

**STATEMENT ACCOMPANYING REQUEST for EXPERIMENTAL  
AUTHORIZATION of AEROVIRONMENT, INC.**

**I. Introduction**

By this application, AeroVironment, Inc. (AV) requests the Commission to grant an experimental license to operate at frequencies 2362 MHz, 2366 MHz, 2389 MHz and 2390 MHz for facilities in Hazel Green and Tanner, Alabama.

The tests relate to small unmanned aircraft (SUAS) radio technology for allied foreign governments for security and public safety purposes. The tests involve the Governments of the United Arab Emirates, Netherlands, Belgium-Luxembourg, United Kingdom and Australia and representatives of these governments will participate.

The experiments involve the SUAS radio technology in a frequency band where there is no long term operational experience yet encompass spectrum authorized for the subject users. The experiments encompass Acceptance Test Procedures (ATP) in the frequencies proposed for SUAS technology uplink command and control and downlink video and telemetry transmissions. Several missions will be tested to determine if requirements can be met, including aerial reconnaissance, surveillance, route clearance, mapping, and payload delivery. All export and related controls will be adhered to.

This application includes coordination with the Aerospace & Flight Test Radio Coordinating Council (AFTRCC), which is attached. We agree to abide by the conditions stated by AFTRCC in its coordination.

Below we explain the purpose and nature of the proposed operations and why this modification application is within the Commission's experimental authorization rules. We provide the information required by the Commission's rules.

**II. Purpose**

The experimental authorization will examine if the video-telemetry technology can effectively contribute to security and emergency response requirements in non line of sight environments. The experimental work will provide insight to necessary adjustments and make possible provisioning the technology expeditiously to the foreign governments participating.

### **III. Commitment to Users of the Radio Spectrum**

The system's communications platform encompasses air vehicle, a ground control unit and support equipment. The SUAS can be controlled manually or can autonomously navigate a preplanned route.

Operations will be intermittent and coordinated with Department of Defense Frequency and Operations Managers.

AV commits to operations respecting other users of the band and those in adjacent segments. The limited power level proposed and short term intermittent use indicate this commitment. AV understands that experimental operations must not cause harmful interference to authorized facilities. Should any interference occur, AV will take immediate steps to resolve the interference, including if necessary, discontinuing operations.

### **IV. Operational Parameters**

The proposed frequencies will send command and control data from the SUAS and transmit NTSC video and telemetry to the ground control station with modulation SO QPSK. Emission Designators 4M68G7W and 1M56G7W, with a transmit power of 1.5 w, are proposed. Transmission control will be from the ground control station to the SUAS via a laptop, tablet or console.

### **V. Stop Buzzer**

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

## VI. Transmitting Equipment

Manufacturer	Model	Quantity	Experimental
AeroVironment	50280	2	No

## VII. Antenna

The following details the antenna information:

Antenna Frequency Segment	Gain (Main Beam)	Polarization	Orientation in Vertical Plane	Orientation in Horizontal Plane
GCU Antenna ASSY AeroVironment Stack Patch	9 dBi*	Vertical	30°	85°

\*1st Major Side Lobe

E-Plane

- Gain: -2 dBi
- Degrees: 120°

H-Plane

- Gain: -2 dBi
- Degrees: 179°

### **VIII. Waiver of Station Identification Requirements**

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

### **IX. Diagram**

A diagram of the proposed operations and contour follows.

### **Conclusion**

AeroVironment appreciates very much the Commission's, NTIA's, Department of Defense, AFTRCC's and other agencies' consideration in reviewing this Experimental Authorization application. Please call upon us if we can respond to any questions.

## **Aerospace & Flight Test Radio Coordinating Council (AFTRCC) Coordination**

-----Original Message-----

From: wayne.morris@L3T.com [<mailto:wayne.morris@L3T.com>]

Sent: Friday, February 17, 2017 7:33 AM

To: johnelogan@jelogan.com

Cc: dataentry@aftrcc.org; treasurer@aftrcc.org

Subject: AFTRCC ICN 1165-17/6658 (AeroVironment XT/C&C Downlink Testing-Hazel Green/Tanner, AL)

This email is your AFTRCC coordination.

This coordination includes this header information, DOD Area Frequency Coordinator comments and AFTRCC comments. These messages must not be separated.

This coordination is advisory only and not binding on the FCC. Applicants are advised that this coordination does not constitute a judgment that the frequency(ies) is best suited for the applicant's purpose nor that the frequency(ies) is exclusive to the applicant. Flight Test frequencies are shared and may require scheduling with other users.

In return for AFTRCC's processing of the applicant's coordination request, the applicant agrees to release and hold harmless AFTRCC, its officers, directors, agents, members, and representatives from any claims, losses or expenses that may arise from the use of the frequency.

This coordination is not an authorization to transmit. A copy of this coordination must accompany application to the FCC.

Signed:

Wayne Morris

AFTRCC Telemetry Coordinator

903-457-6949

-----Original Message-----

From: CORZO, JENNIFER Y GS-13 USAF AFSPC AFSMO/SQA  
[<mailto:jennifer.corzo.2@us.af.mil>]  
Sent: Thursday, February 16, 2017 9:56 AM  
To: Morris, Wayne L @ AS - MID <wayne.morris@L3T.com>  
Subject: RE: AFTRCC ICN 1165-17/6658 (AeroVironment XT/C&C Downlink  
Testing-Hazel Green/Tanner, AL)

Mr. Morris,

The AF concurs with subject STA on a NIB.

Thanks.

V/R

//SIGNED//

Jennifer Y. Corzo

USAF Frequency Assignment Subcommittee (FAS) Representative Air Force  
Spectrum Management Office (AFSMO)

6910 Cooper Avenue

Ft. Meade, MD 20755-7901

NIPR: Jennifer.Corzo.2@us.af.mil

SIPR: Jennifer.Y.Corzo.civ@mail.smil.mil

DSN: 375-3719

COMM: 301-225-3719

-----Original Message-----

From: wayne.morris@L3T.com [<mailto:wayne.morris@L3T.com>]

Sent: Monday, February 13, 2017 12:17 PM

To: CORZO, JENNIFER Y GS-13 USAF AFSPC AFSMO/SQA  
<jennifer.corzo.2@us.af.mil>

Cc: AFSMO/AFTRCC <afsmo.aftrcc@us.af.mil>; CHABOT, JASON G GS-14 USAF AFSPC  
AFSMO/SQA <jason.chabot@us.af.mil>

Subject: AFTRCC ICN 1165-17/6658 (AeroVironment XT/C&C Downlink  
Testing-Hazel Green/Tanner, AL)

AFTRCC concurs with and requests DoD USAF AFC concurrence/coordination on the following Experimental request.

Applicant:

AeroVironment, Inc.

c/o John E. Logan

1717 "K" Street, NW, No. 900

Washington, DC 20006

POC: John Logan (202-787-5621)

Frequencies: (MHz) 2362.0/2366.0/2389.0/2390.0

Station Class: MOEA

Emissions: 1M56G7W/4M68G7W

Power: 1.5 watts (Peak)

Locations:

- a. Hazel Green, AL (34-57-13N 86-32-10W)
- b. Tanner, AL (34-44-00N 86-54-27W)

MIRAD: 3.1 miles (5KM)

Maximum Flight Altitude: 500Ft,AGL

Dates: 2017-02-20 thru 2019-02-20

AFTRCC comments: non-interference basis to Aeronautical Mobile Telemetry (AMT)

Coordination with Redstone may be required. Coordination is granted on a strict non-interference basis to Flight Test activities at US Army Arsenal, Redstone, AL. Coordination subject to cancellation for the same. AFTRCC will NOT consider favorable coordination for non-experimental activity for this platform and manufacturer will need to seek alternative spectrum for operational use/sales in the US.

Please reply via return email as to concurrence, non concurrence, scheduling, or additional comments.

Signed:

Wayne Morris

AFTRCC Telemetry Coordinator



903-457-6949

Effective immediately my new email address is [wayne.morris@L3T.com](mailto:wayne.morris@L3T.com). Please update your records.

# Operations Diagram



Small Unmanned Aircraft-

Video and Telemetry  
2362 MHz, 2366 MHz, 2389 MHz and 2390 MHz

Aircraft Command and Control Main  
2362 MHz, 2366 MHz, 2389 MHz and 2390 MHz



**Station Location N 34 57 13 W 86 32 10**



**Station Location N 34 44 00 W 86 54 27**

