

UltiSat Inc.
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 UltiSat Inc. (“UltiSat”) respectfully requests experimental special temporary authorization (“STA”) for a period of six (6) months, commencing on February 9, 2018 or as soon as practicable thereafter, to evaluate and demonstrate a new earth station aboard aircraft (“ESAA”) terminal in intelligence, surveillance, and reconnaissance (“ISR”) applications that will provide cost-efficient, secure and reliable solutions for United States Government (“USG”) security operations. As described in the application materials, grant of this application is consistent with Commission rules and will serve the public interest.

I. Background/Purpose of Operations

UltiSat, an existing FCC licensee that provides diverse satellite services for government and commercial customers, seeks this STA to evaluate the functionality and performance of up to 100 Ku-band ESAA terminals – the Skytech Model BB45 – in novel ISR applications. UltiSat will operate the BB45 ESAA terminal in the 14.2-14.47 GHz (Earth-to-space)² and 11.7-12.2 GHz (space-to-Earth) bands with certain U.S.-licensed and

¹ 47 C.F.R. §§ 5.54(a)(1) & 5.61.

² UltiSat does not seek authority to operate in the 14.0-14.2 GHz band to ensure no harmful interference into existing NASA TDRSS facilities on Guam or White Sands, New Mexico. Similarly, UltiSat does not seek authority to operate in the 14.47-14.5 GHz band in order to protect the radioastronomy observatories listed in Section 25.226(d)(2) of the Commission’s rules.

U.S.-authorized geostationary satellite orbit (“GSO”) fixed-satellite service (“FSS”) satellites. Accordingly, the operating parameters of each proposed satellite point of communication have been previously reviewed and approved.³ UltiSat requests this STA to fulfill an existing United States government contract to support national security projects throughout the continental United States.⁴

The BB45 terminal is an airborne stabilized antenna system that provides high-quality broadband satellite communications for aeronautical application and is designed to operate in FSS frequencies to provide mission-critical delivery of voice, video and data communications. The antenna is mechanically steerable and is intended for tail or fuselage-mounting. UltiSat seeks to test the performance of the BB45 ESAA terminal on certain U.S.-registered aircraft to evaluate the technical feasibilities and logistical implications of the proposed ISR applications.

UltiSat will test the BB45 terminal for reliability and performance in the context of integration and fielding of the terminal into multiple aircraft that are directly supporting U.S. government operations relating to national security and safety. UltiSat’s primary need for this experimental authority will be for the evaluation of its state-of-the-art aeronautical security services utilizing innovative satellite technologies for more efficient management and use of critical USG resources.

³ UltiSat proposes to conduct testing and demonstration while communication the following satellites: EUTELSAT 117WA (located at 117° W.L.); Sky B-1 (located at 317° E.L.); Intelsat 29e (located at 310° E.L.); SES-1 (located at 101° W.L.); and AMC-21 (located at 125° W.L.).

⁴ Due to the highly sensitive nature and security implications of the proposed operations, UltiSat requests certain information relating to its government contract and project scope be treated as confidential. *See Confidential Treatment Request.*

UltiSat provides the attached Technical Appendix and FCC Form 442 for information relating to the operational parameters and other technical specifications of its proposed ESAA operations. In addition to operating consistent with Part 5 of the Commission's rules governing experimental operations, UltiSat will operate the BB45 terminal consistent with Section 25.227 of the Commission's rules governing ESAA operations, 47 C.F.R. § 25.227, and will otherwise operate consistent with Commission policy.

II. Discussion

UltiSat will adhere to its obligations under Part 5 of the Commission's rules to avoid interference to existing authorized spectrum users and will operate on an unprotected, non-interference basis during the term of the STA. If UltiSat learns its experimental operations are causing interference into existing spectrum users, it will not resume transmissions until the it establishes to the satisfaction of the Commission that further harmful interference will not be caused to any authorized radio service.⁵ The control point operator will maintain control of all transmissions and will cease transmission immediately upon request of the satellite operator or on request of the adjacent satellite operators. The stop buzzer contact during experimental operations is:

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⁵ 47 C.F.R. § 5.84.

Moreover, during testing, UltiSat will operate the BB45 terminal within the off-axis EIRP spectral density (“ESD”) limits set forth in Section 25.227 of the Commission’s rules. Specifically, UltiSat will operate the BB45 terminal at off-axis ESD levels that are compliant with the Commission’s two-degree spacing policy and thus it will protect co-frequency operations from harmful interference. In the Technical Appendix, UltiSat provides 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.

III. Public Interest Considerations

In accordance with Section 5.63(c)(1), UltiSat anticipates that its proposed experimental operations will contribute greatly to the radio art and serve the public interest. The proposed evaluations will help demonstrate the capabilities of an innovative ESAA applications in the ISR context and promote real-world implementation of the potential solutions examined in the trials. In addition, grant of the requested authority will allow UltiSat and its government partners to develop important information about equipment capabilities and limitations, customer acceptance and integration of its service and equipment with other government applications and operations. The public interest will also be served by facilitating UltiSat’s ability to provide advanced, versatile and easily deployable ESAA terminal solutions for U.S. government entities to the benefit of the U.S. public.

IV. Conclusion

Based on the foregoing, UltiSat respectfully requests that the Commission grant this request for a six-month STA to test and evaluate a Ku-band ESAA terminal to support a United States government contract, commencing no later than February 9, 2018.