

## **STA NARRATIVE**

### **Introduction:**

By the instant application (“Application”), Caos Capital, LLC, requests that the Commission grant Special Temporary Authority (STA) to operate the facilities specified in the instant Application for the period of January 1, 2023, to June 30, 2023.

### **Purpose of the Operation:**

Caos Capital requests authorization to test a prototype radar system to detect aeronautical objects. The proposed operation is intended for detection only, and is not intended to jam, interfere, or in any respect communicate with, or take control of, any object. The Application proposes the use of several different frequencies, with different emissions from a fixed location.

### **Technical Specifications:**

- 1) Frequencies Desired: Caos requests authorization to operate on the frequencies specified in the Application:
  - a) 144-148 MHz;
  - b) 162.0375-174 MHz;
  - c) 215-225 MHz.

The specified frequencies were intentionally selected to eliminate any conflicts with spectrum allocated for aeronautical purposes, or requiring pre-coordination with the Federal Aviation Administration.

- 2) Transmit and Effective Radiated Power Levels: The unit to be tested will operate with a range of transmit power levels, beginning with 1 watt. The Application specifies a maximum transmit power of 1000 W, and a peak maximum effective radiated power of 3981 W. Operations will be conducted to comply with rules relating to human exposure to radiation.
- 3) Modulation and Emissions: The unit is capable of operating with either frequency or phase modulation, at a maximum bandwidth of 4 MHz. The Application specifies emission designators for both frequency and phase modulations.
- 4) Antenna Information: The antenna will be mounted in a manner that will not require prior approval under FAA or FCC rules and regulations.
  - a) Width of beam in degrees at the half-power point:
    - i) H-Plane: 140 degrees;

ii) E-Plane: 70 degrees;

b) Orientation: Caos intends to radiate either in full horizontal polarization or full vertical polarization at any given time, but not both simultaneously. In the vertical plane, we will be oriented to point from 0 degrees up to 60 degrees off the horizon.

5) Equipment To Be Used: Caos will conduct the proposed tests with no more than one (1) unit operating at a time. The unit will operate with up to a 30% duty cycle, and transmissions will be no more than 300 milliseconds long. It is expected that the testing of the unit will be no more than 1 hour per day, at intervening periods during the STA period.

**Interference Mitigation:**

Caos 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 necessary steps to ensure compliance with this obligation. Should interference occur, Caos will take immediate steps to resolve the interference, including discontinuing operations if necessary.

In addition, the following factors will help mitigate any interference issues:

1. Each test will be limited in time and location to protect other spectrum users.
2. Emissions will be active for short durations no longer than 1 minute at a time. During a test, emissions will be activated periodically, and will not be continuous.
3. The site specified in the Application is more than six (6) kilometers from the closest airport.
4. A waiver of the Station ID requirements of Section 5.115(a) of the Commission’s rules is requested.

**Public Interest Benefits:**

Approval of the instant request will permit Caos to test a new prototype radar device that can be used to enhance public safety and support the application of new technological approaches in the radar systems.

**Stop Buzzers:**

The following will be available by wireless telephone and will act as the “stop buzzer” if any issues arise during testing:

- Primary: **Bo Marr** – Mobile: 310-487-5016;
- Secondary: **Daniel Thompson** – Mobile: 405-388-0692.