

## **EXPLANATION OF REQUEST FOR EXPERIMENTAL AUTHORITY**

### **Summary**

AeroVironment, Inc. (AV), submits this application for an experimental license authorization by the Federal Communications Commission (FCC) for purposes of testing the aeronautical telemetry link at 5140-5150 MHz.

This application proposes intermittent low altitude flights no higher than 9000'/2.743 km at Lanai, HI and Edwards AFB, CA. The intent is solely to flight test a prototype aircraft. It does not seek blanket approval for all operations; flights are limited to areas proposed at Lanai, HI and Edwards AFB.

AeroVironment will submit a subsequent application to permit flight at a higher altitude. Such request will also be for purposes of flight test the prototype aircraft.

Authorization to use 5140-5150 MHz will support AeroVironment's Hawk30 High Altitude Platform System (HAPS) unmanned aircraft testing. The project encompasses solar-powered high altitude long-endurance (HALE) unmanned aircraft. The tests address integrating the transceivers in the solar environment. Tests will be performed at incremental altitude intervals. The telemetry link, 5140-5150 MHz, is essential for the flight test to collect data necessary to study the aircraft structure and systems during flight.

The tests at Lanai, HI and Edwards Air Force Base, CA are critical to examining the aircraft and its radio technology capacity to meet UAS standards for US airspace. The Lanai, HI tests in particular will address how well operational and service delivery performance are met by its solar energy resource. The tests at Moorpark, CA and Simi Valley, CA will be conducted in the AeroVironment laboratories at these locations.

### **Locations:**

AV proposes to use 5140-5150 MHz at the following locations:

1. Edwards Air Force Base, East Kern, Kern County, CA  
Hyundai Site  
North 35° 3' 20" West 118° 1' 46"  
9,000' /2.743 km AGL
2. Edwards Air Force Base, East Kern, Kern County, CA  
Rosamond Site  
North 34° 50' 3" West 118° 4' 19"  
9,000' /2.743 km AGL

3. Lanai, Maui County, HI  
North 20° 46' 43.8" West 156° 56' 21.4"  
9,000' /2.743 km AGL

4. Simi Valley, Ventura County, CA  
North 34° 19' 23" West 118° 51' 35"  
Laboratory Testing AGL

5. Moorpark, Ventura County, CA  
North 34° 17' 13" West 118° 52' 09"  
Laboratory Testing

### **Technical Parameters**

The Quansonix *QSX-VDR2-1100-05-04-05AB-LD-VP* will use 5140-5150 MHz segment only for one-way air to ground telemetry during the flight tests.

Antenna details are provided in a separate attachment.

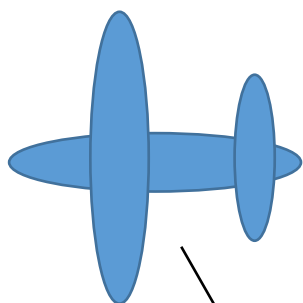
### **Coordination by the Federal Aviation Administration**

The coordination by the Federal Aviation Administration (FAA) for operations at 5140-5150 MHz are provided in an attachment.

### **Stop Buzzer**

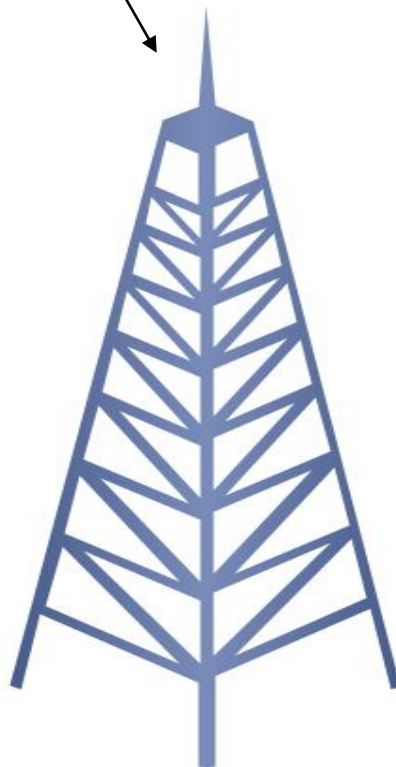
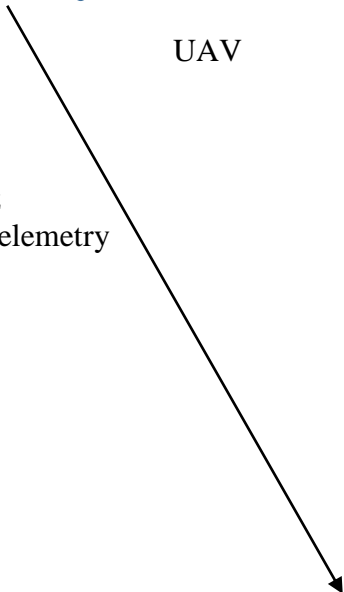
Bart Decker, Mission Standards Director, will be available by telephone or electronic mail at 805 391-1335 and Decker@AVINC.com, and will act as a "stop buzzer" if any matters involving interference arise during the testing.

**DIAGRAM**



UAV

5140-5150 MHz  
Air to Ground Telemetry  
(AMT)



Ground Station Receiver