

Confirmation Number EL281383
File Number 0823-EX-CN-2017
December 16, 2017

AeroVironment submits this information in support of the application:

AeroVironment seeks to test the small unmanned aircraft system (SUAS) with a special payload and other systems that are sensitive to nearby RF emissions in collaboration with Virginia Institute of Technology, and other industry partners at the Blacksburg facility. With the Department of Defense (DoD) transitioning operations to the 2025-2110 MHz band¹ for command and control of SUAS, it is necessary to perform flight testing to determine if there will be adverse performance on the SUAS command and control (C2) as well as the payload and other systems. Radio performance and functional tests will be pursued. The experiments will replicate scenario-based environments to discern operational effectiveness and degree refinements needed to transceivers, antennas and overall system. The testing will evaluate the technology's effectiveness in this different spectrum environment.

Actual flight test is necessary to ensure true real-world interoperability between the co-site systems. Lab testing in screen rooms is not sufficient. Therefore, the FAA designated flight test facility near Blacksburg, VA is being used as a safe area to conduct the flight in accordance with an FAA flight Certificate of Authority to operate (COA).

Nearby home-base Virginia Institute of Technology and other industry partners in this research project, as well as the nearby University laboratory facilities make this an ideal location to conduct this necessary testing. Informal pre-coordination with incumbent users of this spectrum have indicated that it can be used for this testing without impacting their operations in this location.

The theory of operation is that a 5 MHz channel in the 2025–2100 MHz segment is used in a Time Division Multiple Access/Time Division Duplex (TDMA/TDD) control link for the Ground Control Station (GCS) for the UAV to control with the UAV as well as to small portable radios held by various squad members. Testing will be conducted to determine if the RF payload and the UAV control link affect each other's operation in flight.

This experimentation is expected to last only a short period, however, the RF Payload equipment to be used is still in development and needs to be integrated so a firm schedule is still uncertain. Therefore a 12 month application is being requested in order to carry out this short period window and to permit follow on testing if issues are uncovered in initially testing with fixes that need to be tested later.

¹ *In the Matter of the Commission's rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz Bands*, Report and Order, FCC 14-31, GN Docket No. 13-185 (March 31, 2014) at ¶¶ 12-13, 210-212. 47 CFR § 2.106 footnote US92.