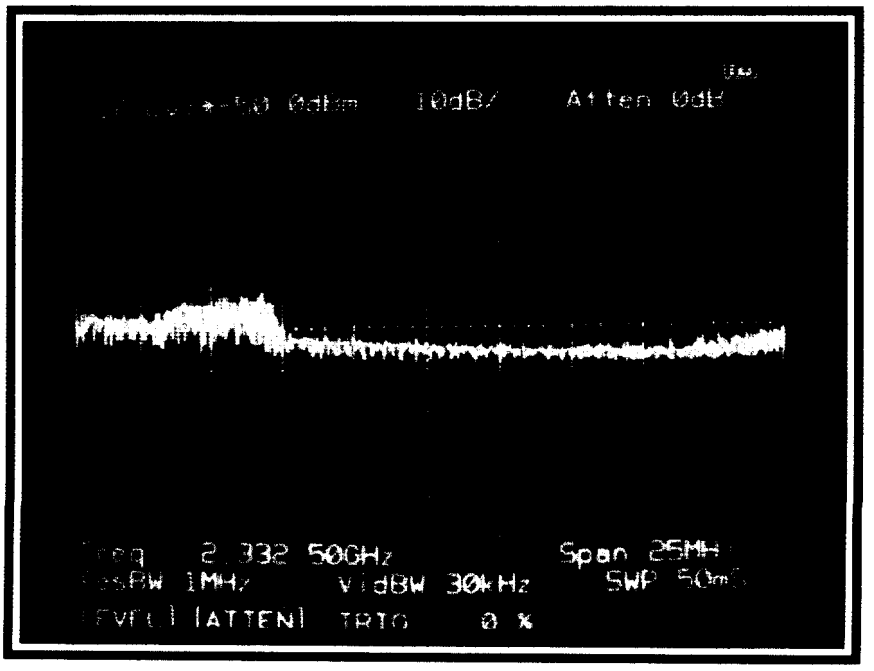
The left side of the spectrum is the high end of X-M Band.

No amplifier or filter used.

(A)

Reference Level dBm_I

-70



Date: October 12, 2000
Time of Day: 20:45
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 25 MHz or 2.5 MHz per division.

Centered at 2332.5 MHz.

Entire spectrum of interest.
Noise floor –126 dBm
Amplifier and filter used.

RF noise pulses from light. Highest level measured was 2326.25 MHz at -121 dBm.

(B)

Figure 3-9 RF Spectrum Analysis

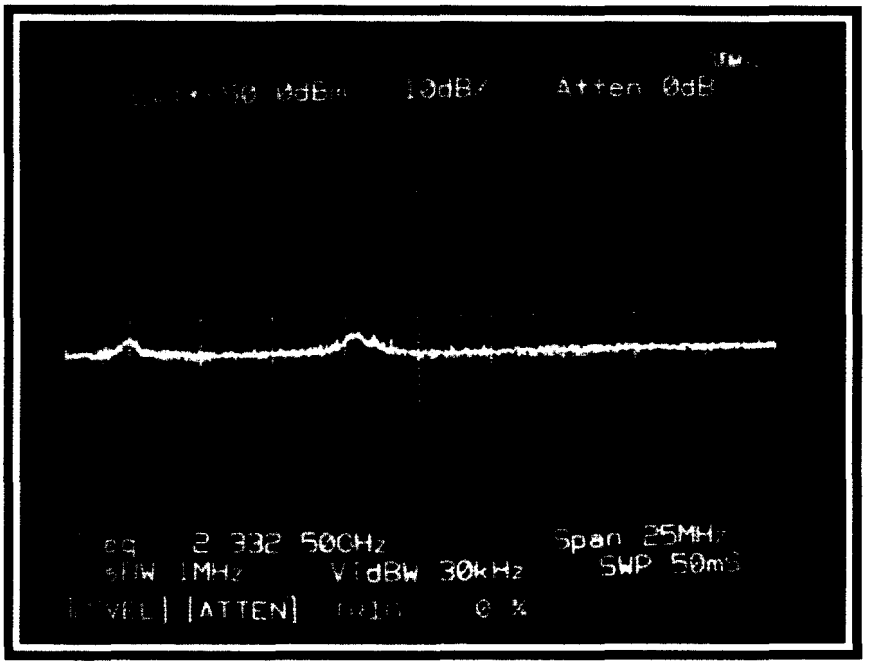
Washington D.C. Department of Energy

30' Parallel to the Light

X-M Satellite Radio

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 21:47
Ant. Polarization: H

Test antenna positioned 90 degrees away from the end of the light. Span at 25 MHz.

Centered at 2332.5 MHz.

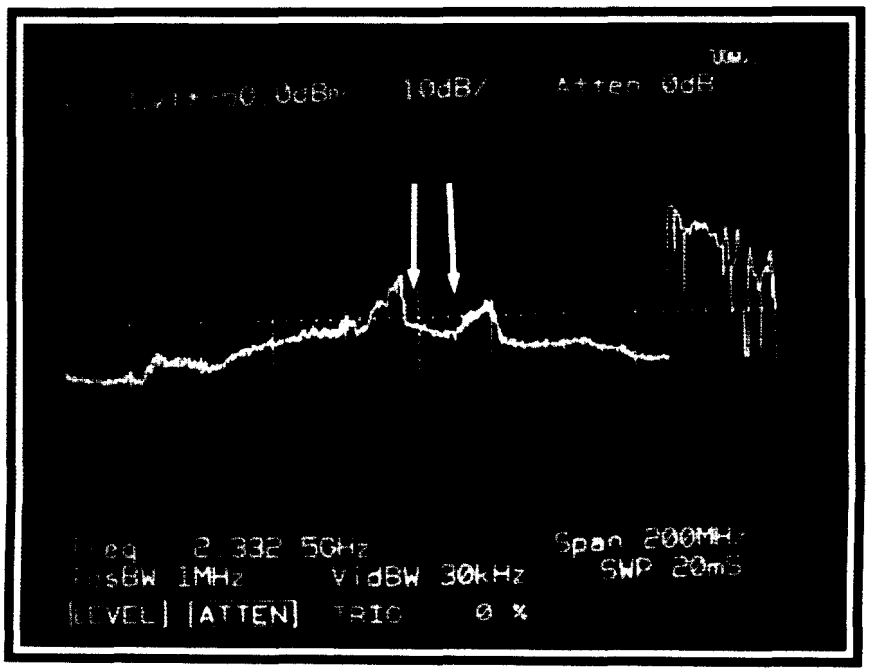
Entire spectrum of interest.
Noise floor –129 dBm
Amplifier and filter used.

Suspect signals viewed are not from the light.

(A)

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 21:51
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 200 MHz or 20 MHz per division, centered at 2332.5 MHz.

Entire spectrum of interest.
Amplifier and filter used.

RF noise pulses from. Highest level measured was 2327 MHz at -111 dBm. Band of interest between arrows.

(B)

Figure 3-10 RF Spectrum Analysis

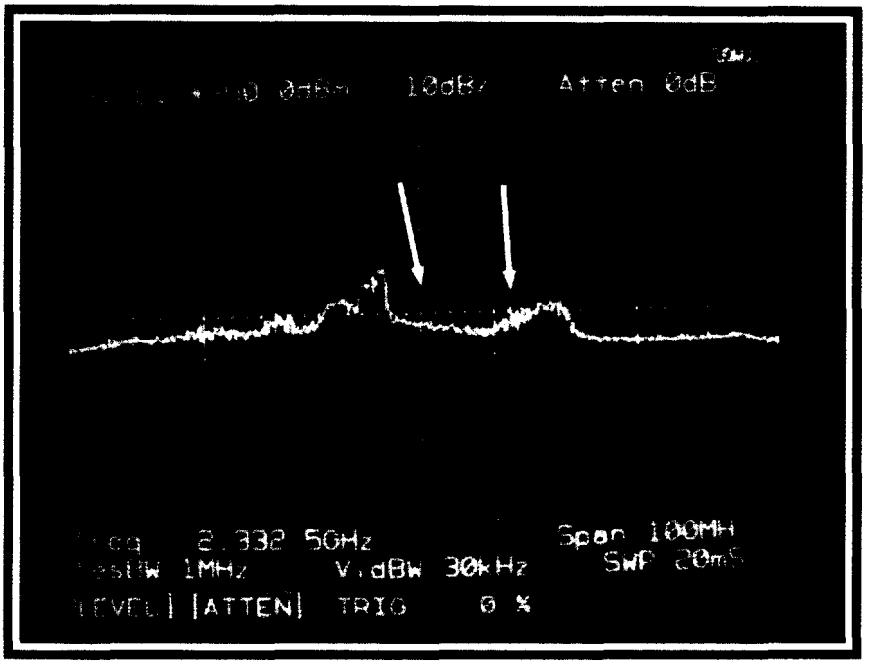
Washington D.C. Department of Energy

30' Parallel to the Light

X-M Satellite Radio

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 21:56
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 100 MHz or 10 MHz per division, centered at 2332.5 MHz.

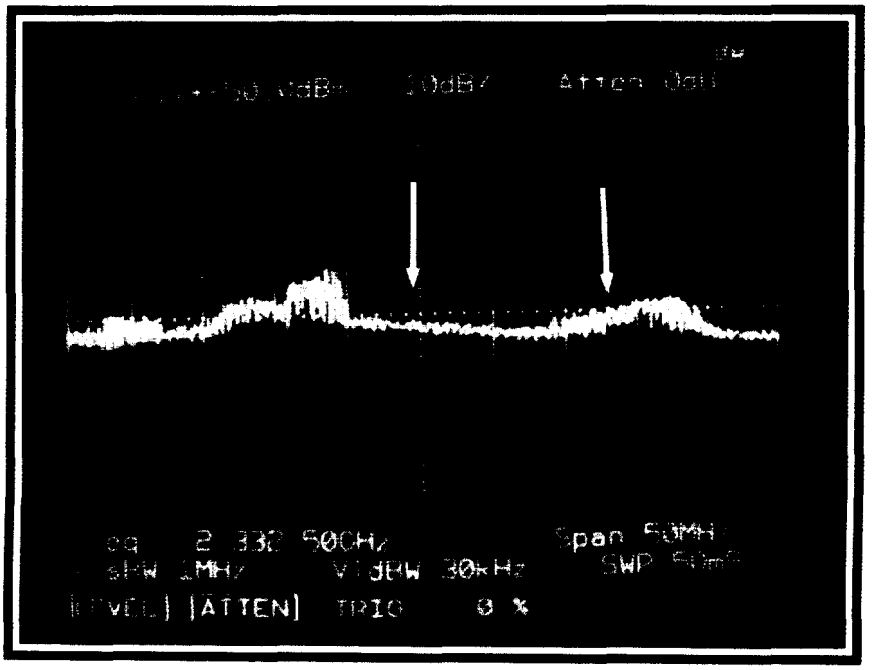
Entire spectrum of interest. Amplifier and filter used.

RF noise pulses from light. Highest level measured was 2327 MHz at -109 dBm. Band of interest between arrows.

(A)

Reference Level dBm

-70



Date: October 12, 2000
Time of Day: 21:58
Ant. Polarization: H

Test antenna positioned directly towards the end of the light. Span at 50 MHz or 5 MHz per division, centered at 2332.5 MHz.

Entire spectrum of interest. Amplifier and filter used.

RF noise pulses from light. Highest level measured was 2326.5 MHz at -108 dBm. Band of interest between arrows. Highest level is band of interest was –128 dBm at 2345 MHz

(B)

Figure 3-11 RF Spectrum Analysis