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January 7, 2016

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

**Re: Panasonic Avionics Corporation – Section 1.65 Submission,  
Response to FCC Letter dated Nov. 12, 2015, Call Sign E100089,  
File Nos. SES-MFS-20150609-00349 and SES-AFS-20150820-00538**

Dear Ms. Dortch:

Panasonic Avionics Corporation (“Panasonic”), in connection with the above-referenced earth station aboard aircraft (“ESAA”) application and pursuant to Section 1.65 of the Commission’s Rules, 47 C.F.R. § 1.65, hereby responds to a letter from the Commission dated November 12, 2015.<sup>1</sup>

In the letter, the Commission requested clarification of certain information in Panasonic’s ESAA application, including: (i) the orbital range associated with the Eutelsat 70B coordination letter; (ii) additional information regarding orbital debris mitigation for the Eutelsat 70B, Yamal 401 and NSS-6 satellites; (iii) given the relocation of Yamal 300K and resulting service to earth stations located in the United States, information showing that operation of the satellite is consistent with requirements for U.S.-licensed systems operating in the United States; and (iv) the name of the relevant ITU satellite network filings and administrations for the Eutelsat 70B, JCSAT-5A, Yamal 401, Yamal 300K and NSS-6 satellites.<sup>2</sup> With the exception of item (iii), which must be addressed in a formal application amendment, this submission provides the requested clarifications and additional information.

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<sup>1</sup> See Letter from Jose Albuquerque, Chief, Satellite Division, International Bureau to Carlos M. Nalda, LMI Advisors, Call Sign E100089, File Nos. SES-MFS-20150609-00349 and SES-AFS-20150820-00538 (Nov. 12, 2015).

<sup>2</sup> See generally *id.*

Panasonic hereby confirms that the statement of Eutelsat regarding consistency of the proposed operations with “existing satellite coordination agreements with the adjacent satellites to Eutelsat 70B” includes adjacent satellites within +/-6 degrees of orbital separation from the Eutelsat 70B satellite in accordance with Section 25.227(b)(2)(ii) of the Commission’s rules.

Panasonic also provides the following clarifications and additional information regarding the orbital debris mitigation plans for the Eutelsat 70B, Yamal 401 and NSS-6 satellites:

- Eutelsat 70B: In the Eutelsat 70B Space Debris Mitigation Plan, Section 4.A contains a table which shows predicted masses of materials at end-of-life. The table summarises the amount of propellant and/or pressurant that cannot be expelled/used (the so-called “residuals”). As explained in the Mitigation Plan, once the orbit raise activity is completed, Eutelsat continues its efforts to empty fuel and oxidizer tanks as much as possible. As part of this exercise, some of the predicted residuals will be expelled so final mass of residuals should be smaller than those appearing in the table. However, Eutelsat cannot guaranty or quantify with specificity the amount that may be expelled during this process. For this reason, the predicted values in the table should be viewed as worst-case values for purposes of the Commission’s orbital debris mitigation assessment.
- Yamal 401: The Commission requested that Panasonic confirm or correct the figures in the table in the appendix of the Yamal 401 Orbital Debris Mitigation Plan. Panasonic has communicated with the satellite operator and provides the following updated table (new information is reflected in bold/underlined text).

Item	Purpose	Tank Volume	Number of Tanks / Interconnected	Initial mass of item per tank	End of life mass/ volume	Tank pressure rating / units	End-of-life pressure
Hydrazine (liquid)	Attitude control	26 liters BOL 0.7 litre EOL	3 Tanks / Interconnected	25 kg	0.7 kg/ 0.7 l	<b>8.1</b> atm	NA
Nitrogen	Pressurant	14 liters BOL <b>39.3</b> liters EOL	Fuel and pressurant are located in common tank and separated by internal membrane.	0.25 kg	0.25 kg/ 39,3 l	<b>8.1</b> atm	<b>2.9</b> atm
Xenon	Orbit control	38 liters	4 / Yes	71 kg in each tank	1 kg in each tank	140 atm	2.6 atm

In addition, the Commission requested confirmation of the temperature(s) at which end-of-life pressures were calculated. The satellite operator informed Panasonic that the temperature for calculation of the updated end-of-life pressure (i.e., Nitrogen) is 291°K.

- NSS-6: The Commission requested that Panasonic provide the type and mass of any residual pressurant in the NSS-6 satellite's oxidizer tanks, and the type of oxidizer in them. The pressurant in the tanks is Helium with a mass of 1.398 kg. The type of oxidizer is MON-3 (N<sub>2</sub>O<sub>4</sub> with 3% NO<sub>2</sub>).

Panasonic further provides the chart below to summarize the relevant ITU satellite network filings and administrations requested by the Commission:

Satellite	ITU satellite network	Administration name
E70B	EUTELSAT 3-70.5E	France
JCSAT-5A	N-STAR-A	Japan
Yamal-300K	NSS-19	Netherlands
Yamal-401	EXPRESS-7C	Russia
NSS 6	NSS-9	Netherlands

Finally, with respect to the information showing that operation of the Yamal 300K satellite is consistent with requirements for U.S.-licensed systems operating in the United States, Panasonic has filed a separate application amendment to formally submit this information (including Schedule S data) in the docket of its ESAA application.<sup>3</sup>

Please do not hesitate to contact the undersigned with any questions regarding this submission. Thank you very much for your continued consideration.

Respectfully submitted,



Carlos M. Nalda  
LMI Advisors

cc: Jose Albuquerque, FCC  
Paul Blais, FCC

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<sup>3</sup> See IBFS Submission ID IB2016000036 (Jan. 7, 2016).