



Federal Communications Commission
Washington, D.C. 20554

DA 13-164

February 6, 2013

Mr. Carlos M. Nalda
Squire Sanders (US) LLP
1200 19th Street N.W., Suite 300
Washington, D.C. 20036

Re: Panasonic Avionics Corporation
IBFS File Nos. SES-MFS-20120913-00818; SES-AMD-
20130109-00028
Call Sign: E100089

Dear Mr. Nalda:

On September 13, 2012, Panasonic Avionics Corporation (Panasonic) filed the above-captioned application to modify its existing blanket license for aeronautical mobile-satellite service terminals operating in the Ku-band. On January 9, 2013, Panasonic amended its application to provide information about the end-of-life disposal plans for certain satellites that it listed as points of communications in the modification application. For reasons discussed below, we dismiss as defective, without prejudice to re-filing, the portions of the application that seek to add the AsiaSat 5, Superbird C2, Yamal 201, and Apstars 6 and 7 satellites as points of communication.¹

Section 25.112 of the Commission's rules, 47 C.F.R. § 25.112, requires the Commission to return as unacceptable for filing any application that is not substantially complete, contains internal inconsistencies, or does not substantially comply with the Commission's rules and fails to state grounds for waiver. Section 25.283(c) of the Commission's rules requires that upon a spacecraft completing its mission, a space station licensee shall ensure, unless prevented by technical failures beyond its control, that all stored energy sources on board the satellite are discharged, by venting excess propellant, discharging batteries, relieving pressure vessels, and other appropriate measures.²

The debris mitigation plans for AsiaSat 5, Superbird C2, and Apstars 6 and 7 attached to the January 9, 2013 amendment contain statements that, at end of life, energy will be "minimize[d]" and momentum wheels "will be maintained at the lowest kinetic energy level."³ These statements

¹ If Panasonic re-files an application identical to the one dismissed, with the exception of supplying the missing or corrected information, it need not pay an application fee. *See* 47 C.F.R. § 1.1111(d). For purposes of re-filing, Panasonic may wish to consult the Public Notice released by the International Bureau regarding information to be supplied in connection with the Commission's orbital debris mitigation rules. *See* Public Notice, Disclosure of Orbital Debris Mitigation Plans, Including Amendment of Pending Applications, 20 FCC Rcd 16278, DA 05-2698 (Int'l Bur. Sat. Div. rel. Oct. 13, 2005).

² 47 C.F.R. § 25.283(c).

³ IBFS File No. SES-AMD-20130109-00028, Attachment 1, Superbird C2 Satellite End of Life Disposal and Debris Mitigation Plan at 2 & AsiaSat 5 Satellite End of Life Disposal and Debris Mitigation Plan at 2.

indicate that some sources of energy will remain on the satellites at end of life, contrary to the requirements in Section 25.283(c). Panasonic did not request a waiver of Section 25.283(c) for these satellites and did not provide facts sufficient to justify a waiver.⁴ In addition, the information submitted for the Superbird C2 satellite does not specifically discuss the steps that will be taken to remove stored energy sources in the satellite's propulsion system.⁵

Similarly, the debris mitigation information submitted for the Yamal 201 satellite discloses that xenon gas will remain on the satellite at end of life.⁶ Although xenon is inert, it is a source of energy on board the satellite when stored under pressure. The presence of pressurized vessels on board the satellite at end of life does not comply with the requirements of Section 25.283(c). Panasonic did not request a waiver of Section 25.283(c) in connection with the Yamal 201 satellite, nor did it provide facts sufficient to justify a waiver.⁷

To the extent Panasonic relies on the fact that the non-U.S.-licensed satellites with which it seeks to communicate are subject to "direct and effective regulatory oversight" by the national licensing authority of the satellite,⁸ it has not provided sufficient supporting material, such as submitting English-language versions of the orbital debris mitigation requirements of the relevant national licensing authority and an indication as to whether the licensing authority has reviewed and affirmatively approved specific debris mitigation plans for the spacecraft.⁹

⁴ The Commission previously granted market access for the Apstar 6 satellite. See IBFS File No. SES-MOD-20091001-01254, as amended by SES-AMD-20091113-01451, SES-AMD-20100322-00337, and SES-AMD-20100416-00448, granted Jun. 25, 2010. That application did not specifically address momentum wheels. However, the grant, at condition number 389, included a waiver of Section 25.283(c) with respect to helium tanks:

The applicant's request for waiver of Section 25.283(c) for the APSTAR VI satellite is granted with respect to the total mass of 6.6 kg of helium sealed in three tanks, each tank with a volume of 51.6 liters. These tanks were sealed shortly following the satellite's launch on April 12, 2005, and prior to the effective date of FCC disclosure requirements concerning end-of-life measures on October 19, 2005. Compliance with Section 25.283(c) is not achievable except through direct retrieval of the spacecraft.

⁵ 47 C.F.R. § 25.114(d)(14)(ii). Although the wording of the information Panasonic provided for Superbird C2 concerning removal of stored energy sources is identical in most respects to the wording provided for AsiaSat 5 and Apstars 5 and 6, the Superbird C2 statement omitted the sentence stating that the "propellant and pressurized tanks will be eventually depleted and vented."

⁶ Gazkom Open Joint Stock Company, Yamal_KA extraterrestrial complex with Yamal-200 KA, Methods of reduction of GSO pollution at 5.

⁷ Although Panasonic did request a waiver of "any other rule provision to the extent necessary, to permit access to the Yamal 201 satellite," requests for waivers of the Commission's rules must be pled with specificity. See 47 C.F.R. § 25.112(b)(1)(applications otherwise defective "may be accepted for filing if accompanied by a waiver request of a *specific* rule, regulation, or requirement with which the application is in conflict")(emphasis added). In addition, we ask Panasonic to provide the volume (in liters) of each vessel in which xenon will be enclosed, and the estimated mass (in kg) of xenon in each vessel, at the satellite's end of life. Although it is possible that the remaining amount of xenon can be considered *de minimis*, it is impossible to determine whether this is the case based on the information provided.

⁸ Panasonic Application at 18 (citing *Mitigation of Orbital Debris*, Second Report and Order, IB Docket No. 02-54, 19 FCC Rcd 11567, 11606 para. 95 (2004)(*Orbital Debris Second Report and Order*)).

In addition, although not grounds for dismissal, we request Panasonic to provide the following additional information to enable us to determine whether the public interest is served by grant of its request to add satellites as points of communication:¹⁰

(1) Superbird C2. The orbital debris mitigation plan supplied for Superbird C2 states that disposal of the satellite will comply with the guidelines established by the Inter-Agency Space Debris Coordination Committee (IADC). These guidelines include the requirement to dispose of any expired geostationary orbit (GSO) satellite using a formula to determine the minimum perigee altitude in order to ensure that a disposed satellite does not re-enter orbits used by operational satellites. The submitted plan commits to a minimum perigee altitude of 300 km above GSO for disposal of the satellite. The plan does not, however, disclose the minimum disposal perigee calculated by the IADC formula. Accordingly, we cannot determine whether 300 km above GSO is sufficient to meet the minimum perigee calculated by the IADC formula, as well as Section 25.283(a) of the Commission's rules, which requires that GSO satellites must be relocated at end of life to an orbit with a perigee altitude determined by application of the IADC formula.¹¹ We request Panasonic to provide the minimum disposal perigee altitude as calculated by the IADC formula and to provide the figures for A/m and C_R that are used in applying the formula.¹²

(2) AsiaSat 5. The debris mitigation plan submitted for AsiaSat 5 states that the satellite is based on the Space Systems/Loral Series LS-1300 platform and that the manufacturer has established a dedicated space debris mitigation plan. We request that Panasonic confirm whether that plan is consistent with the manufacturer's plan submitted in another pending application involving the same satellite platform.¹³ We also request that Panasonic provide the volume (in liters) of each vessel in which gas will be enclosed at the satellite's end of life, and the estimated mass (in kg) and composition in each vessel of any remaining propellant, oxidizer, or fuel.

(3) Yamal 201. The debris mitigation plan supplied for Yamal 201 states that the satellite will be disposed of with a minimum perigee altitude of 200 km above GSO, and Panasonic requested a waiver of the minimum disposal altitude in Section 25.283(a) for this satellite. To make a public interest determination regarding the proposed disposal plan, we need

⁹ *Orbital Debris Second Report and Order* at 11606, para. 95. While certain materials provided in the amendment provide useful information concerning review by foreign regulators, it is unclear from Panasonic's amendment the scope of material the respective satellite operator submitted to such regulators and thus whether the regulator's review was direct and effective. *See also* Letter to John K. Hane, Counsel to New Skies Satellites, B.V., from Robert E. Nelson, Chief, Satellite Division, 26 FCC Rcd 7996 (June 8, 2011).

¹⁰ We also list similar information requests for certain dismissed points of communication in the event Panasonic elects to amend its application to include the dismissed points of communication.

¹¹ 47 C.F.R. § 25.283(a).

¹² The IADC formula, codified in § 25.283(a), specifies disposal of GSO spacecraft to an orbit with a perigee altitude of not less than $36,021 \text{ km} + (1000 \cdot C_R \cdot A/m)$, where C_R is the solar radiation pressure coefficient of the spacecraft, and A/m is the area to mass ratio, in square meters per kilogram, of the spacecraft.

¹³ *See* Petition of Hispamar Satélites, S.A. to Add the Amazonas-3 Space Station to the Commission's Permitted Satellites List, IBFS File No. SAT-PPL-20121018-00183, Attachment containing Section 25.114(d) Technical Information.

to know the amount of deviation between the proposed disposal orbit of 200 km above GSO and the minimum disposal altitude calculated using the IADC formula, as codified in Section 25.283(a). Accordingly, we request Panasonic to provide the minimum disposal altitude as calculated by the IADC formula and to provide the figures for A/M and Cr that are used in applying the formula. We also request Panasonic to clarify whether the 200 km perigee is an initial post-disposal perigee, or whether it takes into account gravitational perturbations and solar radiation pressure that will alter the satellite orbit in the years after de-commissioning.

(4) W2AU. The debris mitigation plan submitted for W2A states that the satellite will contain some unvented pressure vessels at end of life. Panasonic has requested a waiver of Section 25.283(c) for this satellite. The plan states that during passivation at end of life, propellant tanks will be depressurized “as much as possible.” We ask Panasonic to provide any additional information that may support this waiver request, such as a discussion of the factors that limit the possibility of discharging all stored propellant at end of life.

(5) ANIK F1. The debris mitigation plan submitted for ANIK F1 states that the satellite will not completely discharge all stored energy at end of life, and Panasonic has requested a waiver of Section 25.283(c) for this satellite. It is not clear, however, that a waiver of Section 25.283(c) is required, since the plan states that any remaining propellant, oxidizer, or fuel will be vented as part of end of life disposal, which will place the satellite in a “safe” mode. We ask Panasonic to confirm whether or not all stored energy will, in fact, be discharged at ANIK F1’s end of life. If propellant, oxidizer, or fuel does remain on board at end of life and is not vented, we ask Panasonic to provide the mass of each class of gas (in kg) and the volume (in liters) of the tank(s) in which the gas will be enclosed at end of life.

(6) Apstar 7. The combined debris mitigation plan submitted for Apstars 6 and 7 indicates that the two satellites share a number of characteristics. We ask Panasonic to confirm whether the information previously provided to the Commission concerning unrelieved pressure vessels on the Apstar 6 satellite is also accurate with respect to Apstar 7.¹⁴ Panasonic may also wish to provide any additional information that may support its request for waiver of Section 25.283(c).

For the reasons set forth above, pursuant to Section 25.112(a)(2) of the Commission’s rules, 47 C.F.R. § 25.112(a)(2), and Section 0.261 of the Commission’s rules on delegations of authority, 47 C.F.R. § 0.261, we dismiss as defective, without prejudice to re-filing, the portions of Panasonic’s application that seek to add the AsiaSat 5, Superbird C2, Yamal 201, and Apstars 6 and 7 satellites as points of communication.

Sincerely,

Fern J. Jarmulnek
Acting Chief, Satellite Division
International Bureau

¹⁴ See IBFS File No. SES-AMD-20100416-00448.