

STATEMENT ACCOMPANYING REQUEST TO MODIFY EXPERIMENTAL AUTHORIZATION WG2XVN OF AEROVIRONMENT, INC.

1. Introduction

By this application, AeroVironment, Inc. (AeroVironment), requests that the Commission grant a modification to call sign WG2XVN to operate facilities within the 1670-1675 MHz band at additional sites. We also request that two sites be deleted from the authorization.

The proposed new sites, detailed in the attached Form 442 are:

- Dugway Proving Ground, Tooele County, Utah, mobile and airborne, 44 km radius, centered on NL 40-06-24 WL 113-12-23

The sites be deleted from WG2XVN where experiments are complete are:

- Sites (27/28) Lompoc, CA-3.52 km centered on NL 34-35-38; WL 120-20-21

There are no modifications to the technical elements of the authorization. In this statement, we explain the purpose why this application is within the Commission's experimental authorization rules.

2. Purpose

The purpose of the experiments is to test a model seeking to integrate and expand services beyond the Small Unmanned Aircraft (SUAS) current communications platform that have been tested to date. The tests seek to integrate AeroVironment's SUAS communications module with High Altitude Platform Stations (HAPS), Satellite and Terrestrial infrastructure. The tests are a foundation to evaluate how information in beyond line of sight environments can be transmitted effectively within far wider geographies to locations considerable distance away from the flight path. Beyond use of the 1670-1675 MHz band segment, transmissions will comport fully with the Commission's rules and be in partnership with authorized licensees.

The tests will be conducted within military airspace at Dugway Proving Ground, Tooele County, Utah. Operations will be coordinated with Department of Defense operational and frequency management components.

As noted previously, the research and information resulting from this work is provided to the Federal Aviation Administration (FAA) and is critical to its project to integrate SUAS into civilian airspace. The experiments will contribute further to the research portfolio surrounding SUAS radio technology. A facet of this research is the effectiveness of the SUAS datalink behavior and performance in varied environments while engaging in representative mission sets.

The work is critical to AeroVironment's investment in a platform addressed to SUAS commercial use and upon which future investment relies.

The details of the sites are: Mobile and Airborne Operations, 44 km radius centered on 40° 06' 24" NL, 113° 12' 23" WL, 1524 m, AGL, Dugway Proving Ground, Tooele County, Utah.

3. Technology Use and Coexistence with Other Users of the Radio Spectrum

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 proposed are part of this commitment. The 1670-1675 MHz channels provide SUAS command and control and video and telemetry transmission from the SUAS to the ground and to the HAPS. Slots are dedicated for uplink data and a downlink. Operations will be limited to 1524 meters AGL and below. The SUAS will remain within the radius of the exercise center point, 44 km.

4. Nature of Operations

Surface Based and Airborne Transmission

AeroVironment's communications module, Digital Data Link (DDL), will use 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 and HAPS. 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 is the US Army's standard for communications architecture for all small unmanned systems, including ground robots.

5. Stop Buzzer

Andy Thurling, Chief Test Pilot, Director, Product Safety and Mission Assurance, will be 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 unchanged. It is AeroVironment Transreceiver Model 50280, 2 units will be at the location. It is not experimental.

7. Antenna

The Antenna details have not changed from the current authorization and 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 requests a waiver of the station identification requirements stated in Section 5.115 of the Commission's rules.

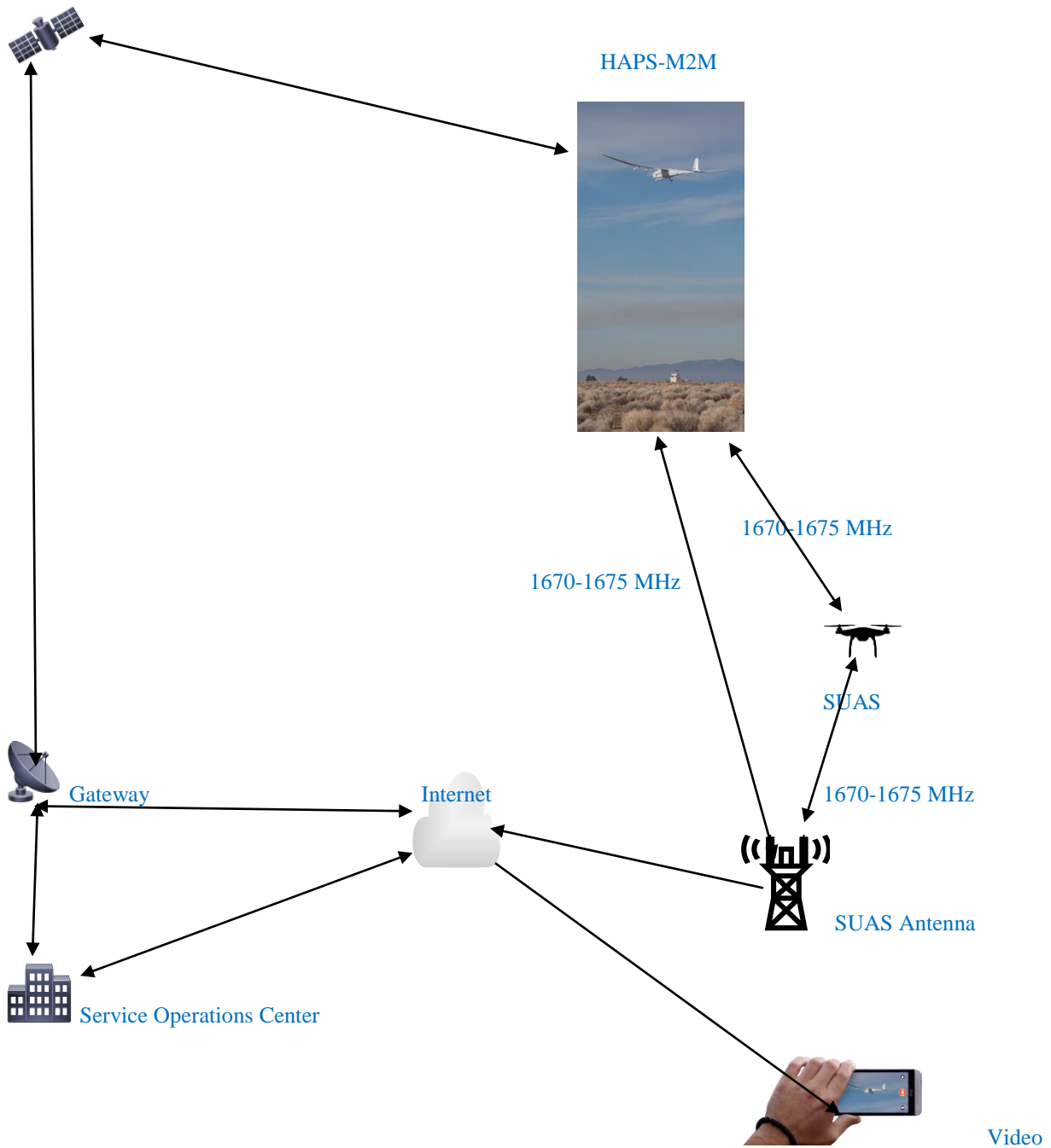
10. Diagram

A diagram and referenced maps of the proposed operations are provided in the Attachment.

Conclusion

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

Attachment
Preliminary Concept Design Diagram



Attachment

Maps

Dugway, UT

Site Name Dugway
Latitude 40:06:24 N
Longitude 113:12:23 W
Radius (km) 44 km

