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March 14, 2006

VIA HAND DELIVERY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, N.W.
Washington, D.C. 20554

Re: Call Sign E000723, File No. SES-MFS-20050701-00853, Submission Required by Special Provision 5412

Dear Ms. Dortch:

On December 20, 2005, the Commission granted in part and deferred in part a modification to the Aeronautical Mobile-Satellite Service ("AMSS") authorization of The Boeing Company ("Boeing") in the above-referenced license proceeding. Among other things, the modification permits Boeing to use the eX500 aircraft earth station ("AES") antenna with the Connexion by Boeing SM ("Connexion") AMSS system. The antenna will be used to provide eXchange AMSS services to small business jets.

As a condition to the authorization, the Commission imposed a requirement that Boeing submit a series of e.i.r.p. density charts or tables, calculated for a production eX500 AES antenna using maximum input power, based on measurements taken on a calibrated antenna range at 14.2 GHz, with the off-axis e.i.r.p. envelope set forth in the authorization superimposed.[1/] Boeing has conducted antenna performance testing and hereby submits the required information. Specifically, the attached report summarizes the antenna operational information and provides e.i.r.p density charts that (i) show off-axis co-polarized e.i.r.p. spectral density in the azimuth plane, for off-axis angles from minus 10° to plus 10° and from minus 180° to plus 180°; (ii) show off-axis co-polarized e.i.r.p. spectral density in the elevation plane, at off-axis angles from 0° to plus 30°; (iii) show off-axis cross-polarized e.i.r.p. spectral density in the azimuth plane, at off-axis angles from minus 10° to plus 10°; and (iv) show off-axis cross-polarized e.i.r.p. spectral density in the elevation plane, at off-axis angles from minus 10° to plus 10°. In each case, the Commission's applicable aggregate off-axis e.i.r.p. spectral density limits are met.

In addition to the report, Boeing is submitting a letter from the eX500 AES manufacturer, AeroSat Corporation ("AeroSat"), confirming that the production design of the antenna is final and that the antennas provided by AeroSat for performance testing effectively constitute production antennas. Specifically, the design, materials, tooling and production processes that

1/ *See* The Boeing Company, Radio Station Authorization, E000723, File No. SES-MFS-20050701-00853, Special Provision 5412 (modified December 20, 2005).

were used to manufacture the horn antennas provided by AeroSat are identical to those which will be used for the antennas to be included in production eX500 AESs. Accordingly, the information submitted herewith is consistent with Special Provision 5412. To the extent the Commission concludes otherwise, however, Boeing respectfully requests a limited waiver of the provision and acceptance of this submission.

Please feel free to contact the undersigned with any questions regarding this submission.

Sincerely,

Carlos M. Nalda
Christopher R. Bjornson
Counsel for The Boeing Company

Attachments

cc: Scott Kotler

ANTENNA TEST DATA

Model eX500 Antenna and Off-Axis E.I.R.P. Spectral Density

The Boeing Company ("Boeing") submits this antenna test information regarding the off-axis e.i.r.p. spectral density of the eX500 aircraft earth station ("AES") antenna, which will be used to provide the "eXchange" Ku-band Aeronautical Mobile-Satellite Service ("AMSS") offering to small business jets, as required by Special Condition 5412 of Boeing's AES authorization, Call Sign E000723 (File No. SES-MFS-20050701-00853).

The Connexion by Boeing[SM] ("Connexion") system uses a code division multiple access ("CDMA") transmission scheme, which will permit multiple co-frequency transmissions from different AESs to be simultaneously received at the same satellite. In order to maintain compatibility with adjacent FSS satellites, the aggregate off-axis e.i.r.p. spectral density produced by Connexion AESs, including eXchange AESs, will meet the applicable off-axis e.i.r.p. limits associated with the serving satellites.

Figures 1, 2 and 3 show the e.i.r.p. spectral density of a single eXchange AES operating at maximum power with respect to the off-axis e.i.r.p. spectral density limits of Special Condition 5411. The E-plane shown in the figures could correspond to either the azimuth or elevation plane, depending on the signal polarization. Because of this, these three figures all display the same data, simply using different ranges of off-axis angles. Figure 4 shows the cross polarization e.i.r.p. spectral density of a single eXchange AES. As seen in each of these figures, the eXchange AES emissions satisfy each of the criteria.

Figures 1, 2, 3 and 4 were generated using a baseline case of a 13.5 MHz AES emission bandwidth and N equal to one, where N is the maximum number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam as defined in Special Condition 5411. The value of one is used as strictly an illustrative value for the generation of the graphs. In the Connexion system, the off-axis e.i.r.p. is controlled as an aggregate, with individual AES e.i.r.p. levels varied dynamically depending on user requirements, as opposed to a static division of the permissible e.i.r.p. level equally among N AESs. Different bandwidths may be used on different satellites; and different power levels or bandwidths would lead to different off-axis e.i.r.p. spectral density levels for the emissions envelope. In all cases, however, the Connexion Network Operations Center ("NOC") controls AES transmit power and entry into the system so that the applicable aggregate off-axis e.i.r.p. spectral density limits are met.

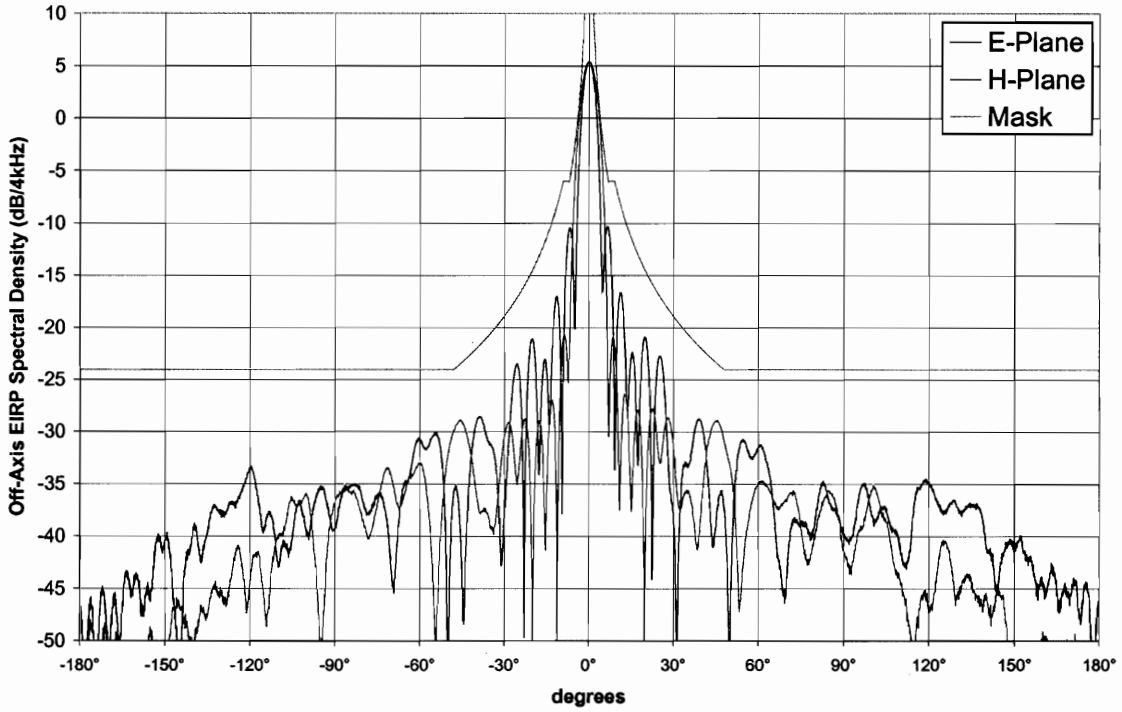

Figure 1. eXchange Co-Polarized Off-Axis EIRP Spectral Density @ 14.2GHz (-180 to 180 degrees)

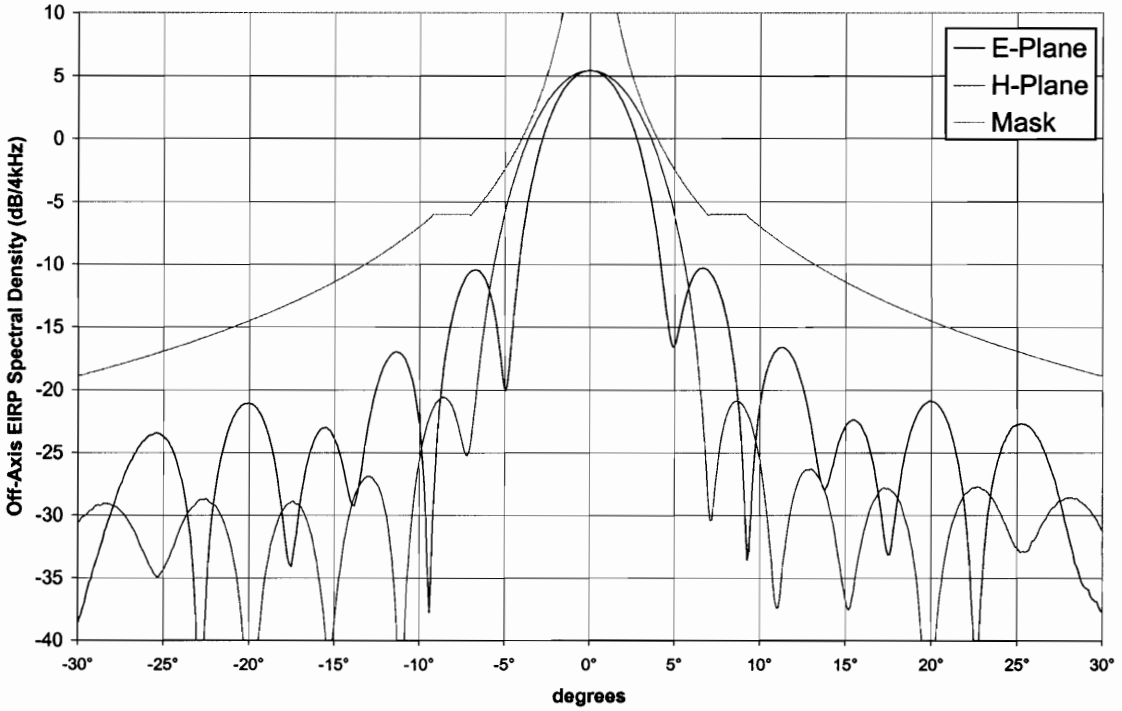

Figure 2. eXchange Co-Polarized Off-Axis EIRP Spectral Density @ 14.2GHz (-30 to 30 degrees)

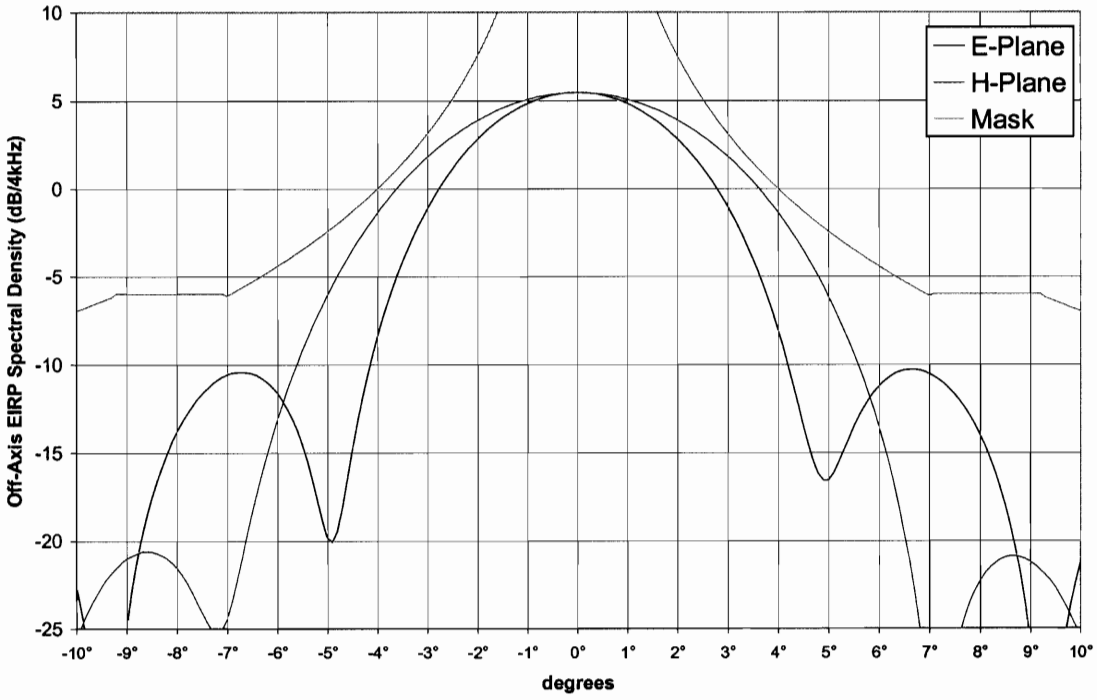

Figure 3. eXchange Co-Polarized Off-Axis EIRP Spectral Density @ 14.2GHz (-10 to 10 degrees)

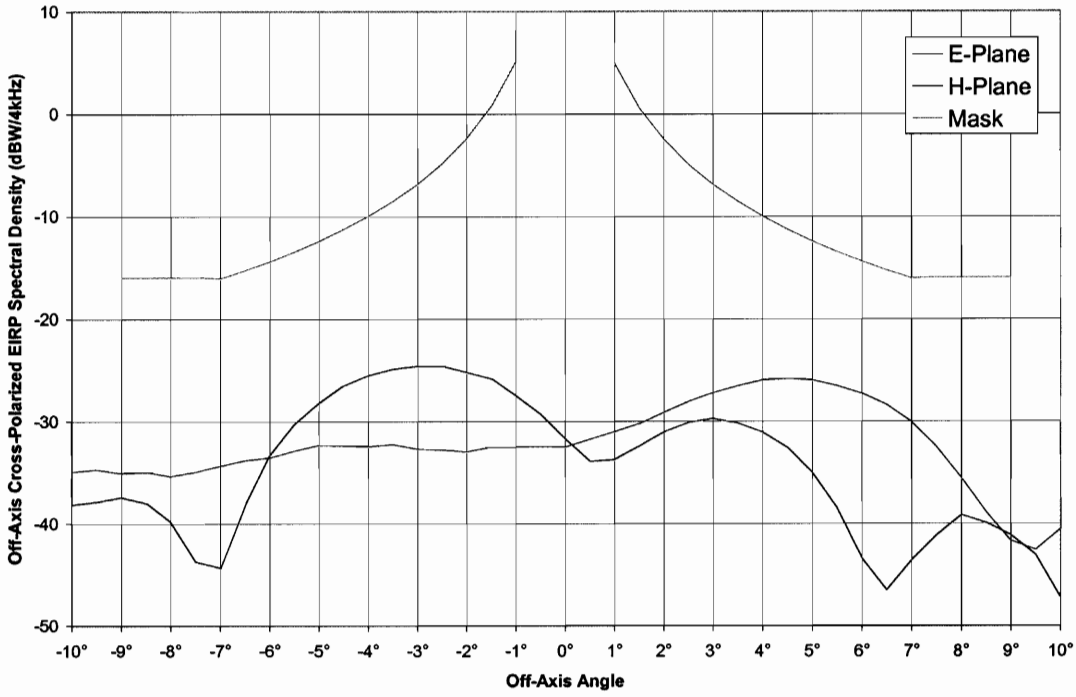

Figure 4. eXchange Co-Polarized Off-Axis EIRP Spectral Density @ 14.2GHz (-10 to 10 degrees)

AeroSat Avionics, LLC
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21 February 2006

Mike Taylor
Government and Executive Programs
Connexion by Boeing
The Boeing Company
PO Box 3707 MC 14-12
Seattle, WA 98124-2207

Re: Production Status of the .29m Horn Antenna for the eXchange Aircraft Earth Station (Model ex500)

Dear Mr. Taylor:

The purpose of this letter is to confirm that the production design of the .29m horn-lens antenna for the eXchange Aircraft Earth Station ("AES") (Model eX500) is final and that the horn-lens antennas provided by AeroSat Corporation in connection with performance testing of the eX500 AES effectively constitute production antennas. Specifically, the design, materials, tooling and fabrication processes that were used to manufacture the horn-lens antennas provided by AeroSat are identical to those which will be used for the antennas to be included in production eX500 AESs.

While certain drive elements of the eX500 AES remain under review, the horn-lens antenna itself will not change and there is no reason to expect that the RF performance of the antennas included in production AESs will be any different from those previous provided to you. Accordingly, we do not anticipate a need for further RF performance testing of the .29m horn-lens antennas.

Please do not hesitate to contact me if you have any further questions.

Sincerely,

Simon P. Scott
eXchange / Product Manager