

Experimentation Description

This experimentation effort will provide performance data for an airborne receiver operating on specific target frequencies. The requested frequencies support the United States Air Force Big Safari program (Contract FA8620-21-G-4027), which oversees the acquisition, modification, and logistics support of specialized weapon systems. These frequencies are used on a short, temporary basis to generate controlled targets that produce the desired response in the aircraft's receiver system.

All transmitters are computer-controlled. The dwell time on any frequency will not exceed 62.5 milliseconds before automatically advancing to the next frequency in the programmed sequence. The system uses calibration tables and integrated power-monitoring circuitry to ensure transmitted output power remains within approved limits.

All transmission operations will occur strictly under authorized ground-based conditions. No airborne transmissions will occur on any of the requested frequencies.

During testing, aircraft will fly northeast of Greenville, TX (approximate reference position: 33°04'13"N, 96°03'24"W) along headings between 350° and 140°, at altitudes up to 30,000 feet within controlled FAA-coordinated airspace. Ground-based transmit antennas will track the aircraft using IFF or ADS-B data. To avoid unintentional transmission toward the Dallas/Fort Worth area, antenna movement is electronically limited to the 350°–140° sector. Operators also have a manual override capability if aircraft navigation data becomes unreliable.

The transmit antenna is mounted on a pedestal located behind the control facility, with a maximum height of 7.7 meters above ground level including the structure. The antenna site is approximately 1.5 km from the nearest landing area of the active runway at Majors Airport. Reference images, including an example antenna and a Google Earth view showing the pedestal location relative to the runway, are provided below.

Table of Equipment configuration:

Band	Tx Part #	Ant Gain	Ant Vertical BW	Ant Horizontal BW
3.15-29.15 MHz	1200A225M1	5.19 dBi	70 degrees	360 degrees
40.025-763 MHz	100W1000B	7 dBi	65 degrees	105 degrees
806-6000 MHz	60S1G6	16 dBi	17.0 degrees	19.0 degrees
10795-12450 MHz	200X	38.9 dBi	2.05 degrees	3.08 degrees
28500-39400 MHz	267Ka	38.0 dBi	1.9 degrees	1.9 degrees

