Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
SWE-DISH Satellite Communications, Inc.	)	File No. SES-LIC-20030910-01236
	)	
	)	
Application for Earth Station Authority In the Fixed-Satellite Service	)	
	)	
	)	

REPLY TO OPPOSITION AND RESPONSE

Pursuant to Section 25.154(d) of the Commission's Rules, 47 C.F.R. § 25.154(d)(2002), AvL Technologies ("AvL"), by its undersigned counsel, hereby files its Reply to Opposition and Response of SWE-DISH Satellite Communications, Inc. ("SWE-DISH" or "Applicant") regarding the above-referenced application ("Application").[1] If our understanding of the Opposition is correct, SWE-DISH has indicated that it will be amending its Application to eliminate "ALSATs" and to fully coordinate its antennas on a case-by-case basis for interference with adjacent satellites before requesting such authority. AvL does not object to such an amendment. However, as more fully discussed below, despite the important supplemental information contained in the Opposition, AvL believes that additional information and product controls are needed to assure compliance with the Federal Communications Commission's ("Commission's" or "FCC's") rules and regulations for non-interference for non-conforming antennas.

---

[1] Opposition and Response of SWE-DISH Satellite Communications, Inc., FCC File No. SES-LIC-20030910-01236 (Nov. 6, 2003)("Opposition"). AvL filed Comments to the Application on October 24, 2003. *See* Comments of AvL Technologies, FCC File No. SES-LIC-20030910-01236 (Oct. 24, 2003)("AvL Comments").

I. INTRODUCTION

As a satellite antenna manufacturer, AvL has a strong interest in the increased use of small diameter satellite antennas. AvL is convinced that properly designed, implemented and operated satellite antennas with apertures of less than 1.2 meters can be used without causing harmful interference to adjacent satellites. AvL also believes that use of such antennas is in the public interest by greatly increasing the use of GSO satellite available bandwidth, and spurring the development of new technologies. However, AvL believes that the licensing of small aperture antennas which cause harmful interference to adjacent satellites could slow down or stop this expanding opportunity for the satellite industry.

Thus, contrary to assertions made by SWE-DISH in its Opposition,[2] AvL encourages small aperture antenna competition and welcomes any product that both meets the Commission's requirements and increases the use of antennas of less than 1.2 meters.

II. DISCUSSION

In its Opposition, SWE-DISH agrees with AvL's comments that the IPT's major axis must be rotated to align with the orbital plane to prevent harmful interference.[3] The Opposition also discloses, however, that the major axis of the IPT antenna is not automatically rotated to align with the orbital plane and cannot be rotated unless the case is tilted.[4] To address this problem, SWE-DISH provides supplemental information regarding a "device" which is

---

[2] Opposition at 2 and 6.

[3] *Id.* at 6-7.

[4] *Id.*

furnished with the IPT that will tilt the case to achieve this necessary result to avoid illuminating adjacent satellites with interference from the main beam of their antenna.[5] AvL agrees that proper tilting of the IPT's case, so that the major axis is aligned with the orbital plane, can eliminate the interference from the main beam. The method presented to determine the allowable misalignment of the major axis of the antenna and the orbital arc is a mathematical approximation. AvL believes the main beam shape at the 29-25log θ intersection point does not always follow mathematical approximations. A simple way to confirm the accuracy of the mathematical computation is to run one pattern cut at the proposed 28.5° angle to the major axis. The amount of major axis misalignment allowed to the orbital arc should be set by the Commission based on industry input. Further, AvL is concerned that the IPT may not always be tilted appropriately when transmitting. Computing and displaying the amount of tilt required may not be adequate because tilting in the wrong directions can cause more interference. AvL believes this can be controlled by installing an inexpensive electronic angle measuring device that will compare the tilt of the case to the tangent to the orbital arc and allow transmitting only if the error is below that determined acceptable.

In its Comments, AvL stated that the SWE-DISH antenna's EIRP capability with the 25 watt transmitter and proposed data rates also could greatly exceed the -14dBw/4kHz allowed by the Commission.[6] No mention was made in the SWE-DISH Application of how this is controlled. AvL agrees with SWE-DISH that large parabolic antennas can be overpowered such that the Commission limit is exceeded.[7] Because systems generally have been designed and

---

[5] *Id.*

[6] Comments at 4.

[7] Opposition at 8.

installed to achieve certain objectives, this has not been a problem. Generally on VSAT antennas, the data rate and transmit power is specified and fixed at installation so that the -14dBw/4kHz will never be exceeded. However, with the variable data rate and power capability of the SWE-DISH IPT, a substantial misapplication of power can be applied. AvL believes that simple programming of the IPT controller can prevent the Commission limit from being exceeded. In its Opposition, SWE-DISH confirms that the antenna mid-band transmit gain of 38.4 dBi nominal specified in the Application is correct for the antenna seeking FCC license meeting 29-25log θ. Since this gain is at least 1dB below similar antennas, it is important that this gain associated with the license be used for United States transmission plans. AvL believes that the excess power available from the 25 watt HPA should not be used to close a link by exceeding the -14dBW/4kHz allowed.

Finally, AvL believes that SWE-DISH misinterpreted AvL's comments regarding the Intelsat letter.[8] Requirements to operate on Intelsat satellites are different than Commission requirements and therefore Intelsat's approval is not applicable. Intelsat is more stringent with off-axis cross-pol performance that effects their satellite and much less stringent on co-pol emissions because most of axis emission requirements are based on 3° orbital arc spacing. First, Intelsat specifies off-axis co-pol for Standard G as 32-25 log Θ dBi with up to 10% exceeding compared to 29-25 log Θ dBi required by the FCC. Second, the Intelsat Ku-band satellites are spaced at more than 2 degrees and the Intelsat allows up to 14 dB higher off-axis emissions than allowed by the Commission, as previously stated. Therefore, the fact that Intelsat allows transmission of -16dBw/4kHz is irrelevant to the Commission's consideration of applications for non-compliant antennas.

---

[8] Comments at 5-6. Opposition at 9.

III. CONCLUSION

Considering the supplemental technical information contained in the Opposition, AvL believes that the Commission should grant the Application if SWE-DISH demonstrates to the Commission's satisfaction that the off-axis emissions directed at satellites uniformly spaced at 2° will not exceed the 15-29 log Θ dBw/4kHz allowed by the Commission and that:

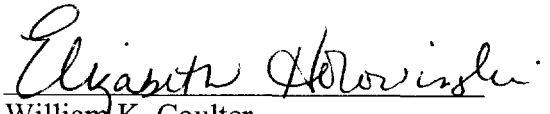
(a) the IPT's case will always be tilted properly to align the 90cm axis of the SWE-DISH reflector with the orbital arc within reasonable limits;

(b) the input power for the IPT is controlled to never exceed the -14dBw/4kHz allowed by the FCC; and

(c) the IPT's pointing accuracy of 0.2° is achieved and maintained in 10m/sec (22 mph) winds (with a posted warning not to transmit with winds exceeding 20 mph).

Respectfully submitted,

AvL TECHNOLOGIES

By: 

William K. Coulter
Elizabeth Holowinski
Coudert Brothers LLP
1627 I Street, NW
Washington, D.C. 20006
Tel. (202) 775-5100
Fax (202) 775-1168
E-mail: coulterw@coudert.com
Its Attorneys

November 13, 2003

AFFIDAVIT

James L. Oliver, Affiant, being duly sworn/affirmed according to law, deposes and says that:

He is the President of AvL Technologies;

That AvL Technologies is a party of interest as an industry member;

That he is authorized to and does make this affidavit for said company;

That the facts above set forth are true and correct to the best of his knowledge, information, and belief and that he expects said Petitioner to be able to prove the same at any hearing hereof.

James L. Oliver, President
AvL Technologies

Dated: NOV 14, 2003

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was sent by first-class mail, postage prepaid, to this 13th of November, 2003, to the following:

Maury J. Mechanick
White & Case, LLP
601 13th Street, NW
Washington, DC 20005

Joseph A. Godles
Goldberg, Godles, Wiener & Wright
1229 Nineteenth Street, NW
Washington, DC 20036

Marvin Shoemake
Executive Vice President
Tripoint Global, Inc.
4825 River Green Parkway
Duluth, GA 30096

Christine Zepka