AeroVironment, Inc.
Application for
Experimental License

Explanation of Experiments and Need for Experimental License

AeroVironment, Inc. (AV) designs, develops, manufactures, supports and operates unmanned aircraft systems ("UAS") and related services to organizations within the U.S. Department of Defense ("DoD") and to allied governments. As part of the engineering and production process AV tests the UAS communications systems to make sure customer specifications are met and to learn how it can better serve its customers. The experimental operations are for testing UAS command and control, telemetry and payload systems. AV proposes experimental authority for 2 years at a site located at Spaceport America, Truth or Consequences, New Mexico.

The experiments conduct Acceptance Test Procedures (ATP) in a customer focused spectrum segment for UAS technology uplink command and control and downlink video and telemetry transmissions. These tests relate to AV's Raven and Puma models to be acquired by DoD agencies and allied national governments for security and public safety support. Missions tested include aerial reconnaissance, surveillance, route clearance, mapping, and payload delivery.

In addition to engineering and technical personnel, representatives of DoD and customer allied governments may be present. Beyond familiarizing the customer with the new aircraft prior to assuming responsibility and commencing flight operations, AV gathers feedback regarding the aircraft's radio communications to assist research and development efforts to improve solutions. Much of AV's allied customer relationships relate to Foreign Military Sales (FMS) through AV's Department of Defense contract # W911QY-18-D-0192.

Purpose and Nature of Operations

Proposed channels 2360 MHz, 2370 MHz, 2380 and 2390 MHz will send command and control data from the UAS and transmit NTSC video and telemetry to the ground control station with modulation QPSK or SO-QPSK. Emission Designators 4M68G7W, 4M70G7W, 1M56G7W and 1M60G7W, with a transmit power of 5 w, are proposed. Transmission control will be from the ground control station to the UAS via laptop, tablet or consul. Various antenna, as noted below, will be used.

Operations will be within 15 km of the center point, not to exceed 121.9 meters AGL. Testing will be performed at intermittent intervals for several hours daily.

Transmitting and Receiver Equipment

Manufacturer	Model	Quantity	Experimental
AeroVironment	82881	4	No
AeroVironment	66436	4	No

Antenna

The following details the antenna used during the experiments:

Antenna Frequency Segment	Gain (Main Beam)	Polarization	Orientation in Vertical Plane	Orientation in Horizontal Plane
AeroVironment 83300 Dual Patch	7.5 dbi*	Vertical	60º	80º
AeroVironment Tailboom 53580 Dipole	2 dbi	Vertical	78°	360°
AeroVironment 63601 Dual Patch	9 dbi	Vertical	15º	120º
Southwest 1085-160 Dipole Stacked	3.5 dbi	Vertical	49º	360º
AeroVironment 68856 Dipole	2 dbi	Vertical	78º	360º
AeroVironment 51984 Tailboom	4 dbi	Vertical	45º	360º

*1st Major Side Lobe
E-Plane N/A

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Restrictions on Operations and Interference Protection

AV understands that experimental operations must not cause harmful interference to authorized facilities. AV 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. Should any interference occur, AeroVironment will take immediate steps to

resolve the interference, including if necessary, discontinuing operations.

Waiver of Station Identification Requirements

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

Stop Buzzer

Bart Decker, AV's Director of Flight Standards, is available by telephone or electronic mail at 805 391-1335 and Decker@AVINC.com, respectively and will act as a "stop buzzer" if any matters involving interference arise during the testing.

Coordination

This application includes coordination with the Aerospace & Flight Test Radio Coordinating Council (AFTRCC), which is attached. AV agrees to abide by the conditions stated by AFTRCC in its coordination. Specifically, all operations will be coordinated with the Spaceport America Director of Aerospace Operations who will coordinate operations with the WSMR Liaison officer and with any other entity required by the Commission .

Diagram

A diagram and photographs of the proposed operations follow.

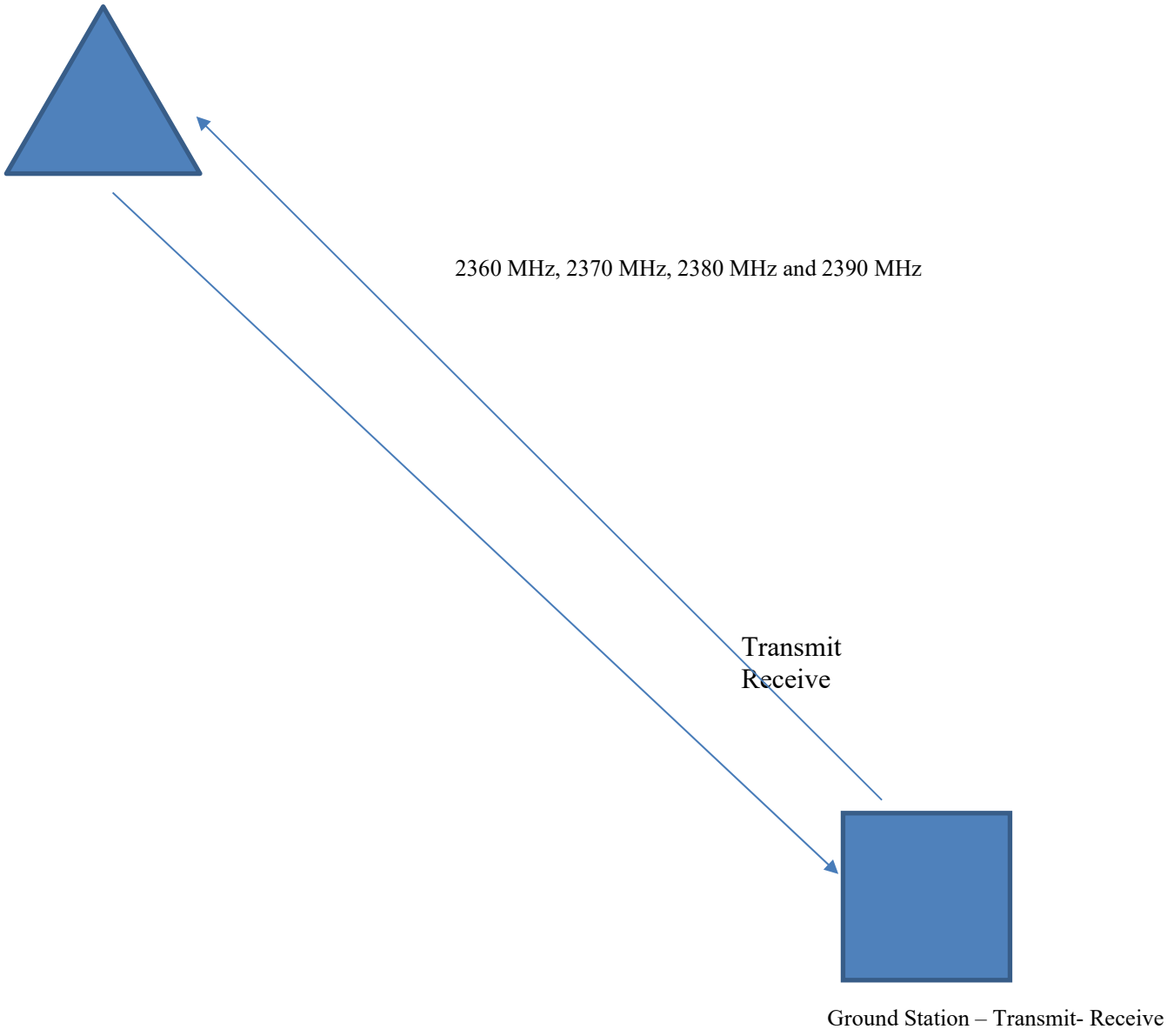
Conclusion

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

PICTORIAL LINE DIAGRAM

PUMA and RAVEN Aircraft

Transmit-Receive



Operations Photograph
Raven

Operations Photograph
PUMA