

## Narrative

Pursuant to the Federal Communications Commission (“FCC”) rules, 47 C.F.R. §§ 5.3(a), (e), (f) and (j); 5.51; 5.54(a)(1); 5.59(a)(1); and 5.71(a), Anduril Industries, Inc. (“Anduril”) respectfully requests special temporary authority to support a Low Collateral Effectors Interceptor (“LCEI”) test and evaluation event hosted by the U.S. Army’s Joint Counter-small Unmanned Aircraft Systems Office (“JCO”) and the Air Force Research Laboratory (“AFRL”). The test would occur at a fixed site at Camp Roberts—a California Army National Guard post in Paso Robles, California—from November 14, 2022 to November 18, 2022. This application requests authorization for communications between unmanned aerial systems (“UAS”) and a radio frequency (“RF”) receiving system during the LCEI testing period. Anduril proposes to use the Anduril Industries 101-3575 (“Anvil 3D”) radar to detect and track targets and a pair of Silvus Technologies StreamCaster 4240-467 (“StreamCaster” or “StreamCaster 4240”) radios to communicate between the ground control station and the radar.

The U.S. government requested that all participants of the LCEI test request temporary authorization to conduct these operations. Given the test is to occur in a few weeks, Anduril respectfully requests expeditious approval of this application.

### 1) Company Background

Anduril Industries, Inc. is headquartered in Irvine, California. Its address and FCC Registration Number (“FRN”) are provided below:

Anduril Industries, Inc.  
1375 Sunflower Avenue  
Costa Mesa, CA 92626  
FRN: 0028824514

Anduril is a private, for-profit engineering company devoted to technology development for security and defense applications by the U.S. Government. Approximately 80% of Anduril’s business is for the U.S. Government.

### 2) Need for Experimental Authority

As noted above, Anduril seeks experimental authority to support a JCO/AFRL-hosted LCEI test and evaluation event at Camp Roberts from November 14, 2022 to November 18, 2022. Specifically, Anduril proposes to use the Anvil 3D radar to detect and track targets and a pair of Silvus Technologies StreamCaster 4240-467 (“StreamCaster” or “StreamCaster 4240”) radios to communicate between the ground control station and the radar. One StreamCaster radio would reside at a fixed location on the ground and the

other StreamCaster radio would reside on the UAS flying at a maximum height of 1000 meters above ground level; the pair of radios will transmit to and receive communications from each other. The Anvil 3D radar would also be mounted on the UAS.

Station Location	Equipment	Station Class	Frequencies (MHz)	Emission Designators	Modulation Signal	ERP (mean)
Camp Roberts (on ground)	StreamCaster 4240 Radio	Fixed	4400-4940 MHz	5M64D7W 11M3D7W 22M6D7W	OFDM	4 watts
Camp Roberts (in flight on UAS)	StreamCaster 4240 Radio	Mobile	4400-4940 MHz	5M64D7W 11M3D7W 22M6D7W	OFDM	4 watts
Camp Roberts (in flight on UAS)	Anvil 3D Radar	Mobile	77000-77480	480MF8N	Linear FM	155 milliwatts

### 3) Location of Test Site

Anduril proposes to conduct experimental testing at Camp Roberts in Paso Robles, California (35°45'58.3"N 120°47'44.5"W).

See image of Camp Roberts site below.



Source: Google Earth.

#### 4) Frequencies Desired

Anduril seeks authority to use the 4400-4940 MHz frequency band for its pair of StreamCaster radios and the 77000-77480 MHz frequency band for its Anvil 3D radar.

#### 5) Power Levels:

Anduril will operate with the power levels specified in the chart in section 2 above. Anduril will operate with the minimum necessary power to conduct its research and evaluations, but it will not exceed the power levels specified in this application.

#### 6) Type of Emission, Modulation Technique, and Bandwidth Required

Anduril will operate with the emissions and modulation techniques specified in the chart in section 2 above. If other emission modes and modulation techniques are used, in no event will the emissions extend beyond the frequency bandwidths or bands requested.

Anduril does not propose to supply station-identification information as set forth in 47 C.F.R. § 5.115.

## **7) Equipment and Duty Cycle to Be Used**

Anduril proposes to deploy one temporary fixed base station unit—one of the StreamCaster radios—during the experiment.

Anduril proposes to deploy two temporary mobile station units—the Anvil 3D radar and the other StreamCaster radio—during the experiment.

The testing to be conducted under the requested authority will be generally intermittent. Testing of the Anvil 3D radar and StreamCaster radios will not be continuous during a 24-hour period. Testing of the equipment will occur for a period of 10 hours or less during any 24-hour period.

## **8) Antenna Information and Compliance with Human Exposure Limits**

Anduril clarifies the antenna information in Form 442, as follows.

### **Fixed StreamCaster Radio – Omni-Directional Antenna**

The ground-based StreamCaster radio has an omni-directional antenna that will be transmitting and receiving from a fixed location at Camp Roberts. This antenna will not extend more than six meters above the ground.

### **Mobile StreamCaster Radio – Omni-Directional Antenna**

The airborne StreamCaster radio has an omni-directional antenna mounted to a mobile UAS and the radio will be transmitting and receiving while in flight. This antenna will extend more than six meters above the ground because it will be transmitting while in flight on the UAS at a maximum height of 1000 meters above ground level.

### **Anvil 3D Radar – Omni-Directional Antenna**

The Anvil 3D radar has an antenna mounted to a mobile UAS that can turn in any direction. This antenna will extend more than six meters above the ground because it will be transmitting while in flight on the UAS at a maximum height of 1000 meters above ground level.

Anduril will comply with all Federal Aviation Administration (“FAA”) and FCC rules and regulations regarding the installation and operation of antennas and their support

structures. All power levels will comply with the limits set forth in the FCC's rules, including those relating to human exposure to radiation. In addition, all personnel who will operate the equipment are knowledgeable as to the effects of RF energy and will have the ability to control their exposure.

## **9) Restrictions on Operation**

Anduril understands that other stations may be licensed on the channels it has requested and that, if any interference occurs, it will be required to discontinue its operations immediately. Anduril does not expect such interference to occur, however, as its tests will be conducted only on a limited basis as described above in remote areas at Camp Roberts.

Anduril also recognizes that permission to operate under FCC experimental authority confers no long-term rights and is subject to the condition that Anduril not cause harmful interference.

Anduril does not propose to market, sell, or lease unapproved equipment to end users or conduct a market trial in conjunction with this test. After the completion of the tests, Anduril will recall and recover all devices that do not comply with FCC regulations. If any different treatment becomes necessary during its experimentation, Anduril will seek separate and additional authority from the agency.

## **10) Interference Protection**

Anduril recognizes that the operation of any equipment under experimental authority must not cause harmful interference to authorized facilities. Anduril also recognizes that its proposed experimentation may require coordination not only with the Interdepartment Radio Advisory Committee ("IRAC") of the National Telecommunications and Information Administration ("NTIA"), but also with existing non-Federal government licensees authorized on the requested frequencies. Anduril will fully coordinate and operate on a non-interference, non-protected basis with anyone affected or reasonably likely to be affected.

Should interference occur, Anduril will take immediate steps to resolve the interference. For instance, it may operate on another frequency, provided such frequency is not within the restricted frequencies set forth in 47 C.F.R. § 15.205, or it may discontinue operation. Notwithstanding these precautions, Anduril's experimental operations are unlikely to cause interference. Anduril proposes to limit the power and transmitting times of the proposed tests to the minimum necessary to conduct its evaluations and the operations will be limited to a 2-kilometer radius from the temporary fixed location.

## 11) Technical and “Stop Buzzer” Contact Information

Troy Brown is the technical point of contact for this request, and he will serve as the “stop buzzer” if operations must be terminated because of any interference concerns. His contact information is as follows:

Troy Brown  
Senior RF Systems Engineer  
Anduril Industries, Inc.  
1375 Sunflower Avenue  
Costa Mesa, CA 92626  
Telephone: [949-690-6342](tel:949-690-6342)  
Email: [tbrown@anduril.com](mailto:tbrown@anduril.com)