

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of  
Amendment to the Application of Panasonic )  
Avionics Corporation To Modify AMSS )  
License To Permit Operation of Up to 2000 ) Call Sign E100089  
Technically Identical Aeronautical Mobile- ) File No. \_\_\_\_\_  
Satellite Service (“AMSS”) Aircraft Earth )  
Stations (“AESs”) in the 14.0-14.5 GHz and )  
10.7-12.75 GHz Frequency Bands )

**AMENDMENT TO MODIFICATION APPLICATION**

Panasonic Avionics Corporation (“Panasonic”) hereby amends its pending application<sup>1</sup> to modify its existing blanket license to operate 2000 technically identical Ku-band aeronautical mobile-satellite service (“AMSS”) aircraft earth stations (“AESs”) in the 14.0-14.5 GHz and 10.7-12.75 GHz frequency bands. Specifically, Panasonic is providing in the attached Appendix additional information regarding the end of life disposal and orbital debris mitigation plans for the foreign-licensed satellites requested as authorized points of communication in the Modification Application.

**I. ORBITAL DEBRIS MITIGATION INFORMATION**

When it adopted its orbital debris mitigation policies, the Commission ruled that a request for market access by a foreign-licensed satellite operator should include information describing the applicant’s orbital debris mitigation plans<sup>2</sup> or evidence that the foreign licensing jurisdiction

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<sup>1</sup> See Application of Panasonic Avionics Corporation To Modify AMSS License To Permit Operation of Up to 2000 Technically Identical Aeronautical Mobile-Satellite Service (“AMSS”) Aircraft Earth Stations (“AESs”) in the 14.0-14.5 GHz and 10.7-12.75 GHz Frequency Bands, File No. SES-MFS-20120913-00818 (“Modification Application”).

<sup>2</sup> *Mitigation of Orbital Debris*, Second Report and Order, FCC 04-130, 19 FCC Rcd 11567 (2004) (“Second Orbital Debris Order”) at ¶ 93-94.

exercises “direct and effective regulatory oversight”<sup>3</sup> of the operator’s debris mitigation measures. However, the Commission expressly disclaimed any intent to engage in a “‘unilateral’ or ‘extraterritorial’ imposition of Commission rules” on non-U.S.-licensed spacecraft.<sup>4</sup> The Commission has interpreted its orbital debris mitigation policies to extend to earth station applicants seeking to access foreign-licensed satellites from points outside the United States.

Accordingly, Panasonic is including orbital debris mitigation information in the attached Appendix for the following foreign-licensed satellites requested as authorized points of communication in the underlying Modification Application:

- Superbird C2
- Asiasat 5
- Yamal 201
- Eutelsat 10A (W2A)
- Anik F1
- Apstar 6
- Apstar 7.<sup>5</sup>

Importantly, the filing of orbital debris information need not delay public notice of the underlying Modification Application because the operational and technical parameters detailed in the Modification Application remain unchanged by the instant submission. Thus, interested parties maintain the ability to comment meaningfully on the Modification Application, including

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<sup>3</sup> *Id.* at ¶ 95.

<sup>4</sup> *Id.* at ¶ 96 (footnote omitted).

<sup>5</sup> An orbital debris mitigation plan need not be filed with the Commission for earth stations seeking to communicate with non-U.S. licensed space stations that have already been authorized as a point of communication in a regular earth station authorization or that have been listed on the Commission’s Permitted Space Station List (“Permitted List”); *see* 47 C.F.R. § 25.137. Although the Anik F1 and Apstar 6 satellites have been authorized as points of communication, Panasonic is providing orbital debris information for those satellites, and others that have not been not been authorized to access the U.S. market, due to the unique circumstances of those prior grants.

the proposed satellite points of communication, regardless of the orbital debris information submitted herein.

## **II. REQUESTS FOR WAIVER**

### **A. Yamal 201 Issues**

The instant submission includes orbital debris information for Yamal 201, a Russian-licensed satellite previously known as Yamal 200 (No. 1) at 90°E, that was submitted to the Commission in the context of a prior request to access the satellite.<sup>6</sup> In its end of life disposal plan, Gazprom Space Systems (“GSS”), the operator of Yamal 201, states that at end of life the satellite will be relocated to an altitude not less than 200 km over the radius of geostationary orbit. It is not clear whether this information included in the Yamal 201 documentation fully complies with the Commission’s orbital debris and end of life disposal policies. Accordingly, Panasonic requests a waiver of the minimum perigee requirement for geostationary orbit space stations at end of life.<sup>7</sup>

Panasonic would note that Yamal 201 was launched in November 2003, well before the effective date of the Commission’s Second Orbital Debris Order,<sup>8</sup> and that the satellite has been operating for nearly a decade. On November 3, 2012, GSS launched a new satellite, Yamal 300-

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<sup>6</sup> See Letter from Philip L. Malet and Carlos M. Nalda to Marlene H. Dortch, (filed April 26, 2005), re: Modification Application of The Boeing Company, Call Sign E000723, SES-MOD-20040301-00304, at 30-41.

<sup>7</sup> The orbital rules currently require relocation of a geostationary space station at end of life to an orbit with a perigee with an altitude of no less than  $36,021 \text{ km} (1000 \cdot \text{CR} \cdot \text{A}/\text{m})$ , where CR is the solar pressure radiation coefficient of the spacecraft, and a/m is the Area to mass ratio, in square meters per kilogram, of the spacecraft. See 47 C.F.R. § 25.283(a).

<sup>8</sup> See Second Orbital Debris Order, rel. June 21, 2004.

K, which will be co-located with Yamal 201 at 90°E. Accordingly, Panasonic plans to transition eXConnect operations in the region from Yamal 201 to Yamal 300-K.<sup>9</sup>

Therefore, Panasonic respectfully requests a waiver of § 25.283(a)<sup>10</sup>, and any other rule provision to the extent necessary, to permit access to the Yamal 201 satellite. Allowing Panasonic to access the Yamal 201 for a short period of time prior to transitioning operations to the recently-launched Yamal 300-K will facilitate continued development of Panasonic's global AMSS network, especially on major flight routes to and from Asia. As a result, U.S. passengers and crew will benefit from continued access to in-flight connectivity offerings on international flights, which will plainly serve the public interest.<sup>11</sup>

**B. Blanket Waiver of the Venting Requirements of § 25.283(c)**

As noted in the attached orbital debris mitigation plans, three satellites requested as authorized points of communication were constructed on the Thales Alenia Space Bus 4000 model spacecraft platform: Eutelsat W2A, Apstar 6,<sup>12</sup> and Apstar 7. In addition, Anik F1<sup>13</sup> was

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<sup>9</sup> Panasonic's current agreement for Ku-band capacity on Yamal 201 is set to expire in Q2 of 2013. As a result, Panasonic will shortly file a further amendment to its pending Modification Application to include the Yamal 300-K as a requested point of communication, and will include orbital debris mitigation and end of life disposal information in that submission.

<sup>10</sup> As noted above, the waiver request associated with Yamal 201 need not delay public notice of the underlying Modification Application because interested parties maintain the ability to comment meaningfully on the Modification Application, including the proposed satellite points of communication, regardless of the status of orbital debris information submitted for Yamal 201.

<sup>11</sup> Panasonic is also currently in discussions with GSS to determine if updated orbital debris mitigation and end of life disposal information is available for Yamal 201.

<sup>12</sup> The Commission previously authorized Apstar 6 as a satellite point of communication in an earth station application; *see Hawaii Teleport Holdings LLC*, File No. SES-MOD-20091001-01254, Call Sign KA279, grant-stamped Jun. 25, 2010.

<sup>13</sup> Anik F1 is listed on the Permitted List; *see* File No. SAT-PDR-20000420-00083, Call Sign S2745, granted December 18, 2000. However, Anik F1 was added to the Permitted List prior to the release of the Commission's orbital debris rules; therefore, out of an abundance of caution,

constructed on the Boeing 702 platform. Given the design of these model spacecraft, the tanks were sealed by firing a pyrotechnic valve after transfer orbit. As a result, it will be impossible for the satellite operators to fully vent all gas onboard the spacecraft, as required by Section 25.283(c) of the Commission's rules, which addresses the removal of stored energy onboard a spacecraft during end of life relocation.<sup>14</sup> Therefore, there may be residual amounts of gas remaining onboard these four satellites at end of life.

Accordingly, Panasonic hereby requests a blanket waiver of Section 25.283(c), to the extent one is necessary. Under Commission precedent, grant of such a waiver is warranted. In a number of cases involving various spacecraft models designed with similar limitations, the Commission has waived Section 25.283(c) to permit operation of a spacecraft that is unable to fully vent all stored energy at end of life, based on a finding that modification of the space station would pose an undue hardship.<sup>15</sup>

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Panasonic is providing orbital debris information and including Anik F1 in its blanket waiver request.

<sup>14</sup> 47 C.F.R. § 25.283(c); *see also* 47 C.F.R. § 25.114(d)(14)(ii). Section 25.283(c) contains the substantive venting requirement, and Section 25.114(d)(14)(ii) requires applicants to submit information that addresses "whether stored energy will be removed at the spacecraft's end of life." 47 C.F.R. § 25.114(d)(14)(ii).

<sup>15</sup> *See, e.g., Telesat Canada*, File No. SAT-APL-20111117-00222, SAT-PPL-20110630-00123, Call Sign S2703, grant-stamped Apr. 11, 2012, Attachment at ¶ 3 (granting partial waiver of Section 25.283(c) for Anik F3, an in-orbit, spacecraft unable to vent residual helium at end of life); *Hispanar Satélites, S.A.*, File Nos. SAT-PPL-20100506-00093 & SAT-APL-20101209-00257, Call Sign S2793, grant-stamped Dec. 21, 2010, Attachment at ¶ 1 (granting waiver of Section 25.283(c) in connection with residual helium that will be present on the in-orbit Amazonas-2 at its end of life); *EchoStar Satellite Operating Corp.*, File No. SAT-LOA-20071221-00183, Call Sign S2746, grant-stamped Mar. 12, 2008, Attachment at ¶ 4 (granting a partial waiver of Section 25.283(c) for AMC-14, a Lockheed Martin A2100 model spacecraft, on grounds that requiring modification of satellite would present an undue hardship); *DIRECTV Enterprises LLC*, File No. SAT-LOA-20090807-00086, Call Sign S2797, grant-stamped Dec. 15, 2009, Attachment at ¶ 4 (same for DIRECTV 12, a Boeing 702 model spacecraft); *PanAmSat Licensee Corp.*, File Nos. SAT-MOD-20070207-00027, SAT-AMD-20070716-00102, Call Sign S2237, grant-stamped Oct. 4, 2007, Attachment at ¶ 7 (same for Intelsat 11, an Orbital Sciences Star model spacecraft).

The same rationale applies here. Anik F1, Eutelsat W2A, Apstar 6 and Apstar 7 are fully operating, in-orbit satellites. There currently is no means of ensuring the full ventilation of all stored energy during end of life relocation short of retrieval of each spacecraft or launch of a servicing mission to each spacecraft, both of which are impracticable. Given these circumstances, Panasonic submits that undue hardship would result from requiring modification of these space stations prior to authorizing them as points of communication in the above-referenced license modification application. Accordingly, if Section 25.283(c) applies to these satellites, a waiver is clearly warranted.

### **III. CONCLUSION**

Panasonic amends the Modification Application to update the record to reflect the orbital debris information submitted herein. Panasonic respectfully requests that the Commission expeditiously consider and grant the Modification Application, as amended, in order to facilitate the provision of in-flight connectivity offerings to passengers and crews aboard U.S. and foreign aircraft around the world.