

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

In the Matter of
The Boeing Company
Application for Blanket Authority
To Operate up to Eight Hundred
Technically Identical Receive-Only
Mobile Earth Stations Aboard Aircraft
in the 11.7-12.2 GHz Frequency Band
File No. SES-LIC-20000828-01578
Call Sign: E000575

ORDER AND AUTHORIZATION

Adopted: April 12, 2001

Released: April 13, 2001

By the Chief, International Bureau, and the Chief, Office of Engineering and Technology:

I. INTRODUCTION

1. By this Order, we grant the Boeing Company ("Boeing") authority to operate up to eight hundred technically identical receive-only mobile earth stations aboard aircraft in the 11.7-12.2 GHz frequency band ("12 GHz band"), subject to the conditions set forth below. In doing so, we waive Section 2.106 of our rules^1 premised on Boeing providing this service without causing harmful interference to other allocated services in this frequency band. This authorization will permit Boeing to introduce a new one-way broadband communication service to passengers and crew aboard aircraft.

II. BACKGROUND

2. On August 25, 2000, Boeing requested authority to operate up to eight hundred technically identical receive-only mobile earth stations in the 12 GHz band aboard aircraft in the United States. Boeing would provide its service using leased transponder capacity on Loral Skynet's Telstar 6 satellite at 93° W.L. and GE Americom's GE-4 satellite at 101° W.L. Boeing's request involves only the link from the satellite to the mobile earth stations on board aircraft, i.e. it is limited to the space-to-Earth direction. Transmissions to the satellites, i.e. in the Earth-to-space direction, would be from one or more fixed earth stations licensed separately by the Commission to operate in the 14.0-14.5 GHz band.

3. The stations on board aircraft for which Boeing seeks authorization would operate in the aeronautical mobile satellite service ("AMSS"). The United States Table of Frequency Allocations does not include an allocation for AMSS in the 12 GHz band. Accordingly, a waiver of Section 2.106 of our rules is necessary for Boeing's proposed service. In support of its waiver, Boeing indicates that it will operate its proposed service without causing harmful interference to authorized users of the 12 GHz band and will accept interference from authorized users.

^1 47 C.F.R. § 2.106.

4. The 12 GHz band is allocated in the United States on a primary basis to the Fixed Satellite Service (“FSS”), with a secondary allocation for terrestrial mobile services except aeronautical mobile.² Boeing indicates that it can protect these services by providing AMSS using space-to-Earth power flux density levels that are equal to, or less than, the power levels that have previously been coordinated for the specific satellite transponders in question. Boeing indicates that down-link transmissions for its receive-only service will cause no more interference than down-link transmissions to fixed earth stations that might otherwise be using the same FSS transponders.

5. Boeing also requests a waiver of Section 25.134 of our rules.³ Section 25.134 includes thresholds, based on the power radiated from transmitters, for routine processing of networks of very small aperture terminals (“VSATs”) operating in the Ku-band. Boeing observes that its proposed service does not necessarily fit within the Commission’s definition of a VSAT network. Boeing acknowledges, however, that its service would operate using space-to-Earth power levels that exceed the routine processing threshold of +6.0 dBW/4 kHz for digital VSAT signals. In support of its request for waiver of Section 25.134, Boeing provides the Commission with letters from Loral Skynet that are co-signed by GE Americom and PanAmSat – the operators of satellites within six degrees of Telstar 6 – indicating no objection to the EIRP density levels proposed for Boeing’s service. Boeing has indicated that it intends to provide the Commission with similar letters executed by the operators of satellites within six degrees of the GE-4 satellite.

6. Boeing’s application was placed on public notice on October 4, 2000.⁴ PanAmSat filed comments and reply comments. PanAmSat indicated that it had no objection in principle to the grant of Boeing’s Application as long as it is made on a non-conforming, non-harmful-interference basis and is made subject to coordination of Boeing’s space-to-Earth transmissions with adjacent satellite operators.⁵ PanAmSat also expresses concern that grant of Boeing’s application may provide Boeing with an expectation that it will eventually be authorized to provide both transmit and receive AMSS in the Ku-band.⁶ PanAmSat also questions whether the link budgets included in Boeing’s application anticipate realistic levels of interference from adjacent FSS satellite transmissions into Boeing’s receive-only AMSS terminals.⁷ PanAmSat urges the Commission to require Boeing to submit revised link budgets addressing this interference concern.⁸

7. In response, Boeing filed reply comments reaffirming its intent to operate its service on a non-

² See 47 C.F.R. § 2.106.

³ See 47 C.F.R. § 25.134.

⁴ See Public Notice, *Satellite Communications Services, Re: Satellite Radio Applications Accepted for Filing*, Report No. SES-00222, at 1 (Oct. 4, 2000).

⁵ See *Comments of PanAmSat Corporation*, File No. SES-LIC-20000828-01578, at 1-2 (Nov. 3, 2000).

⁶ See *id.* at 5.

⁷ See *id.* at 3-4.

⁸ See *id.* at 4.

conforming, non-interference basis.⁹ Boeing also acknowledges that grant of its receive-only application is entirely separate from any application that it might file to provide transmitting AMSS using aeronautical mobile Earth terminals in the Ku-band.¹⁰ Boeing further indicates that its space segment providers are already in the process of coordinating the proposed spectrum use with adjacent satellite operators including PanAmSat.¹¹ Finally, Boeing provides further technical analysis supporting the link budgets included in its application and indicates that interference from adjacent satellites will not prevent Boeing from operating its receive-only service successfully.¹²

III. DISCUSSION

8. Rules may be waived if there is good cause to do so.¹³ Waiver is appropriate only if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule.¹⁴ Generally, the Commission may grant a waiver of its rules in a particular case only if the relief requested would not undermine the policy objective of the rule in question, and would otherwise serve the public interest.¹⁵ Boeing will provide its service in the same spectrum in which the Commission previously authorized two other operators to provide non-conforming mobile satellite services (“MSS”). In *USA TODAY Sky Radio*¹⁶ and *Qualcomm*,¹⁷ the Commission authorized non-conforming MSS stations in the 12 GHz band, including AMSS stations in the *USA TODAY Sky Radio* authorization. In issuing these licenses, the Commission observed that non-conforming MSS down-link receive-only stations can be permitted in FSS spectrum where a transmission from a FSS satellite appears the same to potentially affected third parties regardless of whether it is received by fixed or mobile terminals.¹⁸

9. We find that grant of Boeing’s application, and waiver of the Table of Frequency Allocations contained in Section 2.106 of the Commission’s rules,¹⁹ is in the public interest. This action will enable the provision of new one-way broadband entertainment and data services to a significant market segment – passengers and crew on private and commercial aircraft. The Commission has granted waivers for “non-conforming” uses, such as the one Boeing proposes here, “when there is little potential for interference into

⁹ See *Response of The Boeing Company*, File No. SES-LIC-20000828-01578, at 1-2 (Nov. 16, 2000).

¹⁰ See *id.* at 2.

¹¹ See *id.* at 1.

¹² See *id.* at 2-5.

¹³ See 47 C.F.R. § 1.3. See also *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C.Cir. 1969) (*WAIT Radio*).

¹⁴ *WAIT Radio*, 418 F.2d at 1157.

¹⁵ *Id.*

¹⁶ 7 FCC Rcd 7943 (1992).

¹⁷ 4 FCC Rcd 1543 (1989).

¹⁸ See 7 FCC Rcd at 7943-44; 4 FCC Rcd at 1544.

¹⁹ See 47 C.F.R. § 2.102(a).

any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized users.”²⁰ Boeing will provide its receive-only service using licensed geostationary satellites operating within applicable coordination agreements with adjacent satellite operators. Boeing also acknowledges that it will provide AMSS in the 12 GHz band on a non-interference basis.²¹ As part of its authorization, Boeing will be required to accept interference from authorized users of the 12 GHz band and may not cause harmful interference into services authorized to use the band. Under these circumstances, one general purpose of the Table of Allocations – preventing harmful interference— would not be undermined.

10. We also conclude that Boeing’s operations are consistent with the policies underlying Section 25.134 of our rules, which states requirements for routine processing of VSAT networks. Therefore, a waiver is unnecessary. Boeing has provided the Commission with letters from Loral Skynet that were co-signed by GE Americom and PanAmSat – the operators of satellites within six degrees of Telstar 6. These letters indicate no objection to the EIRP density levels proposed for Boeing’s service.²² Boeing will be required to provide similar letters, executed by the operators of satellites within six degrees of the GE-4 satellite, before Boeing can utilize GE-4 for receive-only AMSS. In addition, Boeing must file an application for modification of its license and obtain prior Commission approval before changing its space segment providers, or using transponders other than those indicated in its application.²³

11. In granting Boeing’s application, we note PanAmSat’s concerns about the adequacy of the link budgets included in Boeing’s application. Because Boeing must, as a non-conforming user, accept interference from all primary and secondary services authorized in this band, we will not engage in a detailed technical analysis of its proposed system’s susceptibility to interference.

12. Finally, we address the relationship of this Order to Boeing’s request to provide two-way AMSS in the Ku-band, filed on December 4, 2000. In that application, Boeing proposes two-way AMSS, using the 12 GHz band for space-to-Earth transmissions and the 14.0-14.5 GHz band for Earth-to-space transmissions.²⁴ Boeing’s application for two-way AMSS will be addressed separately, and this Order should not give rise to any expectation of favorable action on Boeing’s application for two-way AMSS.²⁵

²⁰ *Fugro-Chance*, 10 FCC Rcd 2860, 2860 (1995); see also *Motorola Satellite Communications*, 11 FCC Rcd 13952, 13956 (1996)(service to fixed terminals permitted in bands allocated to mobile satellite service).

²¹ See *Response of The Boeing Company*, File No. SES-LIC-20000828-01578, at 1-2 (Nov. 16, 2000).

²² See 47 C.F.R. § 25.134(b).

²³ In its application, Boeing also requested a general waiver of Part 87 of our rules. The 12 GHz band is not one of the bands to which the licensing provisions of the Part 87 aviation service rules apply; the services Boeing seeks to provide are not safety related. Therefore, waiver of Part 87 is not necessary for this authorization.

²⁴ See *The Boeing Company, Application for Blanket Authority to Operate up to Eight Hundred Technically-Identical Transmit/Receive Mobile Earth Stations Aboard Aircraft in the 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands*, FCC File No. SES-LIC-20001204-02300 (Dec. 4, 2000).

²⁵ We also note that nothing in this Order in any way addresses the characteristics of transmissions from the fixed Earth stations that will be used to uplink signals to the GE-4 and Telstar VI satellites. It is incumbent on Boeing and/or the licensee of those stations to ensure that the operations of those stations are properly authorized.

VI. ORDERING CLAUSES

13. Accordingly, IT IS ORDERED that Application File No. SES-LIC-20000828-01578 is granted and The Boeing Company IS AUTHORIZED to operate up to eight hundred technically identical receive-only mobile earth stations aboard aircraft operating with the Telstar 6 and GE-4 satellites in the 11.7-12.2 GHz band in the United States, subject to the following conditions:

- a) Boeing shall not cause harmful interference into any authorized station operating in compliance with the Table of Allocations, either domestically or internationally, in the 11.7-12.2 GHz band (*see* 47 C.F.R. § 2.106), and Boeing shall immediately cease mobile operations upon notification of interference resulting from its operations;
- b) Boeing, as a non-conforming user, must accept any interference from any station authorized to use the 11.7-12.2 GHz band;
- c) Boeing shall maintain a point of contact to address any interference concerns immediately and arrange to terminate operations if necessary. Boeing shall submit a letter to be included in its license file with the name and telephone number of the contact within 30 days of the release of this order;
- d) Prior to providing AMSS using the GE-4 satellite, Boeing must provide the Commission with letters executed by the operators of satellites within six degrees of GE-4 that indicate no objection to the EIRP density levels proposed for Boeing's service;

14. IT IS FURTHER ORDERED that Boeing IS GRANTED a waiver of Section 2.106 of the Commission's rules for the purpose of operating receive-only AMSS stations in the 11.7-12.2 GHz band consistent with the technical parameters specified in its application.

15. Boeing is afforded thirty days from the date of release of this order to decline the authorization as conditioned. Failure to respond within that period will constitute formal acceptance of the authorization as conditioned.

16. This order is issued pursuant to Sections 0.241 and 0.261 of the Commission's rules on delegated authority, 47 C.F.R. §§ 0.241, 0.261, and is effective upon release.

FEDERAL COMMUNICATIONS COMMISSION

Donald Abelson
Chief, International Bureau

Bruce Franca
Acting Chief, Office of Engineering and Technology