AeroVironment, Inc.
Application for Experimental
License

Explanation of Experiments and Need for FCC Experimental License

AeroVironment, Inc. (AV) designs, develops, manufactures, supports and operates unmanned aircraft systems ("UAS"). As part of the engineering and production process AV tests UAS communications systems to make sure specifications are met and to learn how it can better serve its customers. These experimental operations are for testing UAS command and control, telemetry and payload systems. AV proposes a two-year experimental license.

The experiments will conduct Acceptance Test Procedures (ATP) in the 2 GHz spectrum segments addressing uplink command and control and downlink video and telemetry transmissions across the Persistent Technology MPU5 radio system. Systems are tested and retested as part of the production process. Tests include aerial reconnaissance, surveillance, route clearance, mapping, and payload delivery.

AV engineering and technical personnel conduct the tests. AV gathers feedback regarding the aircraft's radio communications to assist research and development to improve solutions based on evolving customer needs. The tests refine mission-oriented flight operations.

Purpose and Nature of Operations

The proposed channels will be engaged to send command and control data from and to the UAS aircraft and to transmit NTSC video and telemetry to the ground control station. Two separate radio transceivers operating in the Puma AE and Puma LE aircraft will be tested:

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- Persistent Systems: LLC RS-232
- Persistent Systems: 2AG3J-RF2150

The operational objective of the tests will be to enable communication from UAS vehicle A to UAS vehicle B and to the Ground Control station with the Manet Mesh Network MPU5 radios.

Flights are confined to Visual Line of Sight (VLOS), 400 m AGL within a 30 km radius.

The VLOS operations across all frequency segments will be within 3 km of a center-point. The wider 30 km radius enables range testing via a Remote Viewing Terminal (RVT), flying the aircraft from the Simi Valley base site and taking an RVT out 30 km to see if the communications link can be maintained with the two aircraft and ground station. Command and control will never be taken from that RVT as the individual navigating the controls must maintain VLOS of the aircraft.

AeroVironment understands that access to the 2.2 GHz segment is limited to visual line of sight operations. *FCC Online Table of Frequency Allocations, 47 CFR 2.106. 2200- 2290 MHz, Manual of Regulations and Procedures for Federal Radio Frequency Management (Redbook), Chapter 4-39, 4.1.3 at page 37.* As the number of frequency channels available increase the quality and value of the testing, AeroVironment asks that the 2.2 GHz segment be available for its VLOS. AeroVironment commits to operations limited to visual line of site for all frequencies within the application.

Testing will be performed at intermittent intervals, 5 times per month for 4 hours daily.

Transmitting and Receiver Equipment

Manufacturer	Model	Quantity	Experimental
Persistent Systems	RS-232	4	No
Persistent Systems MPU5	2AG3J-RF2150	4	No

Emission Designators

Three emission designators will be used in the testing: 4M06D1D, 8M91D1D and 17M8D1D.

Antenna

A separate attachment addresses the antenna of each technology.

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, 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.

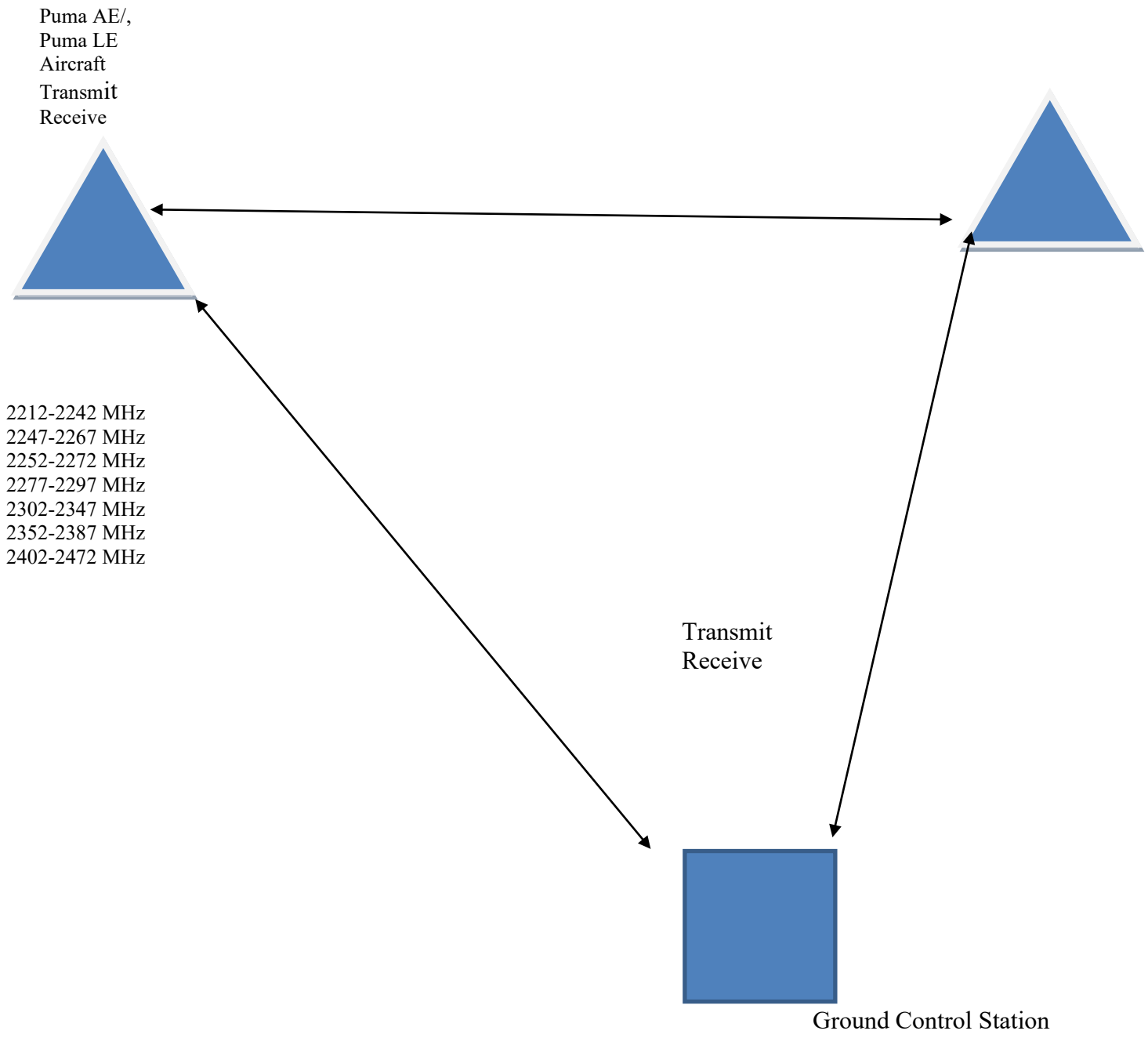
Diagram and Area of Operations

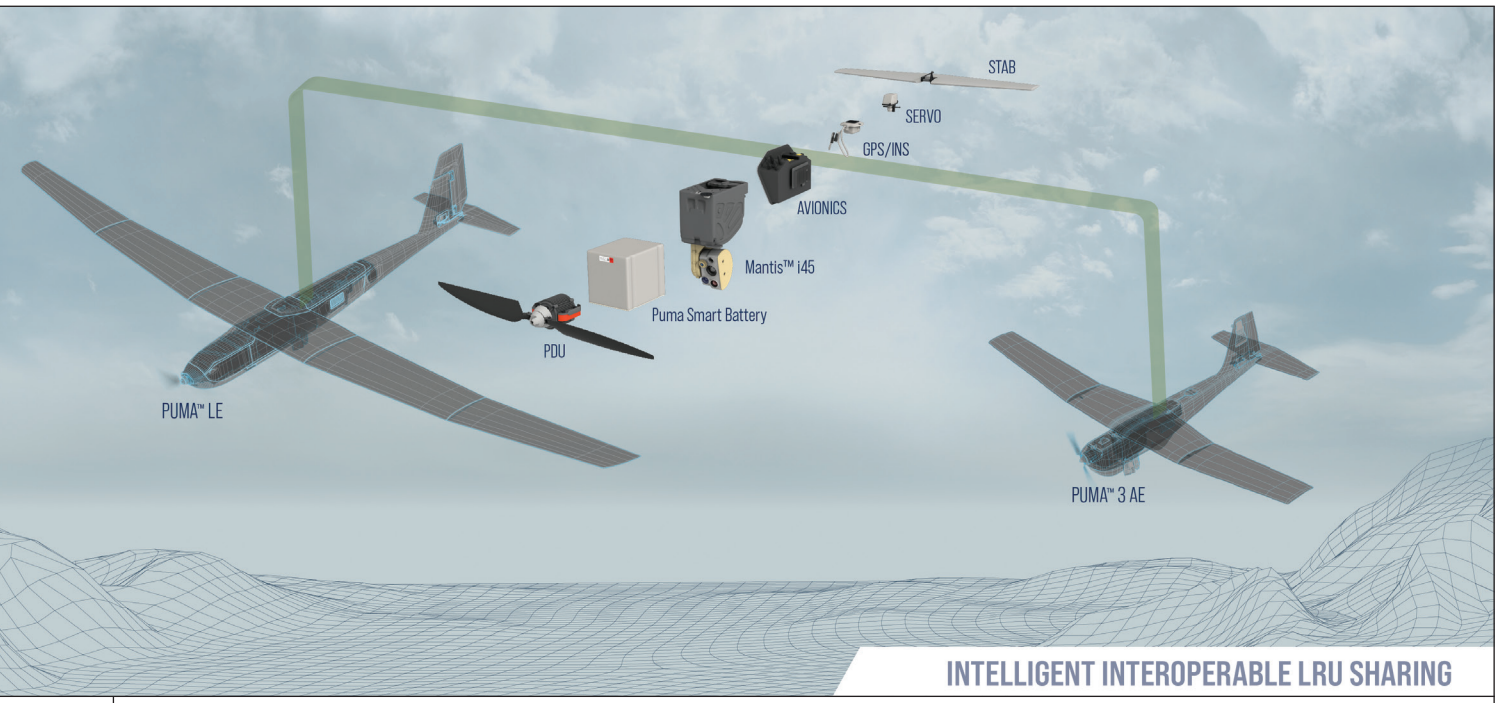
A diagram of the proposed operations is provided as an attachment.

Conclusion

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

LINE DIAGRAM





INTELLIGENT INTEROPERABLE LRU SHARING

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