

Raytheon Company (Missiles and Defense – M)
Experimental License Modification Application
File Number: 0161-EX-CM-2026

Explanation of Experiment

Overview:

Raytheon Company (Missile and Defense – M) (Raytheon) is the primary missile manufacturer in the US, supplying ordinance ready to operate to the US military. Raytheon's purpose of this testing is to test a low power RADAR on a UAS.

Need for a Special Temporary Authorization:

Raytheon has a contract with AFRL, FA8651-19-D-0040, to perform research and development activities in support of all aspects of high-speed weapons engagement. To achieve contractual goals, Raytheon needs to work on radio and RADAR development at its plant site as soon as possible.

Technical Synopsis:

Radar

- Spectrum Needed: 34.2 – 34.8 GHz
- Emission Designator: 600M0P0N
- Limited time of use: 2-4 hrs, 7 days of the week of radio use in 1-2 week stints
- Limited area of operations: maximum 3000 feet elevation
- Ground control maximum ERP: 2511.9 W (Pulsed)

Radios

- Spectrum Needed: 902-928 MHz; 1350-1390 MHz; 4400-4940 MHz; 34.2 – 34.8 GHz
- Emission Designator: 4M0D1D; 20M0D1D; 20M0D1D; 600M0P0N
- Ground control maximum ERP: 1202.3 W (CW)

Description of Operations:

The 902-928 MHz, 1350-1390 MHz, 4400-4940 MHz are radios used for communication between the ground control station and the UAS. 902-928 MHz and 1350-1390MHz are used for command and control and 4400-4940 is used for communication with the testbed radar onboard. 34.2 - 34.8 GHz is the onboard radar, which will be executing Synthetic Aperture Radar dwells using Linear Frequency Modulated (LFM) waveforms. The license modification is necessary to gain spectrum authorization to continue testing, that is currently authorized WQ2XLP. The modification changes the RADAR's frequency, emissions, and power, as well as adding a testing location (Eglin AFB).

Limited Time of Use:

The program will only work in one location at a time, so operations are intermittent at any given location. The times will be limited to 2-4 hrs/day in 1-2 week stints.

Locations of Testing:

The first location is at the Raytheon Airport site, in Tucson, AZ. The second location, where flights will be conducted, is at Florence, AZ within Restricted airspace R-2310.

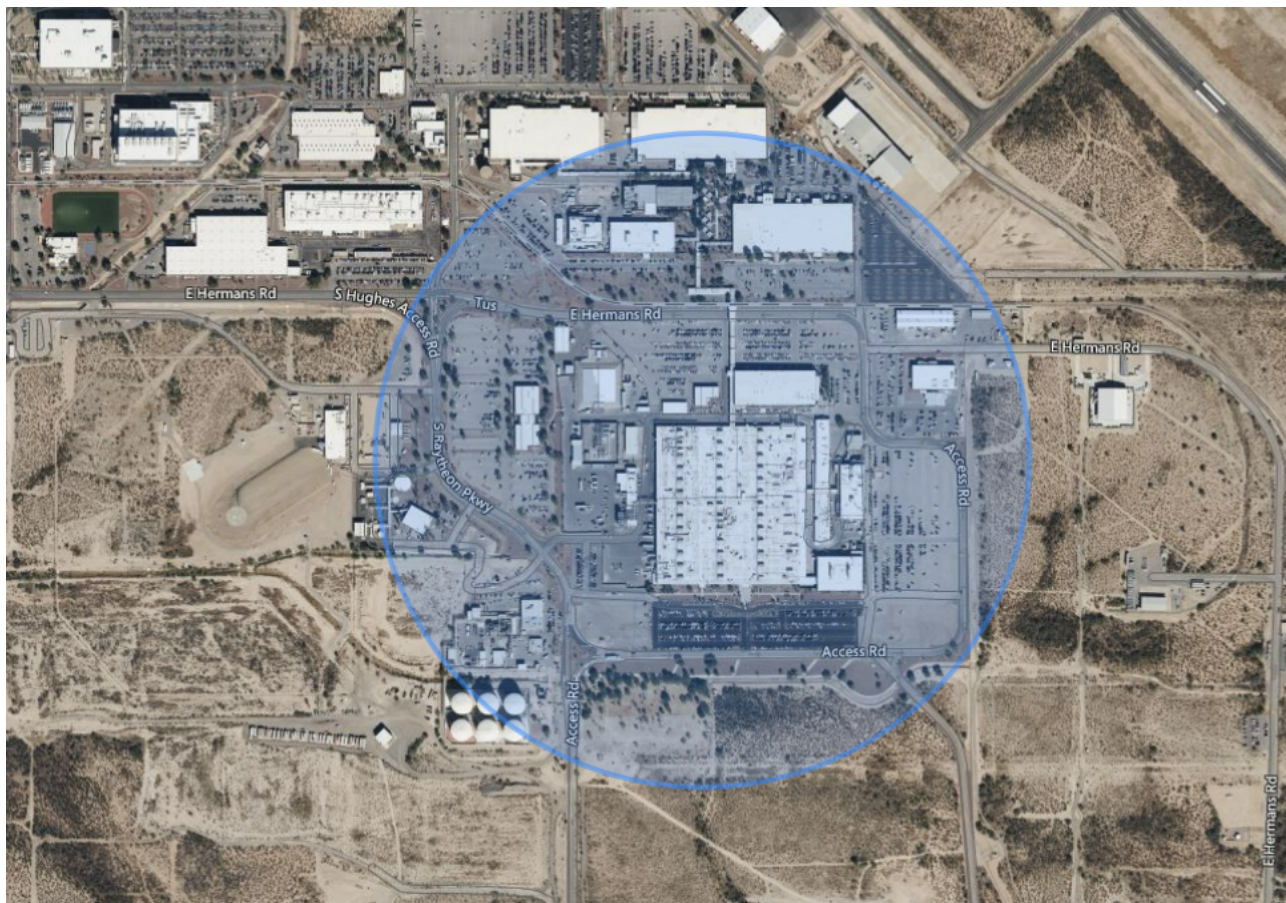


Figure 1- Area of Operation, within circle, at the Raytheon Airport Site in Tucson, AZ

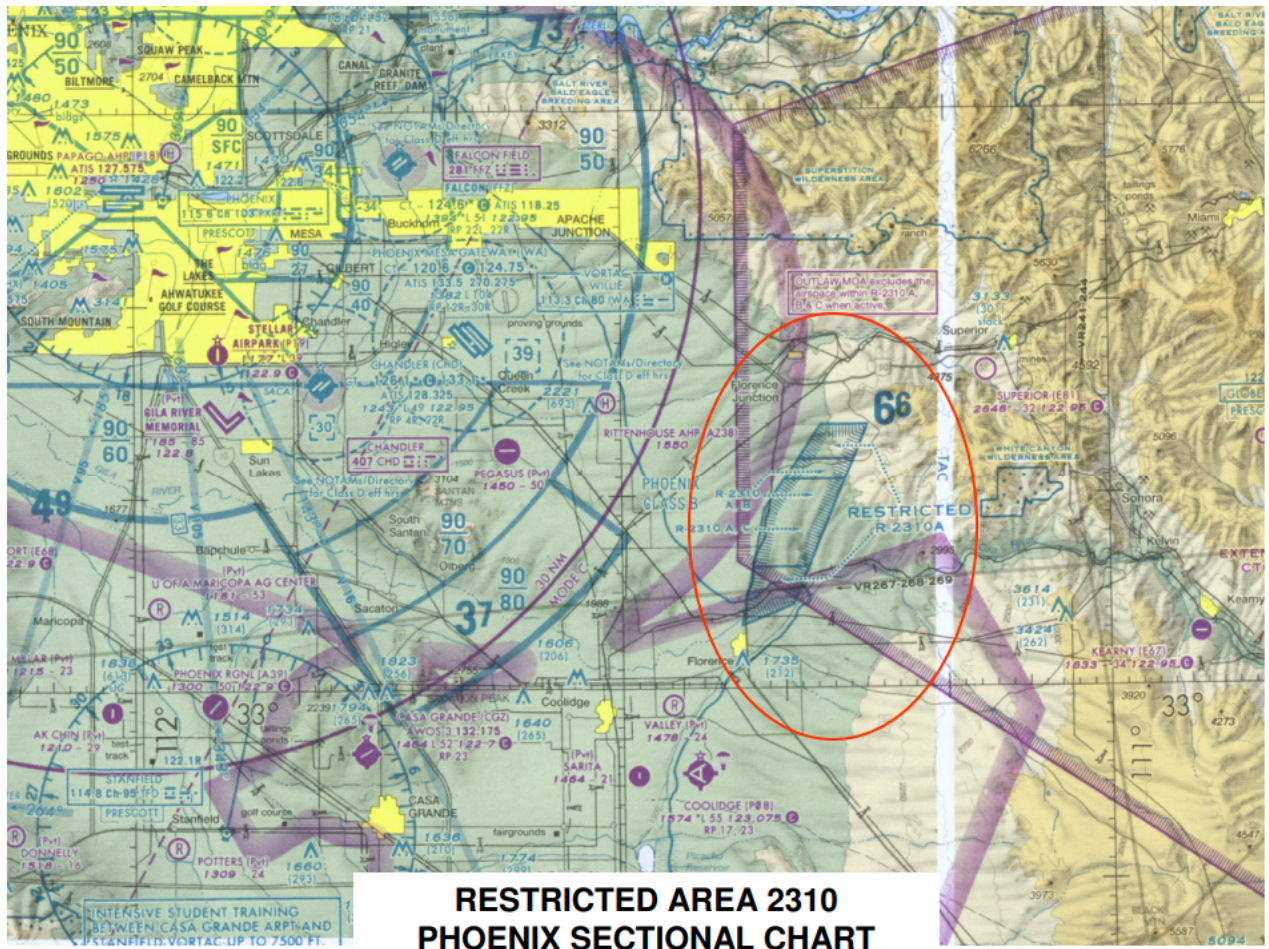


Figure 2 – Area of operation, within Restricted Area 2310, at Florence, AZ

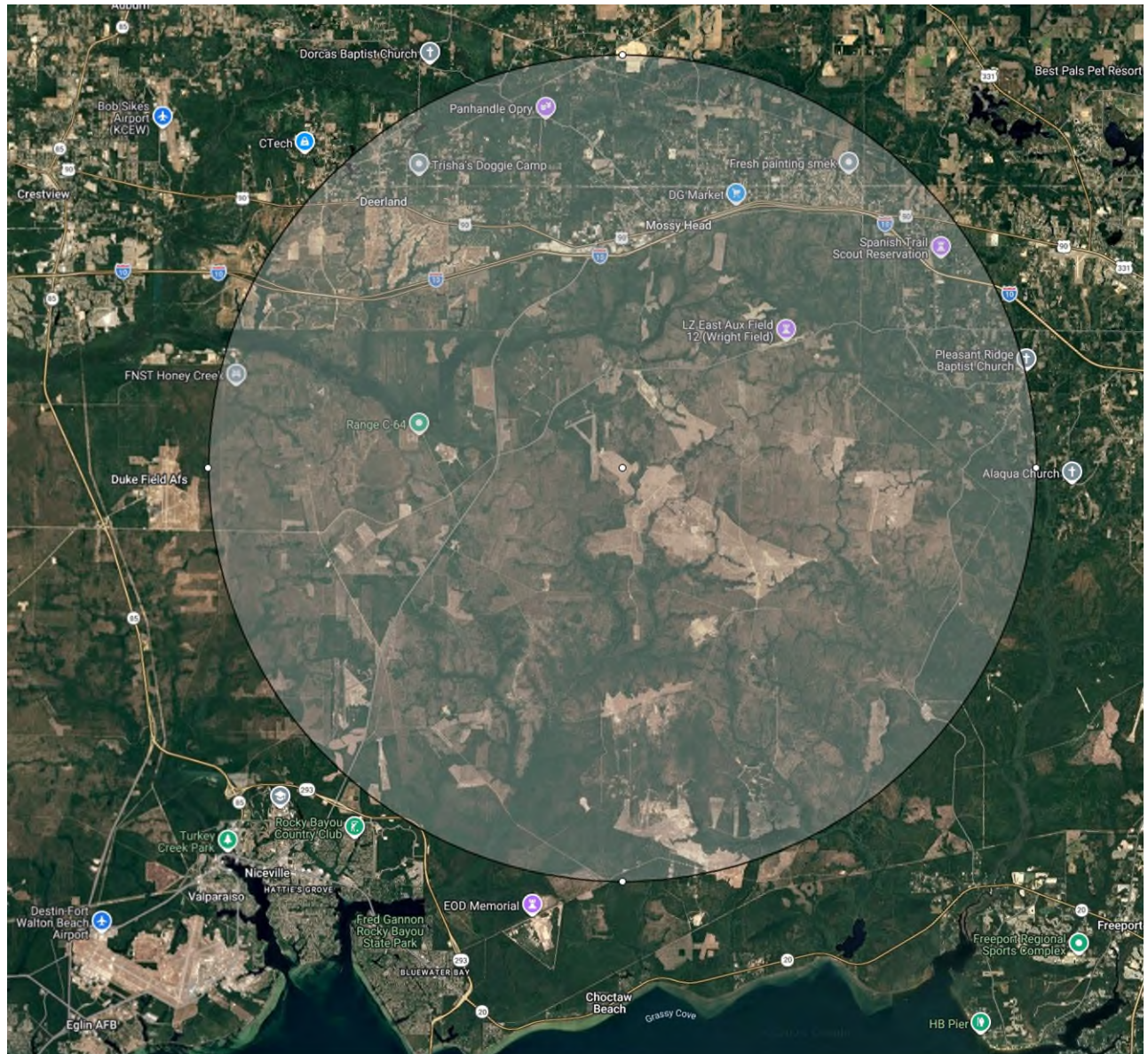


Figure 3 – Eglin AFB, FL range centered 8 miles around 30°39'29.33"N, 86°20'17.00"W

Local deconfliction: the program will work with local spectrum managers prior to any operations to deconflict radio operations that are local to the area. Raytheon agrees to continue coordination with the point of contact as previously required.

Stop Buzzer Point of Contact:

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Spectrum Manager
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Conclusion:

Raytheon is seeking an experimental license modification for continued test and development operations. The proposed testing will be limited in nature. The radio use will be limited.