

## **Exhibit 1**

### **I. Introduction**

By the instant application (“Application”), Dynetics, Inc. (“Dynetics”) requests that the Commission grant Special Temporary Authority (“STA”) to permit Dynetics to operate the facilities (the “Facilities”) specified in the instant Application from May 15-November 15, 2019.

### **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.

An experimental STA is requested to test the telemetry system for the Active Denial for Targets Right of Line (ADTROL) project. This activity is necessary to support the “Enhanced Lethality of Area Targets” contract for testing of the ADTROL Telemetry system. Operations are required on a mobile airborne basis in and around Roswell, NM and fixed site at Huntsville, AL. Primary operations will be located on the Mistic test ranges near Roswell, NM. The test ranges are operated by the Matrix Operating Group. Operations will be limited to their property and will be coordinated with their range control office and local authorities prior to test execution.

#### **Antenna #1:**

Mobile airborne transmissions centered at 33°28’11”N; 104°56’9”W, with the furthest waypoints lying on a radius of 25km about the center point. The maximum flight ceiling planned is 3,810m above ground level (AGL). Ground elevation above sea level at the center point coordinates is 1400m at this location. The nearest airport to the center point coordinates is the Roswell International Airport (ROW), 48 km from the center point coordinates.

#### **Antenna #2:**

Mobile airborne transmissions centered at 34°15’57”N; 104°57’7”W, with the furthest waypoints lying on a radius of 40km about the center point. The maximum flight ceiling planned is 3,810m above ground level (AGL). Ground elevation above sea level at the center point coordinates is 1600m at this location. The nearest airport to the center point coordinates is the Fort Sumner Municipal Airport (FSU), 100 km from the center point coordinates.

#### **Antenna #3:**

Ground Operations: Temporary Fixed Operations  
within 100m of Huntsville, AL  
Centerpoint - 34°44’11” N; 086°41’06”W

This activity is necessary to test a telemetry system being developed for the W15QKN-14-9-1001 DOTC-17-01-INIT0888 contract.

Contract Information is as follows:

|                 |                                                                                                                               |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|
| Agency:         | Warheads & Lethal Mechanisms Technology Division U.S. Army, CCDC, Armaments Center                                            |
| Contract No:    | W15QKN-14-9-1001, DOTC Initiative DOTC-17-01-INIT0888                                                                         |
| Government POC: | Daniel A. Suarez; <a href="mailto:daniel.a.suarez4.civ@mail.mil">daniel.a.suarez4.civ@mail.mil</a> ;<br>Phone: (973) 724-8508 |

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

### **III. Frequency Requirements and Other Technical Information**

The band of 2200-2395 MHz has been requested on the Application, in light of the fact that this the tunable band for the transmitting system, which is an IRIG-106 Tier 0 PCM/FM telemetry transmitter manufactured by Quasonix. To conduct the experiment, Dynetics requires only 2 discrete frequencies (a primary and backup) in this band, with 5 MHz channel spacing. The tunable band starts with the first channel at 2205.5 MHz. Therefore, for example, Dynetics could accept a grant with 2250.5MHz (primary) 2205.5 MHz (backup), or alternates if those were unavailable.

Data rate for the emitter is 2 Mbps and is encoded as a RNRZ. The nominal occupied bandwidths are:

|          |          |
|----------|----------|
| 3dB BW:  | 2.1 MHz  |
| 20dB BW: | 2.35 MHz |
| 40dB BW: | 5 MHz    |

The nominal transmitter output power is 2W Peak / 2W Average.

The telemetry transmitter will be mounted on an EPAV (Earth Penetrating Air Vehicle) that is a controlled non-kinetic vehicle released from an aircraft. Operations will involve an aircraft taking off from Roswell Industrial Air Center (ROW) and flying to the designated location of Station 1 or Station 2.

#### IV. Transmitting Equipment

| <u>Manufacturer</u> | <u>Model No.</u>            | <u># Units</u> | <u>Experimental</u> |
|---------------------|-----------------------------|----------------|---------------------|
| Quasonix            | QSX-VSH1-1000-02-N4-01PE-WV | 1              | Yes                 |
| Haigh-Farr          | 3106 Button antenna         | 1              | Yes                 |

#### V. Directionality/Orientation

For each location, the directional transmit antenna is the Haigh-Farr PN 3106 Button antenna, and the directionality/orientation information is as follows:

| Beamwidth at Half-Power Point                            | Orientation in Horizontal Plane | Orientation in Vertical Plane |
|----------------------------------------------------------|---------------------------------|-------------------------------|
| Transmit azimuth: 360 deg,<br>Transmit elevation: 50 deg | 360 deg - omnidirectional       | +25 deg above horizon         |

#### VI. 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. As stated above, Dynetics will work with the Commission and/or other stakeholders to identify a minimum of two specific frequencies within the stated tuning frequency range to avoid interference to co-channel licensees in non-experimental services. With respect to interference mitigation, 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.

- Limited flight testing is requested for only 12 occasions using either Station 1 or backup Station 2 (both near Roswell, NM).
- Once within the specified operational radius of the station location (specified for Station 1 and Station 2 above), the aircraft will turn on the telemetry transmitter to check that it is operational (on time <30min). Once the telemetry check is passed, the EPAV will be released from the aircraft and will nose over as it descends toward the ground for up to 120 seconds. The EPAV will maintain a nose-down attitude for the entire flight, deviating +/-30 degrees maximum. Once the EPAV containing the telemetry transmitter lands, telemetry will terminate. The entire transmission on-time is not expected to exceed 1 hour per occasion. The telemetry transmission will be received by the aircraft – thus the transmitted telemetry signal during the EPAV vehicle flight is directed upward with the antenna beam boresight approximately 25 degrees above the horizon with an approximate 50-degree beamwidth.

- Operation in Huntsville, AL (Station location 3) will be minimal and intermittent and limited to fixed ground operations. When operating at Station location 3 (Huntsville, AL), the transmit power will be reduced from to 10 mW (30 mW ERP) to minimize interference.
- Dynetics will coordinate radio emissions with designated local authorities prior to test execution if required.
- Dynetics advises that the following will be available by wireless (cellular) telephone and will act as “stop buzzers” if any issues regarding interference arise during testing:

Primary: 256-509-5187 – Drew Williams

Secondary: 256-426-5395 - Kevin Wade

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