

EXHIBIT A: RESPONSE TO ITEM E15

Sirius XM Radio Inc. (“Sirius XM”), a satellite digital audio radio service (“SDARS”) licensee, hereby applies for a modification of the license for its Vernon, N.J. earth station, Call Sign E060276. The purpose of the modification is to add a new 3.7 meter Andrew model antenna for C-band data communications between the U.S. and Canada.

Because the proposed new antenna is smaller than the 4.5 meter minimum size eligible for routine processing under Section 25.134(a)(2) and does not meet the antenna performance standards specified in Section 25.209, Sirius XM submits the information herein to demonstrate that its operations will not result in harmful interference to adjacent satellites. Sirius XM also requests any necessary waiver of these rules to permit operation of the new antenna on an ALSAT basis (all U.S.-licensed satellites and all foreign-licensed satellites on the Permitted Space Station List) without the need to individually coordinate with adjacent satellite operators.

Antenna Pattern: Section 25.132(b) of the Commission’s Rules requires applicants seeking authority for antennas that are not eligible for routine processing to attach antenna radiation plots as an exhibit to their applications. However, the Commission has recognized that this information need not be filed if the Commission has already received the information and approved the specific non-routine antenna.¹ The Commission has published a list of non-routine antennas that have been previously approved, and the Andrew 3.7 meter antenna appears on that

¹ See International Bureau Establishes Website for List of Approved Non-Routine Earth Station Antennas, Public Notice, DA 09-425 (released February 23, 2009).

list.² Accordingly, in lieu of submitting antenna pattern information, Sirius XM incorporates by reference the information previously submitted concerning this antenna model.³

Two-Degree Interference Showing: The Commission also has accepted a showing that the Andrew 3.7 meter antenna can be operated on an ALSAT basis without the need for coordination with adjacent satellites.⁴ Sirius XM incorporates by reference the previous technical showing made to demonstrate that operation of the antenna below the maximum permissible EIRP density is consistent with the Commission's requirements.⁵ The proposed power levels of Sirius XM's operations are lower than those approved in previous grants,⁶ and accordingly Sirius XM should be eligible for ALSAT operations using the 3.7 meter Andrew antenna.

² See List of Approved Non-Routine Earth Station Antennas, <http://www.fcc.gov/ib/sd/nresa/#>.

³ See, e.g., Freebird Communications Inc., File No. SES-LIC-20080221-00195, Call Sign E080046 ("Freebird Application"), Radiation Pattern; RCN License Subsidiary, Inc., File No. SES-LIC-20060613-00970, Call Sign E060218 ("RCN Application"), 3.7 Meter Antenna Pattern. For the Commission's convenience, a copy of the Antenna Pattern submitted by RCN is attached as Annex 1.

⁴ See Freebird Communications Inc., File No. SES-LIC-20080221-00195, Call Sign E080046, granted March 28, 2008 ("Freebird License") at 2, Section D; RCN License Subsidiary, Inc., File No. SES-LIC-20060613-00970, Call Sign E060218, granted Sept. 20, 2006 ("RCN License") at 2, Section D.

⁵ See Freebird Application, Technical Showing; RCN Application, Andrew 3.7 Meter Antenna Statement. For the Commission's convenience, a copy of the RCN Andrew 3.7 Meter Antenna Statement is attached as Annex 2. Sirius XM notes that based on its calculations, it believes that the correct margin for compliance of the RCN operations with § 25.134 should be 10.35 dB instead of 12.9 dB. See Annex 2 at 2, ¶ 2.

⁶ Sirius XM proposes to operate with a maximum transmit EIRP density of 23.8 dBW/4 kHz. Freebird was licensed to operate with a maximum transmit EIRP density of 33.39 dBW/4 kHz in the C-band, see Freebird License at 1, and RCN was licensed to operate with a maximum transmit EIRP density of 33.25 dBW/4 kHz in the C-band, see Freebird License at 1.

Waiver Request: Sirius XM believes that its showing herein in support of the 3.7 meter Andrew antenna it proposes to deploy complies with the requirements of Sections 25.134 and 25.209 of the Commission's Rules. However, out of an abundance of caution, Sirius XM requests any necessary waiver of those rules to permit authorization of the antenna with all U.S. licensed satellites and foreign-licensed satellites on the Permitted List without the need for adjacent satellite coordination. Grant of such a waiver is consistent with Commission precedent because a waiver would not undermine the rules' purpose: ensuring that earth station operations are compatible with the two-degree spacing environment for fixed-satellite services.⁷

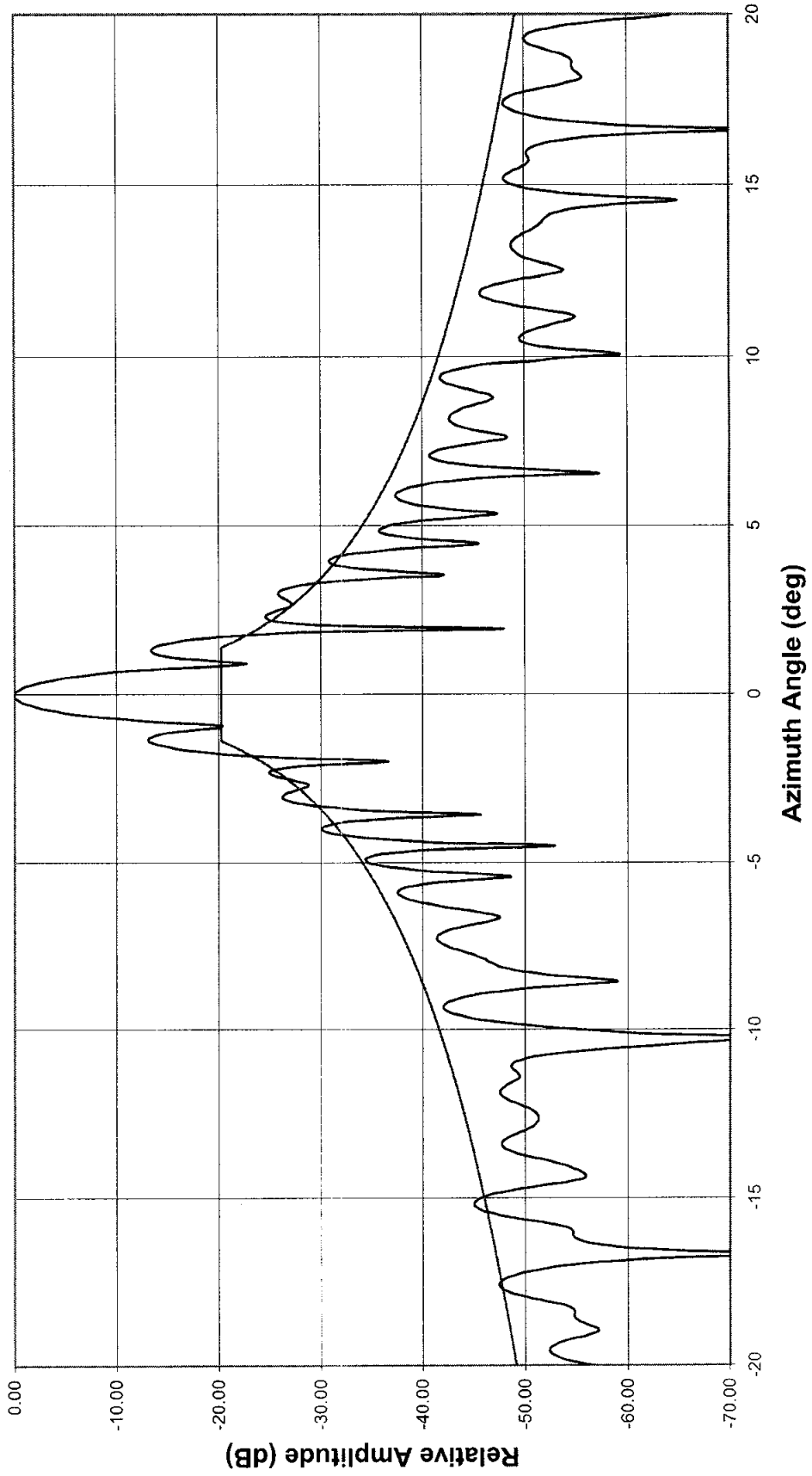
Here, the Commission has already determined that operation of the Andrew 3.7 meter antenna at power levels higher than those proposed for use by Sirius XM is consistent with operations in a two-degree spacing environment.⁸ Thus, granting Sirius XM ALSAT authority for this antenna is consistent with the purpose of the Commission's technical rules⁹ and will serve the public interest by facilitating Sirius XM's operations in support of its SDARS network.

⁷ See *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) ("the Commission may grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest") (footnotes omitted); see also *2000 Biennial Regulatory Review -- Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations*, Fifth Report and Order, IB Docket No. 00-248, 20 FCC Rcd 5666, 5670 (2005) (earth station rules "are intended primarily to ensure that satellite networks can operate with a minimum of interference with respect to each other and with respect to other telecommunications services").

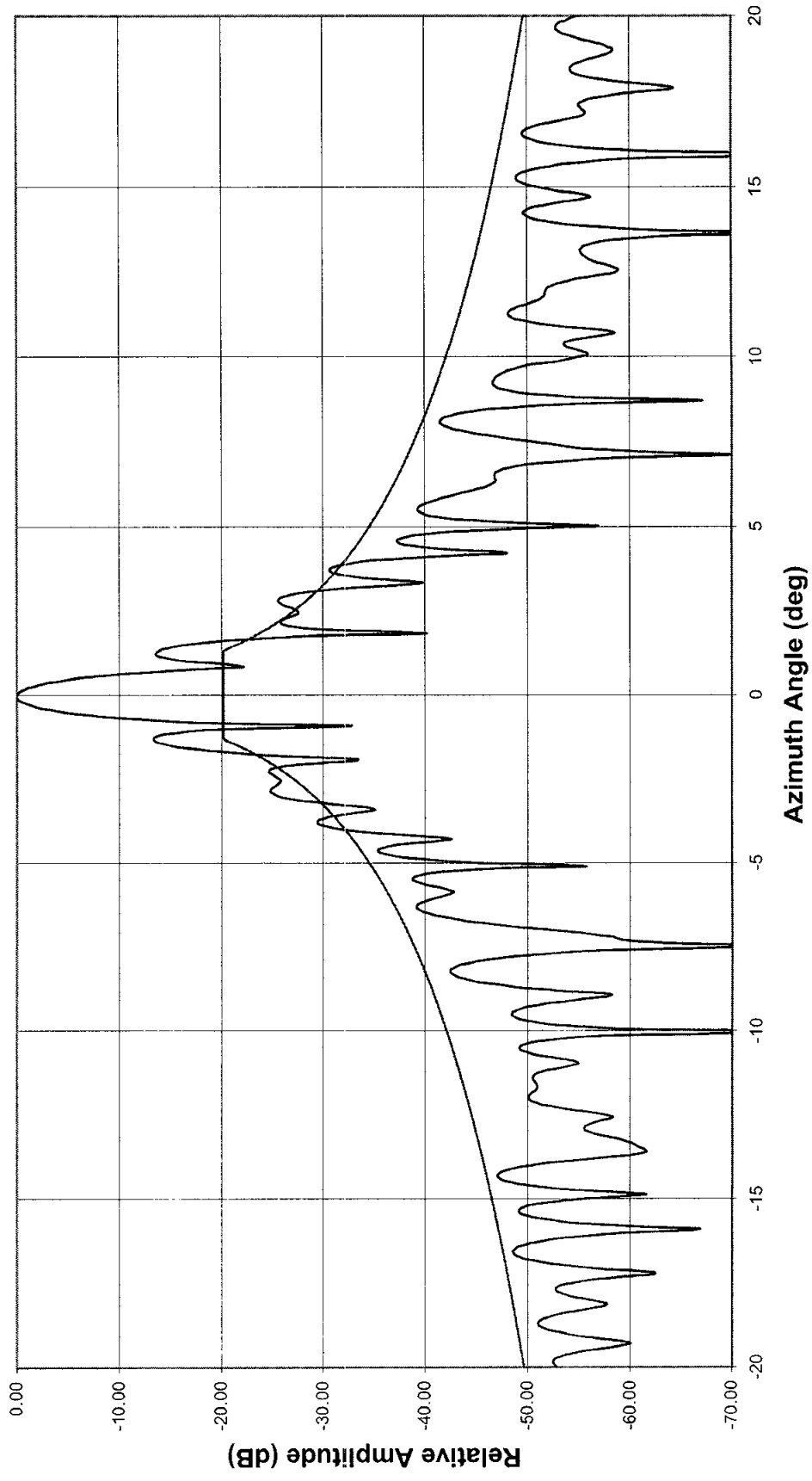
⁸ As discussed above, the Commission granted the applications of Freebird and RCN for ALSAT authority with the Andrew 3.7 meter antenna.

⁹ See *Onsat Communications, Inc.*, File No. SES-AMD-20000809-01379, Call Sign E000369, granted Oct. 13, 2000 (granting waiver of Section 25.209 to permit deployment of 3.7 meter C-band antennas).

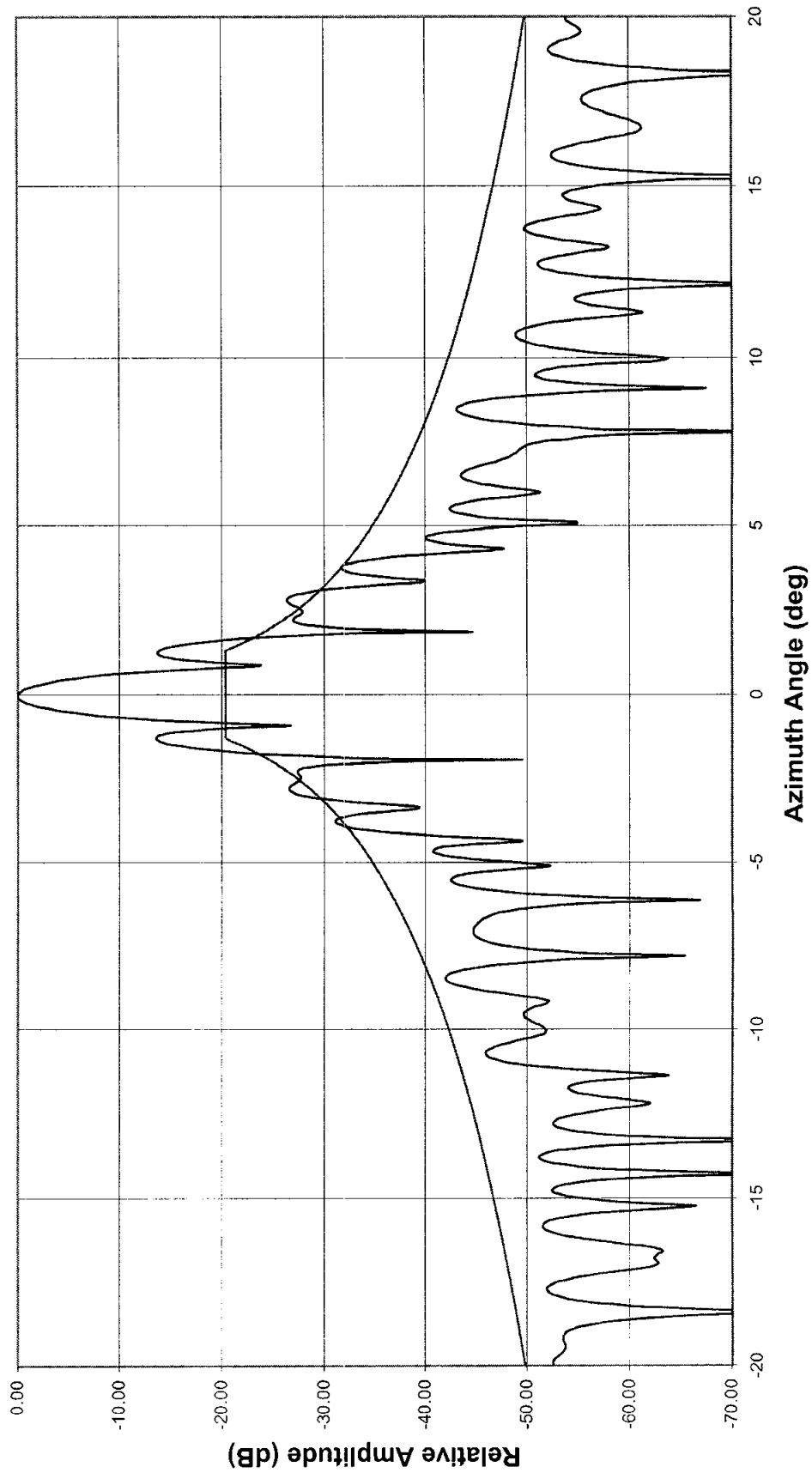
3.7m 5.850 GHz
90 struts, Vertical Seams, TXRH 10/00
% excursion =2.0 (180 deg), 10.6 (20 deg), 15.4 (12 deg)



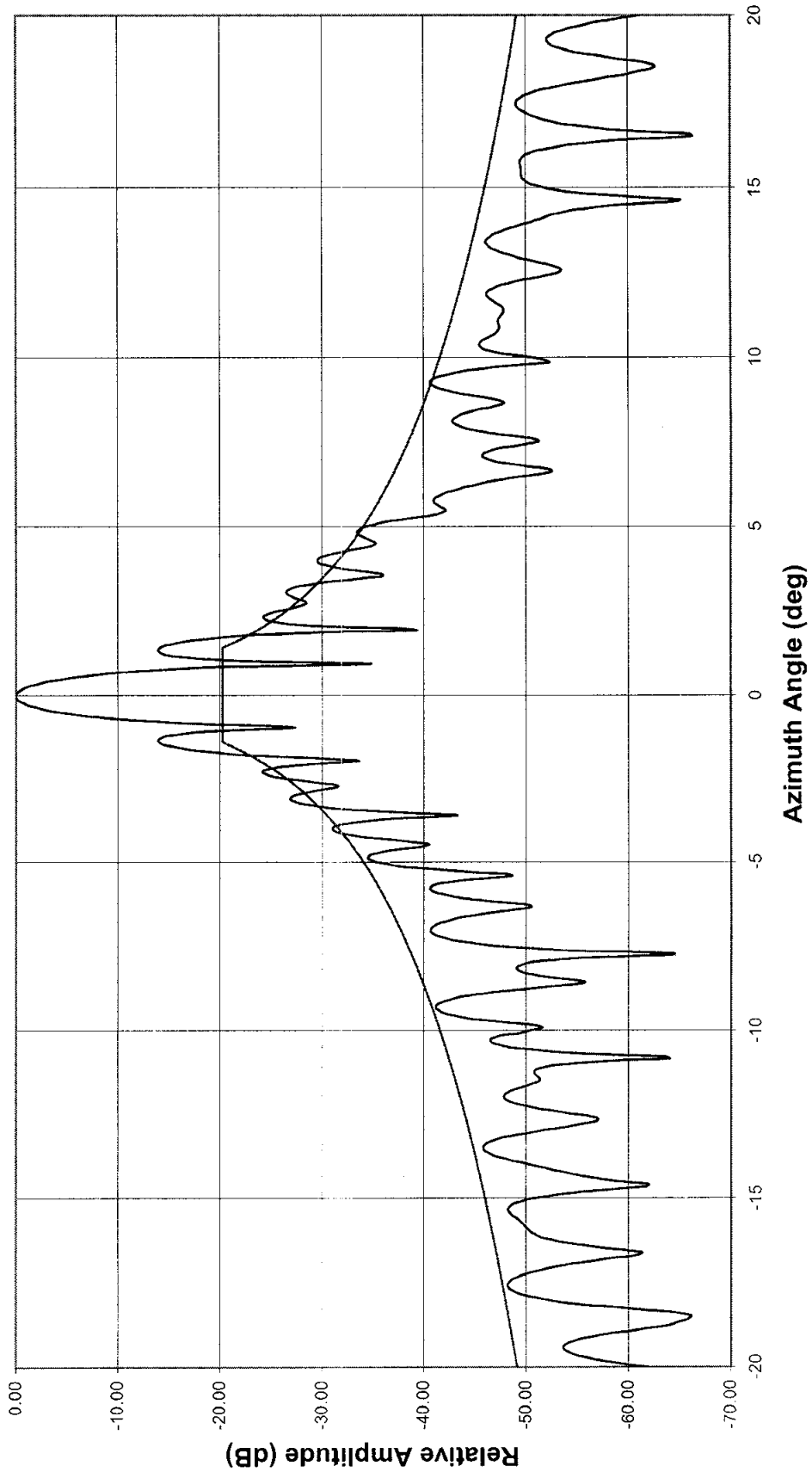
3.7m 6.175 GHz
90 struts, Vertical Seams, TXLH 10/00
% excursion = 0.9 (180 deg), 8.4 (20 deg), 14.7 (12 deg)



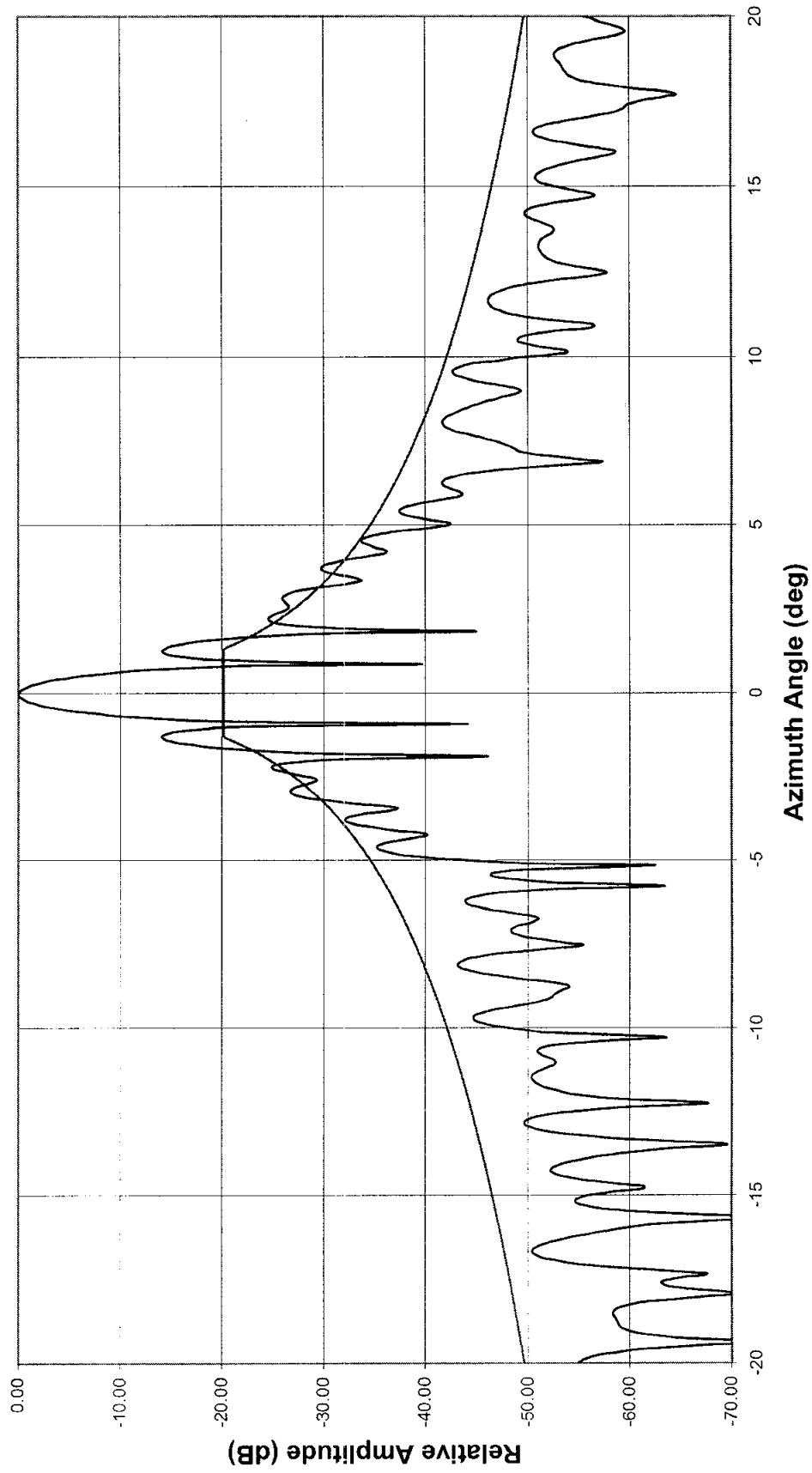
3.7m 6.425 GHz
90 struts, Vertical Seams, TXRH 10/00
% excursion = 0.6 (180 deg), 6.1 (20 deg), 10.7 (12 deg)



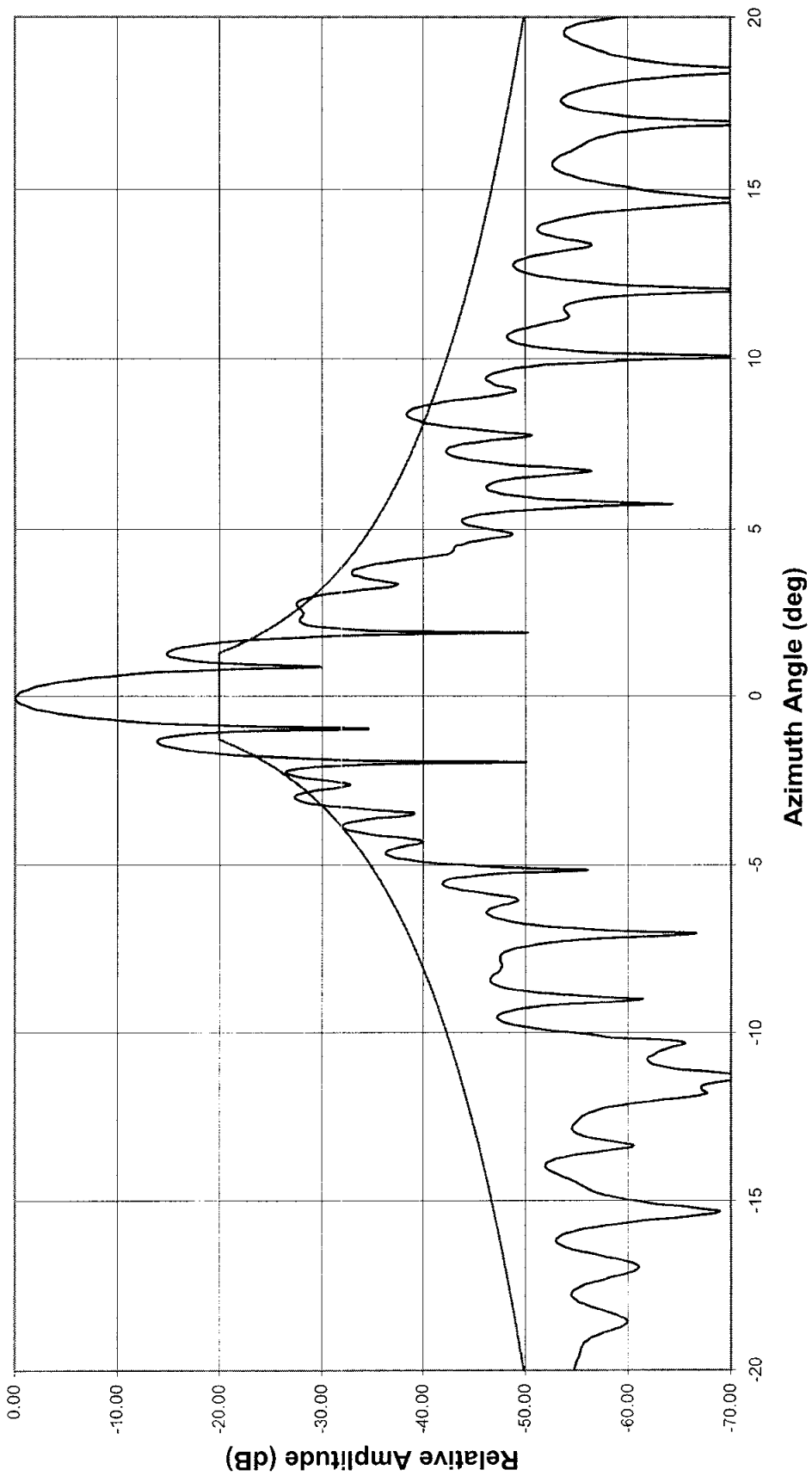
3.7m 5.850 GHz
90 struts, Horiz Seams, TXRH 10/00
% excursion = 1.5 (180 deg), 8.6 (20 deg), 15.1 (12 deg)



3.7m 6.175 GHz
90 struts, Horiz Seams, TXLH 10/00
% excursion = 1.1 (180 deg), 7.5 (20 deg), 13.2 (12 deg)



3.7m 6.425 GHz
90 struts, Horiz Seams, TXLH 10/00
% excursion = 1.4 (180 deg), 5.3 (20 deg), 9.3 (12 deg)



Andrew 3.7 Meter Antenna Statement

Re: Andrew 3.7 Meter Transportable Earth Station
Fixed Satellite Service
C-Band 5925 – 6425 MHz

Routine Licensing for Antennas with Low Power Densities

Pursuant to §25.134 (a)(2)¹ of the Rules and Regulations (“Regulations”) of the Federal Communications Commission (“Commission”), the operator of an antenna smaller than 4.5m in the 4/6 GHz frequency bands must demonstrate that unacceptable interference will not be caused to any and all affected adjacent satellites. The proposed antenna in this application is smaller than 4.5m. Hence, a demonstration that interference will not be caused to adjacent satellites is now presented.

Power Calculations

Calculating the Maximum Total Input Power at the Antenna Flange as well as the Maximum EIRP Density per Carrier (E40, E48, and E49 of the application). The figures, as revised, are set forth below:

Power Calculations

Main Beam Gain	46.3 dBi	<i>[field E41]</i>
Total Input Power at Antenna Flange	446 watts	<i>[field E38]</i>
Max EIRP Density at Antenna Output	26.49 dBW	<i>[field E40]</i>

$$446\text{watts}\log_{10} = 26.49$$

$$46.3 + 26.49 = 72.79 \text{ dBW}$$

Maximum EIRP Density Per Carrier	33.25 dBW/4 KHz	<i>[field E49]</i>
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$$33.25 - 46.3 = -13.05 \text{ dBW/4KHz}$$

Pursuant to §25.134(a) of the Regulation, the Maximum digital uplink transmitter power density at the antenna flange permitted is -2.7 dBW/4KHz . According to the calculations above, the proposed system is designed to operate with a maximum EIRP density at the antenna flange of -13.05 dBW/4KHz . Consequently, the system will operate with a power density below the maximum allowed by a margin of 10.35 dB.

The 3.7 meter antenna proposed with this system does not strictly comply with §25.209² of the Regulations (patterns attached as an exhibit to the application). However, pursuant to §25.220 (b-c)³ of the Regulations⁴, an applicant may request the Commission to consider a non-compliant antenna if it can be shown that the operational power density will be below the requirement of §25.134. Specifically, the earth station operator must provide the power and power density levels that result by reducing the values stated in §25.134 by the number of decibels that the non-compliant antenna fails to meet the standards of §25.209.

¹ 47 C.F.R. 25.134 (a)(2).

² 47 C.F.R. 25.209.

³ 47 C.F.R. 25.220 (b-c).

⁴ *Amendment to Part 25 of the Commission's Rules and Regulations to Reduce Alien Carrier Interference Between Fixed Satellites at Reduced Orbital Spacings and to Revise Application Procedures for Satellite Communications Services*, Appendix B, Rule Changes, Fifth Report and Order, Docket No. 00-248, 20 F.C.C.R. 5666 (Released March 15, 2005).

In this case, the antenna exceeds the patterns of §25.209 in the 1° to 1.9° region measured at the low, mid, and high frequency bands. The Max EIRP Density at Antenna Flange is -13.05 dBW/4KHz. This figure is below the maximum allowed of -2.7 dBW/4KHz by a margin of 10.35 dB.

Affidavits from Adjacent Satellite Operators

In view of the new Section 25.220, affidavits from adjacent satellite operators are not necessarily required so long as the power density operates below the limits and such margin is enough to compensate for any power amount over the 2-degree compliance envelope of §25.209. Since the herein proposed system exhibits power density characteristics 12.9dB below the limits set forth in §25.134, the provisions of 25.220 will apply.

Based on this information and the antenna patterns provided in Attachment B, sufficient information has been provided to enable the Commission grant this application for license.

Summary

The antenna pattern contained with this application exceeds the CFR 25.209 sidelobe specification for the sidelobe envelope in the ± 1 to 2.0 region. Outside the main beam, the antenna meets the requirements of 25.209.

The power density restrictions specified by the FCC for small diameter antennas utilizing digital traffic at C-Band is -2.7 dBW/4 kHz. This antenna will operate at a maximum transmit power density of -13.05 dBW/4 kHz.

If the use of this antenna should cause interference to other systems, the applicant will terminate such transmissions immediately upon notice from the FCC or offended parties.

There are currently no satellites located within 1.5° of the applicant's desired satellites.

Based on this information and the antenna patterns provided with this application, sufficient information has been provided to enable the Commission grant this application for license.