

PROJECT DESCRIPTION

The nature of this project is to execute a series of experiments in order to acquire knowledge useful for performing Geolocation of a ground emitter from airborne platforms. Specifically, three aircraft, each having a BAE Systems Inc. supplied military grade receiving system, will fly in predetermined formations, following pre-defined flight paths, and acquire a signal emitted by a U.S. Navy owned and operated ground radar. Each aircraft will make a plurality of time measurements on the received radar signal and transmit data to a ground station over a wireless datalink (see the figure below). The datalink is accomplished via commercially purchased, owned and operated radios certified under 47CFR 15.247 (FCC ID KNY6231812519).

The ground station will collect the data from the three aircraft, and using an experimental algorithm, attempt to determine a real time solution to the location of the emitting radar and compare the results to the known location of the radar. These experiments could not be performed without implementing datalinks between each of the aircraft and the ground station because in order to determine a real time solution (emphasis here), the time tagged data collected by each of the aircraft must be sent to a common location, in this case the ground station. Further each aircraft may also determine a solution, however the same problem of getting data from 3 different locations to a single point for solution exists, consequently the datalink is required to achieve the objectives of the experiments that will be witnessed by U.S Navy representatives.

Datalink facilities on board the aircrafts (and ground station) being used to execute the experiments do not exist, consequently; BAE Systems Inc must provide the requisite datalinks.

These experiments will be performed at, and coordinated with, the Naval Air Warfare Center Weapons Division (NAWCWD) located at China Lake California. Only three flights will take place over the course of five days, each flight lasting approximately 2 hours, for a total of approximately 6 hours of transmit time. Operation of the datalink is further being coordinated with the range frequency coordinator at NAWCWD China Lake.

The current FCC limit of 1 watt into a 6 dBi antenna is insufficient due to losses, link margin issues (fading etc) and the extended range of which the experiments are needed to be performed. BAE Systems respectfully requests permission to transmit 5 watts into the antennas having no more than the same 6 dBi of gain for very limited duration over a very short time frame. The 5 watts will be achieved via the use of a commercially available amplifier (Freewave model # AAA-5W) from the same manufacturer as the radios (Freewave model FGR115RE).

