

STATEMENT ACCOMPANYING REQUEST FOR EXPERIMENTAL AUTHORIZATION of AEROVIRONMENT, INC.

I. Introduction

By this application, AeroVironment, Inc. (AeroVironment) requests that the Commission grant a two year experimental license to operate at frequency segment 2380-2385 MHz at its facilities in Simi Valley, Ventura County, California.

The experiments relate to conducting Acceptance Test Procedures (ATP) in the spectrum segment 2380-2380 MHz for small unmanned aircraft system (SUAS) technology uplink command and control and downlink video and telemetry transmissions. These tests relate to provisioning the technology relating to the Qube and Shrike models to several foreign allied governments for security and public safety purposes. 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.

The Commission has granted similar authority under call signs WI9XWK and WJ9XKY, both of which have been short term Special Temporary Authorizations. Challenges associated with scheduling tests that foreign government representatives can attend and participate in have led to this application for a longer time period. WJ9XKY expires on September 16, 2016. Separate tests are planned with the Governments of Australia, Canada, Denmark, Italy, the Netherlands, Sweden and the United Kingdom of Great Britain and Northern Ireland.

We respectfully request that consideration of the application be considered by September 16, 2016.

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

II. Purpose

The purpose of the experiments is to provide analysis and information relating to the provision of small unmanned aircraft system (SUAS) technologies. In particular, the SUAS technology will be tested for performance metrics in the 2380-2385 MHz spectrum segment, which is not one of the frequency bands where there has been long term operational experience.

The experimental authorization will be used to demonstrate that the video-telemetry technology can make a meaningful contribution to security and emergency response requirements at significant cost efficiencies. The experimental work will provide insight as to necessary adjustments and make possible the provisioning of the technology in an expeditious manner.

III. Technology

AeroVironment's SUAS technology provides real-time direct situational awareness. The system's communications platform features air vehicles, a ground control unit and support equipment. The AV can be controlled manually or can autonomously navigate a preplanned route. The experiments embrace a model using a spectrum segment available to and authorized for the users.

AeroVironment commits to operations respecting other users of the band and those in adjacent segments. The limited power levels proposed and the short term intermittent use are part of this commitment.

The frequency located at 2380-2385 MHz will be for purposes of SUAS control and video and telemetry transmission from the SUAS to the ground.

The proposed locations are within a Certificate of Authorization (COA) of the Federal Aviation Administration at AeroVironment's facilities in Simi Valley, California. Access to the locations is controlled and limited. Operations will be within 12 km of the center point, not to exceed 152 meters AGL. Not more than one SUAS will be airborne at any one time.

IV. Purpose and Nature of Operation Airborne Transmission

The band segment 2380-2385 MHz will send command and control data from the SUAS and transmit NTSC video and telemetry to the ground control station with modulation SOQPSK. Emission Designators 4M68G7W and 1M56G7W, with a transmit power of 10 w, are proposed. Transmission control will be from the ground control station to the SUAS via a laptop, tablet or consul.

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. 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.

IX. Waiver of Station Identification Requirements

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

X. Diagram

A diagram of the proposed operations and contour follows.

Conclusion

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

Coordination by the Aerospace & Flight Test Radio Coordinating Council

John E. Logan

From: wayne.morris@L-3com.com
Sent: Friday, August 26, 2016 7:18 AM
To: johnelogan@jelogan.com
Cc: dataentry@aftrcc.org; treasurer@aftrcc.org
Subject: AFTRCC ICN 1484-16/6405 (AeroVironment XT/SUAS Demo Testing-Simi Valley, CA)

PLEASE NOT THAT PRESCHEDULING IS REQUIRED VIA DoD WESTERN AFC PRIOR TO OPERATIONS AND NOTED IN THEIR COMMENTS BELOW.

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: Heaton, Jamie CIV NAVAIR, 52370MD [mailto:jamie.heaton@navy.mil]
Sent: Thursday, August 25, 2016 12:55 PM
To: Morris, Wayne L @ AS - MID <wayne.morris@L-3com.com>
Subject: RE: AFTRCC ICN 1484-16/6405 (AeroVironment XT/SUAS Demo Testing-Simi Valley, CA)

Wayne,
Yeah that's fine. Scheduling with DoD Western Area Frequency Coordinator office is required a minimum of 5 working days prior to testing. This office may be contacted by telephone at (760) 939-6832 or via email at jamie.heaton@navy.mil or andrew.foltz@navy.mil.

Thx,
Jamie

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

From: wayne.morris@L-3com.com [mailto:wayne.morris@L-3com.com]

From: Morris, Wayne L @ AS - MID
Sent: Tuesday, August 23, 2016 9:51 AM
To: 'Heaton, Jamie CIV NAVAIR, 52370MD' <jamie.heaton@navy.mil>
Cc: 'Foltz, Andrew P CIV NAVAIR, 52140MD' <andrew.foltz@navy.mil>
Subject: AFTRCC ICN 1484-16/6405 (AeroVironment XT/SUAS Demo Testing-Simi Valley, CA)

AFTRCC concurs with but requests a caveat of IFDS pre-scheduling requirement on the following experiment request.

Applicant:

AeroVironment, Inc.

C/O 1717 K Street NW, No. 900

Washington, DC 20006

POC: J. Logan (202-787-5621)

Frequency: 2380-2385.0 MHz

Station Class: XT/MOEB

Emissions: 4M68G7W/1M56G7W

Power: 10 watts (Peak)

Location: Simi Valley, CA (34-19-23N 118-51-35W)

MIRAD: 7.5 miles (12KM)

Maximum Flight Altitude: 500' (152m) AGL

Dates: 2016-09-17 thru 09-16-2018 (intermittent usage)

AFTRCC comments: non interference basis to Flight Test telemetry.

AFTRCC requests that applicant is required to IFDS schedule via

Western AFC at least 5 working day prior to requested testing/demo due to requested length of license.

Applicant states that intended use is downlinking NTSC video from platform and Command & Control function. Applicant additionally states the STOP BUZZER

POC will be Andy Thurling (805-368-6351).

Please reply via return email as to concurrence, non concurrence, scheduling POC data, and any additional comments or data.

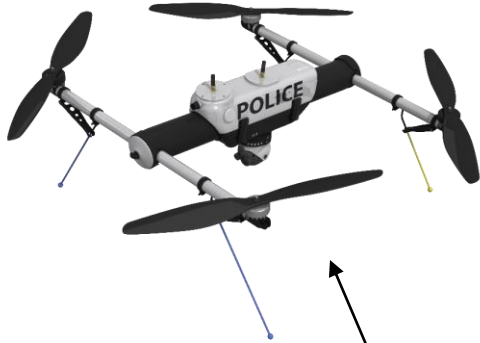
AFTRCC notes to requestor that AFTRCC will not consider favorable coordination for permanent operations in flight test band allocated for Aeronautical Mobile Telemetry.

Signed:
Wayne Morris

AFTRCC Telemetry Coordinator

903-457-6949

Operations Diagram- QUBE



Small Unmanned
Aircraft-
QUBE

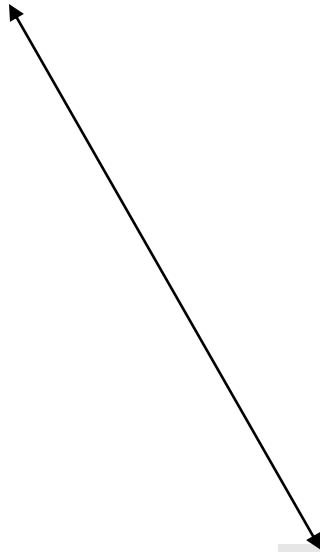
Command
and Control
Data
Video and
Telemetry
2380-2385
MHz



Operations Diagram- SHRIKE



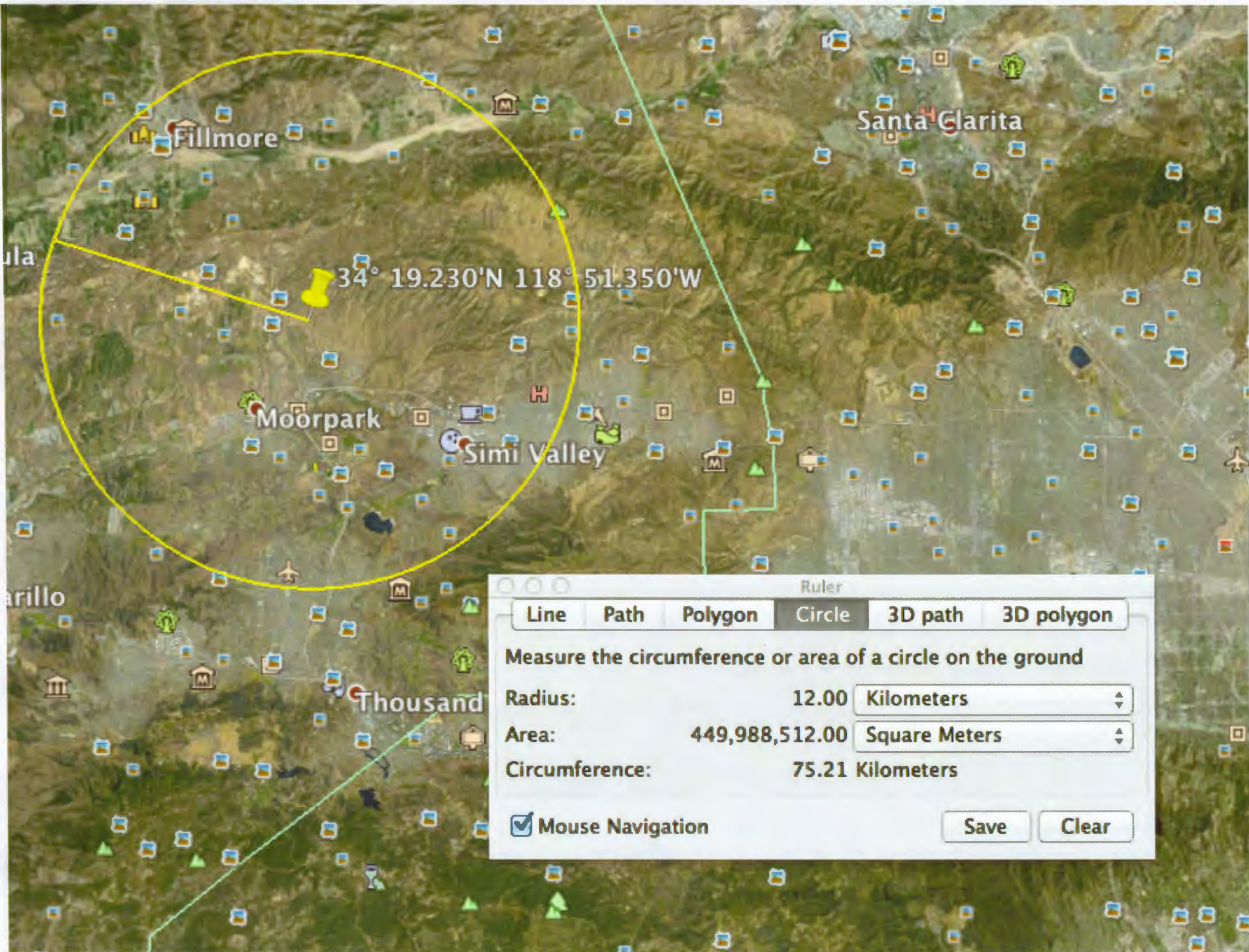
Small Unmanned Aircraft
SHRIKE-



Command
and
Control
Data
Video and
Telemetry
2380-2385
MHz



LOCATION CONTOUR



Fillmore

Santa Clarita

34° 19.230'N 118° 51.350'W

Moorpark

Simi Valley

Thousand

Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the circumference or area of a circle on the ground

Radius: 12.00 Kilometers

Area: 449,988,512.00 Square Meters

Circumference: 75.21 Kilometers

Mouse Navigation

Save

Clear