

From: Mark Mills

To: Anthony Serafini
Date: March 22, 2016

Subject: Request for Info - File # 0104-EX-ST-2016

Message:

Orbital ATK Response: Some of the information in question is incorrect. The frequency ranges for both Link 69 and Link 88 are incorrectly stated, while the frequency designators for both Link 69 and Link 88 are correctly stated.

1. In reviewing the current STA application 0104-EX-ST-2016, it does not state the same frequency information for Link 69 and Link 88 that is under question here. The following information is extracted from 0104-EX-ST-2016 for the 3 S-Band telemetry emissions:

Link Designation	Frequency	Emission Designator
Link 41	2239.76 – 2243.24 MHz	3M48F1D
Link 69	2266.6 – 2272.4 MHz	5M80F1D
Link 88	2285.6 – 2291.4 MHz	5M80F1D

This information is correct.

2. The stated frequencies in question are incorrect. It is possible that happened because previously flown Antares missions used those frequency ranges, as listed here:

Link Designation	Frequency	Emission Designator
Link 41	2239.76 – 2243.24 MHz	3M48F1D
Link 69	2267.76 – 2271.24 MHz	3M48F1D
Link 88	2286.76 – 2290.24 MHz	3M48F1D

These 3 S-Band telemetry links from previous Antares missions were all 3.48 MHz wide. For Link 69 and Link 88, the previous frequencies covered are the same as those listed in question for this current STA application. Perhaps the frequencies from the previous STA application got mixed with the frequency designators of the current STA application. Link 41 remains the same for this current application as it did for STAs granted for previous Antares missions.

3. None of these links are spread spectrum. All are PCM/FM. For previous Antares missions, all 3 telemetry data links had a 3 Mbps data rate, resulting in the 3.48 MHz bandwidth. Beginning with this mission, the data rates for Link 69 and Link 88 have been increased to 5 Mbps, and the resulting bandwidths are 5.48 MHz.