

## **STATEMENT ACCOMPANYING REQUEST FOR EXPERIMENTAL AUTHORIZATION BY AEROVIRONMENT, INC.**

### 1. Introduction

By this application, AeroVironment, Inc. (AV), requests that the Commission grant a two-year experimental license to operate facilities using the 4940-4990 MHz band. In this statement, we ask for expedited consideration of this application and that we be permitted to use frequencies designated in the public safety service. We also explain the purpose and nature of the proposed operations and why this application is within the Commission's experimental authorization rules. AV also asks the Commission to grant a waiver of the airborne restriction applicable to this band segment. We present the concurrences we have received from co or adjacent band users.

### 2. Request for Expedited Consideration

AV requests that this application be considered on an expedited basis. The purpose of the experiments is providing analysis and information that will further the availability of small unmanned aircraft system (SUAS) technologies to state and local public safety agencies. The technology can make a meaningful contribution to crucial domestic security and emergency response obligations of state and local governments at significant cost efficiencies. The experimental work will make possible bringing the technology to agencies expeditiously.

### 3. Use of Public Safety Spectrum

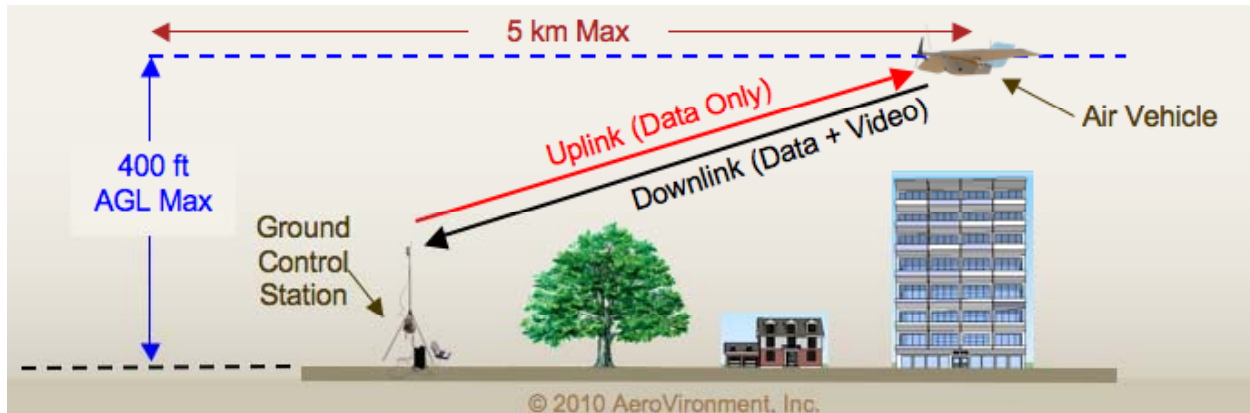
AV's SUAS technology is directed to assisting state and local law enforcement and other public safety agencies in fulfilling their responsibilities. The experiments conducted pursuant to the proposed authorization will embrace a model where public agencies licensed on the 4.9 GHz band will use the technology. The operations will respect other public safety use of the 4.9 GHz band. AV believes the compelling purpose of bringing advanced services to state and local government will serve the public interest.

### 4. Purpose and Nature of Operation

#### *Ground Based and Airborne Transmission*

The testing described in this application will be conducted by AV near its Simi Valley, California facility (34.274 N 118.743 W) and at a facility in Camp Roberts, CA (35.755 N 120.769 W). Transmission will originate from the ground control station to the Air Vehicle. Current Commission rules at section 90.1215 addressing power limits in the band will be honored with regard to both ground control station and air vehicle transmissions. Operations will be restricted to 400 ft AGL at all times. Testing activities will be coordinated consistent with the Commission's rules, section 90.1209. A single frequency duplex architecture is proposed (one frequency for uplink data & downlink video/data). 5 to 10 MHz bandwidth per Ground Station and Air Vehicle pair is envisioned.

The following diagram represents the testing model:



The purpose of the experiments will be to assist in the continued development of SUAS technologies for state and local law enforcement and emergency response agencies. The testing will replicate the several environments where real time surveillance and monitoring activity can provide information improving public safety planning and response. The experiments seek to build on the extensive SUAS deployment by the military. The program presents a substantial opportunity to bring broadband and other advanced services to local and state governments in a cost effective manner.

5. Stop Buzzer- Dr. Gabriel Torres of AV will be available by telephone at 805-581-2187 and will act as a “stop buzzer” if any matters involving interference arise during the testing.
6. Technical Specification
  - a. Antenna Information  
Detail type and specification
    - i. Manufacturer: AV-designed prototype
    - ii. Model: AV-designed prototype
    - iii. Gain: 6 dBi max
    - iv.. Beamwidth  
(H) 360 deg  
(V) 80 deg
  - . V. Fixed Losses: ~2 dBi
7. Transmitter Data for Base Station and Mobile
  - a. Manufacturer: dBii
  - b. FCC Equipment Authorization No.: VKVF50
  - c. RF Power Output: 0.5 W
  - d. Emission Designators: 4M27W7D, 8M43W7D, 16M6W7D
  - e. Modulation Type: OFDM 802.11a

## 8. Coordination with other Users

AV has provided this application to other interested users. Attached are communications of concurrence from the Department of the Navy, the National Radio Astronomy Observatory and the Jet Propulsion Laboratory which operate the Goldstone Deep Space Communication Complex and the Owens Valley Radio Astronomy Observatory.

## 9. Restrictions on Operations, Interference Protection and Station Identification

AV understands that experimental operations must not cause harmful interference to authorized facilities. As noted, AV will coordinate its operations as necessary to avoid interference. Should any interference occur, AV will take immediate steps to resolve the interference, including if necessary arranging for the discontinuance of operations.

AV requests a waiver of the station identification requirements stated in Section 5.115 of the Commission's rules.

## 10. Request for Waiver of Section 90.1205(c)

AV requests that the Commission waive rule section 90.1205(c), which precludes airborne operations in the 4.9 GHz band and allow AV experimental testing not exceeding a maximum altitude of 400 feet AGL (above ground level).

The Commission addressed airborne operation in its decision establishing the 4.9 GHz band for public safety. In the Matter of The 4.9 GHz Band Transferred from Federal Government Use, *Memorandum Opinion and Order and Third Report and Order*, WT Docket No. 00-32, FCC 03-99 at paragraph 12 ( May 2, 2003). It stated that it would restrict operations in the band to terrestrial to protect astronomy laboratory operations. The Commission recognized that airborne use, and, in particular, video transmissions can assist public safety agencies in performing their critical missions. It further stated that it would accommodate airborne use that did not jeopardize radio astronomy operations on a case by case waiver basis.

As indicated in the accompanying concurrences from the astronomy laboratories, AV's proposed operations present no challenges to these interests. Notably, as the air vehicle will not exceed 400 feet AGL, the potential for interference is extremely limited. The testing pursued by AV will be an invaluable contribution to providing advanced services to state and local agencies. It will bring a highly regarded technology embraced by the military to state and local governments at enormous cost efficiencies. The public interest will be well served.

Rule Section 1.925(b)(3)(i) states that the Commission may grant waivers if, among other reasons, "the underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest...." Allowing AV to conduct experimental testing in the 4.9 GHz up to 400 feet AGL

would serve the underlying purpose of promoting advanced technologies for public safety agencies while at the same time protecting the astronomy laboratory operations.

### Conclusion

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