

STATEMENT ACCOMPANYING REQUEST TO RENEW AUTHORIZATION WG2XVN OF AEROVIRONMENT, INC.

1. Introduction

AeroVironment, Inc. (AeroVironment) requests that the Commission grant a two-year renewal of call sign WG2XVN to operate facilities within the 1670-1675 MHz band. All technical information remains as stated in the current authorization. We request that sites 37 and 66 (Vicinity of Deadhorse Airport, AK), 60 and 61 (Church Rock, NM), 64 and 65 (Kayenta, AZ) and 67 and 68 (Book Cliffs, UT) be deleted or that we be permitted to submit a subsequent modification application to do so.

The following summarizes the testing AeroVironment has undertaken, recaps the technical parameters of the current authority and is submitted in support of this renewal request.

2. Purpose

The research and information resulting from the testing is provided to the Federal Aviation Administration (FAA) and is a critical element of the FAA's congressionally mandated project to integrate SUAS into the national airspace (NAS). Each site seeks to replicate environments where commercial SUAS is envisioned. AeroVironment is aware of no credible testing and research of SUAS commercial operations. The experiments are building a research portfolio showing the SUAS datalink behavior and performance in representative mission sets. The FAA is examining how systems are designed, constructed and manufactured; including the engineering processes, software development and control, configuration management, and quality assurance procedures supporting the aircraft. The FAA will not move to embrace pervasive SUAS presence in the NAS until a record is established showing SUAS operations in multiple environments supporting varied purposes are viable. The testing performed under the Commission's experimental authority is an important facet of this review.

3. Technology Use

The experiments embrace a model using a band segment aligning with technology and equipment currently available. AeroVironment reiterates its commitment to operations respecting other users of the band and those in adjacent segments. The limited power levels are part of this commitment. The 1670-1675 MHz channels provide SUAS control and video and telemetry transmission from the SUAS to the ground. Slots are dedicated for uplink data and a downlink.

At each individual site, there is only one SUAS airborne at any time.

4. Nature of Operations

Surface Based and Airborne Transmission

AeroVironment's communications module, Digital Data Link (DDL), uses the 1670-1675 MHz band segment for purposes of sending ground based command and control data to and from the SUAS and to transmit video and telemetry to the ground control station. The technology, capable of operating within 1625-2390 MHz, requires 4 MHz for full motion video and a 1 MHz channel for video at 15 frames per second. Emission Designators are 4M68G7W and 1M56G7W, respectively, with a transmit power at 10W. Transmission control will be from the surface control station to the SUAS via a laptop or console. AeroVironment's DDL system has been adopted by the US Army as the standard communications architecture for all small unmanned systems, including ground robots.

5. Stop Buzzer

Andy Thurling, Chief Test Pilot, Director, Product Safety and Mission Assurance, is available by telephone at 805.581.2198, extension 1892, Cell Phone 805.368.6351 and will act as a "stop buzzer" if any matters involving interference arise during the testing.

6. Transmitting Equipment

The transmitting equipment is AeroVironment Transreceiver Model 50280, with 2 units at each location. It is not experimental.

7. Antenna

The Antenna details are as follows:

Antenna	Gain (Nominal)	Polarization	Orientation in Vertical Plane	Oriental in Horizontal Plane
GCU Antenna ASY AeroVironment Stack Patch	9dbi*	Vertical	30	85
1670-1675 MHz Tailboom ASSY AeroVironment Dipole	2dbi	Vertical	78	360

*Major Side Lobe

- E-Plane
 - Gain: -2 dbi
 - 120 deg
- H- Plane
 - Gain: -2 dbi
 - 179 deg

8. Restrictions on Operations and Interference Protection

AeroVironment understands that experimental operations must not cause harmful interference to authorized facilities. Should any interference occur, AeroVironment will take immediate steps to resolve the interference, including, if necessary, discontinuing operations.

9. Waiver of Station Identification Requirements

AeroVironment ask that its waiver of the station identification requirements stated in Section 5.115 of the Commission's rules remain in place.

10. Federal Aviation Administration (FAA) Certificate of Waiver Authorization (COA)

AeroVironment has obtained or will file applications, relating to a Certificate of Waiver or Authorization with the FAA detailing the areas where the SUAS will be flying. AeroVironment understands that no operations will be pursued until FAA approval of the COA and that any operations will be within the COA parameters.

11. Diagram

A diagram of the operations are provided in the Attachment.

Conclusion

AeroVironment appreciates very much the Commission's consideration of this renewal application for an Experimental Authorization. Please call upon us if we can respond to any questions.

Attachment

Operations Diagram



Small Unmanned Aircraft-

Video and Telemetry
1670-1675 MHz

Aircraft Command and Control Main and
1670-1675 MHz

