

**Astronics AeroSat Corporation
Application for Experimental
Special Temporary Authorization (“STA”)**

NARRATIVE DESCRIPTION

Pursuant to Sections 5.54(a)(1) and 5.61 of the rules of the Federal Communication Commission (the “FCC” or “Commission”),¹ Astronics AeroSat Corporation (“Astronics AeroSat”) respectfully requests special temporary authorization (“STA”) for a period of six (6) months, commencing on February 5, 2018 or as soon as practicable thereafter, to evaluate and demonstrate up to twenty (20) earth stations aboard aircraft (“ESAA”) terminals designed to provide in-flight broadband Internet connectivity for passengers and crew. Astronics AeroSat seeks authority to conduct the tests within the contiguous United States (“CONUS”) and adjacent international waters for stationary, vehicle-mounted ground mobile and flight testing in the 14.0-14.5 GHZ band (Earth-to-space).

Astronics AeroSat seeks this short-term authority to conduct experimental operations with the Astronics AeroSat HR6400 and HR129 ESAA terminals, two terminal types that have been authorized by the Commission for experimental and commercial operations.² The instant request is necessitated by Astronics AeroSat’s ongoing need to operate the terminals in fixed and land mobile configuration, which was included in its now-expired *ESAA Experimental License* but such authority arguably may not be included in its *ESAA Commercial License*.

¹ 47 C.F.R. §§ 5.54(a)(1) & 5.61.

² See Astronics AeroSat Corporation, File No. 0048-EX-CM-2016, Call Sign WH2XJQ (expired on October 1, 2017) (“*ESAA Experimental License*”); See Astronics AeroSat Corporation, File No. SES-MFS-20170319-00302, Call Sign E140087 (authority to operate the HR6400 and HR129 on a commercial basis in U.S. and international airspace) (“*ESAA Commercial License*”).

This new STA request³ is identical to the operations previously approved in the *ESAA Experimental License* and does not make any changes to the geographic scope, technical characteristics (frequency bands, emission designators, authorized power or signal modulation) or other information associated with the prior grant. Astronics AeroSat incorporates by reference the earth station and experimental operations information previously provided in support of the *ESAA Experimental License*⁴ and will operate the ESAA terminals consistent with the terms and conditions previously imposed by the Commission. Furthermore, Astronics AeroSat seeks an experimental STA only because it plans to formally modify its *ESAA Commercial License* to include fixed and land mobile operation. As described below, grant of this request will serve the public interest and allow Astronics AeroSat to continue development and optimization of its ESAA terminal capabilities.

I. Discussion

Astronics AeroSat recognizes and accepts that operations under this experimental license are conducted on an unprotected, non-interference basis only and will be conditioned upon protection of co-frequency operations.⁵ Astronics AeroSat notes that there have been no reported cases of interference relating to its operations under its existing experimental or commercial licenses⁶ and it is unlikely that interference will occur under this STA. Still, Astronics AeroSat

³ Astronics AeroSat cannot renew its expired experimental license. *See* 47 C.F.R. § 5.59(a)(2).

⁴ *See ESAA Experimental License* and associated filings and modifications.

⁵ 47 C.F.R. § 5.84.

⁶ *Supra* n.2.

will immediately cease operations to the extent harmful interference is caused to another authorized spectrum user in the 14.0-14.5 GHz band.

In addition to operating consistent with Part 5 of the Commission's rules governing experimental operations, Astronics AeroSat will operate the HR129 and HR6400 ESAA terminals consistent with Sections 25.226 and 25.227 of the Commission's rules, 47 C.F.R. §§ 25.226 and 25.227, governing vehicle-mounted earth stations ("VMESs") and ESAAs.

Specifically, Astronics AeroSat will operate the ESAA terminals well below the off-axis EIRP spectral density ("ESD") masks set forth in Sections 25.226 and 25.227 of the Commission's rules⁷ and thus will protect co-frequency operations from harmful interference during its proposed experimental operations. Astronics AeroSat has previously provided off-axis ESD plots pursuant to Section 25.115(g)(1) of the Commission's rules, 47 C.F.R. § 25.115(g)(1), demonstrating compliance with the Commission's ESD mask, which it incorporates into the instant STA request.⁸

Astronics AeroSat provides the FCC Form 442 for information relating to the operational parameters of its proposed ESAA operations, which are identical to those previously approved by the Commission. In addition, although the *ESAA Experimental License* does not specify authorized satellite points of communications, Astronics AeroSat confirms that the satellites to be used during the experimental STA period have been previously authorized by the Commission to provide service in the U.S. market (U.S.-licensed or granted U.S. market access), thus their

⁷ The Commission's ESD mask applicable to VMESs is identical to the off-axis ESD mask application to ESAAs.

⁸ See Astronics AeroSat Corporation, File No. 0078-EX-ST-2014, Call Sign WH9XHX, Technical Appendix (providing off-axis ESD plots for the HR6400 terminal); File No. SES-MFS-20161003-00823, Call Sign E140087, Technical Appendix III (providing off-axis ESD plots for the HR129 terminal).

operating parameters have been previously reviewed and accepted by the Commission.⁹ Astronics AeroSat also seeks Commission authority to communicate with any U.S. or non-U.S. licensed satellite on the Commission's Permitted Space Station List to ensure maximum flexibility during testing.

II. Public Interest Considerations

In accordance with Section 5.63(c)(1), Astronics AeroSat anticipates that its proposed experimental operations will contribute greatly to the public interest. The proposed evaluations will help demonstrate the capabilities of an innovative ESAA terminals and commercial applications and promote real-world implementation of the proposed trials, as well as allow Astronics AeroSat and its commercial partners to learn information about equipment capabilities and limitations, customer acceptance and integration of its service and equipment. The public interest will also be served by facilitating Astronics AeroSat's continued development and optimization of its ESAA terminals, providing a direct benefit to U.S. citizens who utilize aeronautical broadband satellite connectivity.

III. Conclusion

Based on the foregoing, the public interest would be served by granting Astronics AeroSat's request for a six-month STA, commencing on February 5, 2018, to perform testing and evaluation of the HR6400 and HR129 terminals in support of its commercial ESAA operations.

⁹ A complete list of satellite points of communication is provided in Exhibit 1. Each of these satellites has been previously authorized for ESAA operations in the United States. *See, e.g.*, Panasonic Avionics Corporation, File No. SES-MFS-20170312-00255, Call Sign E100089.