

Public Interest Statement

I. Introduction

By the instant application (“Application”), Dynetics, Inc. (“Dynetics”) requests that the Commission grant a two year conventional experimental license (“License”) to permit Dynetics to operate the facilities (the “Facilities”) specified in the instant application.

II. Purpose and Nature of the Operation

Dynetics, headquartered in Huntsville, Alabama, delivers high-quality, high-value engineering, scientific, and information technology (IT) solutions to customers within the U.S. government and a range of other market segments. Dynetics provides complete lifecycle analysis, engineering, and hardware, to support customer missions.

This License is intended to be a continuation of the temporary–fixed operations previously authorized under STA, under call sign WM9XNP (File No. 0004-EX-ST-2018). The only changes to such operations will be (i) deletion of the Mesa, AZ site (i.e., the only site location for the License will be Huntsville, AL); and (ii) update to the contract information (see below).

The License is requested to test the wireless two-way data link for the Gremlins Air Vehicle prototype UAS. This activity is necessary to support the AFRL Gremlins Phase III contract for continued testing of the Gremlins system. Operations are required on a temporary-fixed basis at and around Huntsville, AL. This activity is necessary to test a prototype system being developed for the AFRL Gremlins Phase II contract. Contract Information is as follows:

Agency:	DARPA
Contract No:	HR001118C0071
Government POC:	Nate Young, Nathan.Young.ctr@darpa.mil, 571.218.4977

Waiver of the Station ID rules set forth at Section 5.115 is respectfully requested.

A. Power Levels and Directionality

The operations will involve use a directional antenna with a gain of 16 dBi. Thus the ERP of the ground station will be a maximum of 320 Watts, mean (average). The radiation pattern of the ground station antenna is 91-degrees in azimuth and 8 degrees in elevation. The radiation pattern of the antenna will be pointed arbitrarily in azimuth, depending on the tests being conducted.

Width of beam in degrees at the half power point:	91-degrees in azimuth
	8 degrees in elevation

Orientation in horizontal plane:	Arbitrary
Orientation in vertical plane:	Level with horizon

B. Equipment and Technical Specifications

The wireless two-way data link, Long Range Data Link (LRDL) Software Radio developed by Aeronix, has a multi-carrier orthogonal frequency division multiplexing (OFDM) transmission. The transmitter output power is 8 W Average at BPSK for OFDM. The LRDL will utilize two occupied bandwidths of 3.5 and 7 MHz. The two emission designators identified represent these two maximum emission bandwidths. The LRDL may use BPSK, QPSK, QAM16, or QAM64 subcarrier modulations, configured as follows:

BPSK 1/2@ 3.5MHz
 BPSK 1/2 @ 7MHz
 QPSK 1/2 @ 3.5 MHz
 QPSK 1/2 @ 7 MHz
 QPSK 3/4 @ 7 MHz
 QAM16 3/4 @3.5 MHz
 QAM16 3/4 @7MHz
 QAM64 2/3 @7MHz

The digital datalink can operate on channels of 1-MHz spacing within the frequency range requested. The requested action frequency range represents the maximum usable emission bandwidth when operated on the lowest and highest available channels.

III. Interference Mitigation

Dynetics is well aware of its obligations under Part 5 of the Commission's rules to avoid interference to co-channel licensees in non-experimental services, and will take all steps to ensure compliance with this obligation. Dynetics understands that FAA (or other government stakeholders) may restrict radiation to certain azimuth and/or elevation sectors in order to ensure that the proposed Facilities do not pose a threat of interference to adjacent emitters. Accordingly, this is to confirm that Dynetics stands ready to work with the FAA to identify any reasonably necessary restrictions for the system.

IV. Stop Buzzer

Dynetics advises that the following will be available by wireless telephone and will act as "stop buzzers" if any issues regarding interference arise during testing:

Primary: Chris Statler (256-503-9283)
 Secondary: Samuel Petersen (573-578-7748)

For the foregoing reasons, Dynetics respectfully submits that approval of this Application is in the public interest, convenience and necessity.