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VIA HAND DELIVERY

April 16, 2004

Marlene H. Dortch
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

Re: The Boeing Company Application to Modify Blanket AMSS Earth Station Authorization Call Sign E000723; File No. SES-MOD-20040301-00304

Dear Ms. Dortch:

The Boeing Company ("Boeing"), at the request of PanAmSat Corporation ("PanAmSat"), hereby submits the following information for association with the above-referenced application. PanAmSat has indicated to Boeing that, with this information, it has no objection to the Commission granting this application and that no further coordination with PanAmSat is required with respect to the operations proposed therein.

The process by which the Connexion by Boeing[SM] ("Connexion") Aeronautical Mobile-Satellite Service ("AMSS") system protects Fixed-Satellite Service ("FSS") operations is described in the original Transmit-Receive Application, Technical Supplement at 34 - 38[1] and the Reflector Antenna Modification Application, Technical Appendix at 14 - 16;[2] as well as Boeing's 30-Day Report at 2-15

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[1] *See* Application of the Boeing Company for Blanket Authority to Operate up to Eight Hundred Technically Identical Transmit and Receive Mobile Earth Stations Aboard Aircraft in the 11.7-12.2 and 14.0-14.5 GHz Frequency Bands, File No. SES-LIC-20001204-02300 (filed Dec. 4, 2000, supplemented Jan. 10, 2001) ("*Transmit-Receive Application*").

[2] *See* Application of the Boeing Company to Modify Blanket Authorization to Operate up to Eight Hundred Technically Identical Transmit and Receive Mobile Earth Stations Aboard Aircraft in the 11.7-12.2 and 14.0-14.5 GHz Frequency Bands, File No. SES-MOD-20030512- 00639 (filed May 12, 2003) ("*Reflector Antenna Modification Application*").

(Boeing AMSS System License Compliance Report -- Reflector Antenna Update).[3] Boeing now provides the following additional detail to elaborate further as to how the Boeing AMSS system accounts for antenna gain changes resulting from variations in the relative orientation of its roughly elliptical reflector antenna to the geostationary orbit ("GSO") arc.

The Boeing AMSS system is designed to protect FSS operations from harmful interference from aircraft earth station ("AES") transmissions in the 14.0-14.5 GHz band. To accomplish this, the Boeing Network Operations Center ("NOC") controls the aggregate off-axis e.i.r.p. towards the GSO arc of all AESs operating on a given transponder to be less than or equal to that of a routinely processed very small aperture terminal ("VSAT"), or the transponder's coordinated limits, which ever is lower.

The AES control algorithm used at the NOC accounts for variations in aggregate off-axis e.i.r.p. caused by a wide range of factors. These include, *inter alia*, the effects of the relative orientation of the AES antenna major axis with respect to the GSO arc due to variations in location and orientation of the AES vis-à-vis the adjacent satellites. As the angle between the major axis of the AES antenna and the GSO arc changes with longitudinal differences between the AES and the serving satellite, as well as with latitudinal differences along the same longitude (except the longitude of the serving satellite), the effective beam width of the AES antenna along the GSO arc also changes and so the gain along the GSO arc will change. For example, if the major axis of the AES antenna is aligned with the GSO arc, the beamwidth of the AES antenna is at its minimum, and the antenna gain towards the adjacent satellite would be at a minimum. As the relative angle between the AES antenna major axis and the GSO arc increases, the effective beamwidth of the antenna broadens, and the gain towards the adjacent satellite would increase.

The AES control algorithm accounts for this variation using a gain model of the roughly elliptical AES reflector antenna that is projected from the actual location of the AES onto the GSO arc, based on the pointing direction (as described above, a function of the location of the AES and the serving satellite) and orientation of the AES antenna. The orientation of this calculated antenna beam matches the orientation of the actual antenna beam. In this way, the AES control algorithm necessarily accounts for changes in antenna gain related to differences in the angle between the major axis of the AES antenna and the GSO arc. As the relative angle between the AES antenna major axis and the GSO arc increases, the calculated gain towards the adjacent satellite would also increase. This higher antenna gain is taken into account by the algorithm as it calculates e.i.r.p. towards the GSO, and the power level of the AES is decreased, as necessary, to ensure that the aggregate off-axis e.i.r.p. density is maintained below the level for routinely processed VSATs.

[3] *See* Letter to Marlene H. Dortch dated Feb. 12, 2004, Call Sign E000723, File No. SES-MOD-20030512- 00639 ("*30-Day Report*").

Any questions regarding this matter may be directed to the undersigned.

Respectfully submitted,

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Counsel for The Boeing Company

cc: Joseph Godles
Counsel for PanAmSat Corporation