

APPLICATION FOR EXPERIMENTAL LICENSE

Anduril Industries, Inc. (“Anduril”) respectfully requests experimental authority so that it may [REDACTED]

[REDACTED] Anduril formerly held an experimental application that is nearly technically identical¹ to this application under call sign WM2XDE, which expired November 1, 2023.² Anduril seeks to renew its experiments with the same parameters (except for increased power levels) as its expired authorization and submits this application to re-establish authorization for such experiments. This request differs in two significant respects from Anduril’s previous authorization—the expired license for call sign WM2XDE authorized operations at both Anduril’s Capistrano Test Site (“CTS”) and its Apple Valley test site. First, Anduril no longer seeks to conduct operations related to this request at its Apple Valley site, and it has modified this present request accordingly to remove references to operations at that site.³ Second, Anduril seeks to add authorization to use one unit of the Numerica Spyglass SGR-001-04-01 radar at CTS using the 15700-17200 MHz band to [REDACTED].

Specifically, Anduril seeks to conduct tests on a temporary, non-interference, non-protected basis at its remote, rural site near Capistrano, California, which has the capability to support needed testing while meeting the safeguards designed to prevent potential telecommunications disruptions by virtue of its rural location. Anduril will fully coordinate and operate on a non-interference, non-protected basis with anyone affected or reasonably likely to be affected. This experimental license request involves airborne UAS operations. Anduril plans to communicate with antennas attached to the UAS operating at a maximum altitude of 1,200 feet above ground level.

1) Company Background

Anduril Industries, Inc. is headquartered in Costa Mesa, California. Its address and FCC Registration Number are as follows:

Anduril Industries, Inc.
1400 Anduril

¹ For the StreamCaster and Persistent System radios, Anduril requests to transmit at higher power levels than previously authorized under ELS File No. 0107-EX-CM-2022. Specifically, in this application, Anduril requests that the ERP for the radios increase from 4 Watts to 38.6 Watts for the StreamCaster 4200 radios, 10 Watts to 96.6 Watts for the StreamCaster 4200EP and Persistent Systems MPU5 radios, and 20 Watts to 193 Watts for the StreamCaster 4400E radios. All other technical parameters remain identical to those authorized in ELS File No. 0107-EX-CM-2022.

² Grant, ELS File No. 0787-EX-CN-2021, Call Sign WM2XDE (granted Oct. 28, 2021); Grant, ELS File No. 0107-EX-CM-2022, Call Sign WM2XDE (granted November 18, 2022) (modifying Anduril’s initial authorization).

³ See generally ELS File No. 0107-EX-CM-2022, Fourth Amended Narrative Exhibit.

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

Anduril seeks experimental authority so that it may [REDACTED]

[REDACTED] Anduril requests experimental authority for a term of 24 months to provide for flexible testing schedules that may accommodate inclement weather.

3) Station Location

Consistent with its lapsed authorization, Anduril proposes to conduct experimental testing at a facility in a rural area of Southern California with little to no population density. As a result, it is very unlikely that Anduril's operations will cause harmful interference to any other neighboring operations or individuals. Anduril's CTS is a 2700-acre property located in rural Southern California.

The operations conducted under the requested experimental authority will be limited to a radius of 2 km from the center of these coordinates. From the center of the test range, the distance to the property's borders is greater than 2 km. Moreover, higher terrain surrounding the test site would serve to shield these urban areas from the proposed operations. See image of the site on the next page.



4) Equipment and Frequencies Requested

Anduril seeks authority to operate on a subset of frequencies listed in Form 442 and reproduced in Attachment A. Anduril requests to use the same equipment and operational parameters from its lapsed authorization for the aforementioned test sites:⁴

- i. Up to 5 units RADA RPS-42 radars ([REDACTED]) operating at 3300-3400 MHz;
- ii. Up to 5 units RADA RPS-82 radars ([REDACTED]) operating at 3300-3400 MHz;
- iii. Up to 10 units of Echodyne Echoguard CR radars ([REDACTED]) operating at 24450-24650 MHz;
- iv. Up to 10 units of Anduril Industries 101-3575 radars ([REDACTED]) operating at 77000-77480 MHz;

⁴ See ELS File No. 0107-EX-CM-2022, Fourth Amended Narrative Exhibit.

- v. Up to 2 units of Elta Systems EL/M-2135 radars ([REDACTED]) operating at 9700-10300 MHz;
- vi. Up to 2 units of Elta Systems EL/M-2138M radars ([REDACTED]) operating at 3100-3400 MHz;
- vii. 1 unit of the Numerica Spyglass radar ([REDACTED]) operating at 15700-17200 MHz;
- viii. Up to 40 units of Silvus StreamCaster 4200 radios ([REDACTED]) operating at 4400-4940 MHz;
- ix. Up to 40 units of Silvus StreamCaster 4400E radios ([REDACTED]) operating at 2300-2310 MHz and 2395-2500 MHz;
- x. Up to 40 units of Silvus StreamCaster 4200EP radios ([REDACTED]) operating at 2300-2310 MHz and 2395-2500 MHz; and
- xi. Up to 10 units of Persistent Systems MPU5 smart radios ([REDACTED]) operating at 2300-2310 MHz, 2395-2507 MHz, and 4430-4940 MHz.

All radars will be temporarily fixed on the ground and will remain stationary during operation. The Silvus and Persistent radios include both fixed and mobile units. The fixed radios will be located on the ground, with some radios in the same location as the radars. The mobile units will be mounted on the UAS, which will be moving and flying above the ground during the operations.

As noted in Anduril’s previous application for authorization with these same parameters,⁵ the proposed experimentation required coordination with the Interdepartment Radio Advisory Committee (“IRAC”) of the National Telecommunications and Information Administration (“NTIA”), and with existing non-Federal government licensees authorized on the requested frequencies. These coordination concerns were resolved successfully before the Commission granted that application.

All transmissions will stay within the band edges. Anduril will comply with any limitations applied to non-Federal users in these bands pursuant to the FCC Table of Frequency Allocations.⁶ Anduril will operate with the minimum necessary power to conduct its operations and will not exceed the power levels specified in this application. Anduril will also operate with

⁵ ELS File No. 0107-EX-CM-2022, Fourth Amended Narrative Exhibit at 4-5 (highlighting frequencies that were already approved by IRAC).

⁶ See 47 C.F.R. § 2.106.

the emissions, modulation techniques, and frequency ranges specified in this application. If other emission modes and modulation techniques are used, in no event will the emissions extend beyond the frequency bandwidths or bands requested.

5) Duty Cycle

The testing conducted under the requested authority will generally be intermittent. Testing of the –

- i. StreamCaster radios will not be continuous and will occur for a period of 10 hours or less during any 24-hour period.
- ii. RPS-42 may be continuous during a 24-hour period but will include periods when the RPS-42 and RPS-82 are not transmitting simultaneously.
- iii. RPS-82 may be continuous during a 24-hour period but will include periods when the RPS-42 and RPS-82 are not transmitting simultaneously.
- iv. EchoGuard CR will be continuous during a 24-hour period.
- v. Persistent Systems MPU5 will not be continuous and will occur for a period of 10 hours or less during any 24-hour period.
- vi. Anduril Industries 101-3575 will not be continuous during a 24-hour period.
- vii. Elta Systems EL/M 2135 may be continuous during a 24-hour period but will include periods when EL/M 2135 and EL/M 2138 are not transmitting simultaneously.
- viii. Elta Systems EL/M 2138 may be continuous during a 24-hour period but will include periods when EL/M 2135 and EL/M 2138 are not transmitting simultaneously.
- ix. The Numerica Spyglass radar will be continuous during a 24-hour period.

6) Safety

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. Base station antennas to be deployed under the authority requested will not extend more than six meters above ground or more than six meters above a building. The proposed antennas onboard the UAS would operate at a maximum altitude of 1,200 feet above ground level.

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 operate the equipment are knowledgeable as to the effects of RF energy and will have the ability to control their exposure.

7) 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 operations may require coordination with existing 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 will operate on another authorized frequency, provided such frequency is not within the restricted frequencies set forth in 47 C.F.R. § 15.205, or it will discontinue operation.

8) Restrictions on Operation

Anduril recognizes that permission to operate under FCC experimental authority confers no long-term rights. Anduril does not propose to market, sell, or lease equipment to end users or conduct a market trial in conjunction with these operations.

9) Request for Waiver of Station Identification Requirements

Anduril requests a waiver of the station identification requirements in Section 5.115 of the Commission's rules.⁷ Grant of the requested waiver will promote the public interest by allowing Anduril to determine the most effective operating capabilities of the equipment as part of this operation.

10) Technical and "Stop Buzzer" Contact Information

If Anduril must terminate operations due to any interference concerns, the technical and "stop buzzer" point of contact is as follows:

Carson Sciulli
Anduril Industries, Inc.
1400 Anduril
Costa Mesa, CA 92626
Telephone: (330) 416-7291
Email: csciulli@anduril.com

For these reasons, Anduril respectfully requests approval of experimental authority.

⁷ See 47 C.F.R. § 5.115.

ATTACHMENT A

Anduril seeks authority to operate on a subset of frequencies listed in Form 442 and reproduced in the chart below.

Equipment	Frequencies (MHz)	Emission Designators	Modulation Technique	ERP (mean)
Rada RPS-42 Radar	3300-3400 ¹	43M0M1N 21M5M1N 5M50M1N 4M40M1N 3M70M1N 17M6M1N 14M7M1N 11M0M1N 8M80M1N 7M30M1N	Coded Pulse Radar	328 watts ²
Rada RPS-82 Radar	3300-3400	43M0M1N 21M5M1N 5M50M1N 4M40M1N 3M70M1N 17M6M1N 14M7M1N 11M0M1N 8M80M1N 7M30M1N	Coded Pulse Radar	1259 watts

¹ Anduril understands the 3300-3400 MHz band and adjacent spectrum will likely support future 5G services. Given the remote, rural, terrain-protected, and temporary nature of Anduril’s services—which are distant from urban 5G services unlikely to fully deploy before Anduril’s two-year experimental term expires—and Anduril’s assurance to operate on a non-harmful interference basis and discontinue experiments, if necessary, grant of the proposed experiment is in the public interest.

² To avoid numerous duplicative entries in the Form 442 for the two devices using the 3300-3400 MHz band, Anduril listed the worst-case power level associated with the RPS-82 equipment.

Equipment	Frequencies (MHz)	Emission Designators	Modulation Technique	ERP (mean)
Echodyne EchoGuard CR	24450-24650	47M1F0N	Coded Pulse Radar	4 watts (Output Power)
Anduril Industries 101-3575	77000-77480	480MF8N	Linear FM	155 milliwatts
Elta Systems EL/M-2135	9700-10000	30M0Q0N	Fixed Freq. Pulsed RF + Linear FM Chirp Radar Pulses	2,898 watts
Elta Systems EL/M-2138M	3100-3400	30M0Q0N	Fixed Freq. Pulsed RF + Linear FM Chirp Radar Pulses	36,486 watts
StreamCaster 4200	4400-4940	5M64D7W 11M3D7W 22M6D7W	OFDM	38.6 watts
StreamCaster 4200EP	2395-2500	5M64D7W 11M3D7W 22M6D7W	OFDM	96.6 watts

Equipment	Frequencies (MHz)	Emission Designators	Modulation Technique	ERP (mean)
StreamCaster 4400E	2395-2500	5M64D7W 11M3D7W 22M6D7W	OFDM	193 watts
Persistent Systems MPU5	4430-4940 2395-2507	4M06D1D 8M91D1D 17M8D1D	OFDM	96.6 watts
Numerica Spyglass	15700-17200	22M5Q3N	Coded Pulse Radar	12.3 kilowatt (Peak)