

EXPLANATION OF REQUEST FOR EXPERIMENTAL AUTHORITY & FAA COORDINATION APPROVAL

Summary

AeroVironment, Inc. (AV), submits this application for an experimental license authorization by the Federal Communications Commission (FCC) and for coordination by the Federal Aviation Administration (FAA) for operations at 1090 MHz at the sites stated below.

This application proposes intermittent low altitude flights no higher than 9000'/2.743 km at Lanai, HI and Edwards AFB, CA. The request for coordination is not in support a Technical Standard Orders Authorization (TSOA); the intent is solely to flight test a prototype aircraft. It does not seek any kind of blanket approval for all operations; it is limited to areas proposed at Lanai, HI and Edwards AFB.

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

Authorization to use 1090 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.

1090 MHz will enable testing the Automatic Dependent Surveillance-Broadcast (ADS-B) system to report automatically the aircraft's position without need for a radar interrogation. Position, velocity and altitude will be reported via the aircraft's GPS position within the air traffic control (ATC) network. A core purpose of ADS-B is to assist ATC with UAS DE confliction.

The transponder subject of the test is experimental. Submitted as attachments is a Compliance Matrix and Release Notes prepared by Sagetech, AeroVironment's partner in the project. This documentation seeks to present compliance with FAA Minimum Operational Performance Standards for Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment to permit the testing to proceed. We ask that the information be treated as confidential and proprietary.

Locations:

AV proposes to use 1090 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 of the MXS-NC Transponder

The MXS-NC ATC Transponder function cannot be turned off. The MXS-NC will reply to Mode A, C and S interrogations and comports with ATC Transponder and altitude and reporting equipment requirements at section 91.215 of the FAA rules, 14 CFR § 91.215.

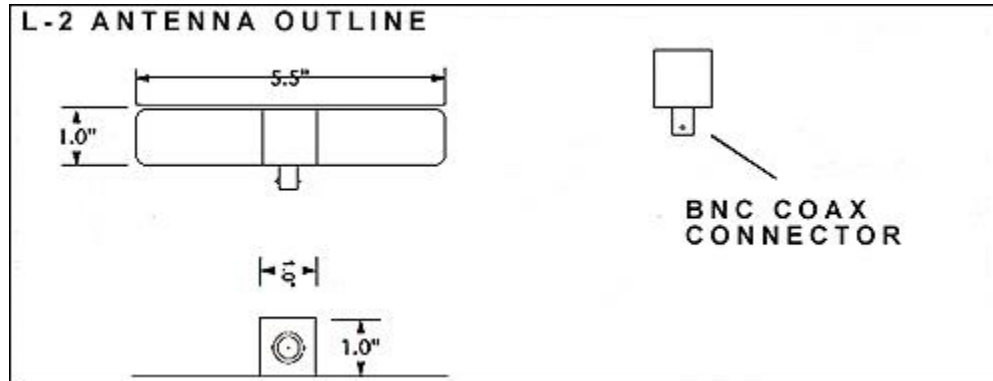
- Station Class: Mobile
- Power ERP: 240 Watts Mean
- Frequency Tolerance: 1090 MHz +/- 1 MHz
- Emission Designator: 14MOM1D
- Modulating Signal Pulse Position Modulation (PPM)

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.

Antenna

Advanced Aircraft Electronics Model L-2. Aircraft Spruce PN 11-04212



<https://www.aircraftspruce.com/catalog/avpages/antennasystems1.php>

