

NARRATIVE STATEMENT

Pursuant to Section 5.3(d) and (f) and Section 5.61 of the Federal Communications Commission's ("FCC") rules, 47 C.F.R. §§ 5.3(d), (f), 5.53 (2015), Echodyne Corp. hereby respectfully requests an experimental license commencing August 1, 2016, to operate in the 24.45-24.65 GHz band to continue and expand its effort to conduct proof-of-concept testing of a prototype radar system designed to demonstrate the capabilities of its radar technology and to test detect and avoid ("DAA") radar technology for small unmanned aerial vehicles ("UAVs").

Grant of this application would serve to replace the existing special temporary authorization ("STA") issued to Echodyne Corp. for experimentation granted under File No. 0242-EX-ST-2016, call sign WJ9XLZ. That STA allowed the company to band to conduct proof-of-concept testing of a prototype radar system that is being designed to provide DAA to UAVs as well as ground-based radionavigation and radiolocation capabilities.

As provided under Section 5.61(c) of the Commission's rules, 47 C.F.R. § 5.61(c) (2015), this application is also intended to serve as a continuance or extension of the above-referenced STA pending action on this application. Echodyne Corp. understands, however, that such continuance or extension applies only to the locations and channels as authorized and as conditioned under the STA and that the company must await action on this application for a regular license before it may operate at additional locations or in any manner proposed in this application that is at variance with the operations authorized or conditioned under the STA. The extension is necessary to allow the company to continue its technical tests pending Commission action on this application.

In support of this request, the following is shown:

A. Purpose of Operation and Need for Experimental License:

Echodyne Corp., headquartered in Bellevue, Washington, and backed by Bill Gates, Madrona Venture Group, Vulcan Capital, Lux Capital, and The Kresge Foundation, among others, is researching and developing innovative uses of radar by creating high performance ultra-low cost, size, weight, and power electronically scanning radars. For example, its Metamaterial Electronically Scanning Array ("MESA") offers disruptive capabilities for existing radar applications and enables new categories of radars for UAVs, robots, autonomous vehicles, and security.

Under the authorization requested in this application, Echodyne proposes to test its MESA-K-DEV radar development kit, and its MESA-DAA, which is an electronically scanned detect and avoid radar for small UAVs. The testing will validate the performance of the development kit in various settings to support a range of use cases and will validate the performance of the DAA radar for airborne and ground-based radionavigation.

B. Locations of Proposed Operation:

Echodyne proposes to test the radars on the ground to validate detection of objects moving through the field of view, including small UAVs flying through the field of view. The radars will then be tested on remote-piloted small UAVs and on manned helicopter or fixed wing aircraft. All tests involving UAVs will be duly authorized by the FAA.

The radars will be operated both at fixed locations and on mobile airborne platforms, at the following locations:

Location	Coordinates (NAD83)	Radius of Operation
Bellevue, WA	47° 37' 50" -122° 11' 05"	9 km
Boardman, OR	45° 47' 37" -119° 37' 24"	32 km, altitudes up to 305m AGL
Hood River, OR	45° 42' 19" -121° 31' 17"	32km, altitudes up to 2400m AGL
Playas, NM	31° 55' 00" -108° 32' 01"	32km, altitudes up to 122m AGL
Vaughn, NM	34° 36' 06" -105° 12' 30"	95km to the east or west, 16km to the north or south, altitudes up to 122m AGL
Port Mansfield, TX	26° 33' 17" -97° 25' 30"	32 km, altitudes up to 305m AGL
Wheelock, TX	30° 53' 48" -96° 22' 28"	32 km, altitudes up to 305m AGL
Blackstone, VA	37° 4' 20" -77° 57' 48"	32 km, altitudes up to 2400m AGL

C. Technical Specifications:

1. Frequencies Desired

Echodyne requests authorization to operate in the 24.45-24.65 GHz band.

2. Effective Radiated Power

The units to be deployed are configured to operate at a peak maximum transmitter power output of 2W, and a peak maximum effective radiated power of 243W.

Echodyne will reduce the actual powers to the minimum power needed for successful operation, based on set-up and testing at the proposed locations. Operations will be conducted to comply with rules relating to human exposure to radiation.

3. Modulation and Emissions

Echodyne proposes to operate using linear FM modulation. The primary emission designator is 190MF3N. Other emission modes may be utilized, but in no event will the emissions extend beyond the frequency bands requested.

4. Antenna Information

The fixed base station transmitter antennas will not, under any circumstances, extend more than 6 meters above ground or a building. No antennas will be mounted in a fashion that will require approval under FAA and FCC rules and regulations. The mobile units on UAVs and manned aircraft will operate at heights specified above under Section B.

5. Equipment To Be Used

Echodyne proposes to test its prototype MESA-K-DEV radar development kit and its DAA radar. It expects that it will be able to conduct its testing with a maximum of 10 units.

D. Protection Against Causing Interference:

As noted above, Echodyne has requested authority to operate in the 24.45-24.65 GHz band. It has conducted a search of the Commission's Universal Licensing System ("ULS") database and determined that the proposed testing should not interfere with any primary operations in that spectrum. The nearest adjacent channel licensees are: Fibertower Spectrum Holdings, LLC authorized under call sign WMF854 operating on 24.41 GHz; and DIRECT TV Enterprises, LLC authorized under call signs E140116, E130081 and E090173 to operate on 24.75 GHz. Echodyne will conduct its operations to ensure against interference to those operations.

In the event that it receives a complaint of harmful interference resulting from the proposed operation, Echodyne will take immediate action to address the interference, including if necessary discontinuing its operations. The company has designated Mr. Bill Graves, whose contact information is provided below, to act as the "stop buzzer" for this purpose.

Furthermore, the proposed operations will be limited in scope during the term of the authorization requested by this application. Echodyne will on average transmit for only 180 minutes over a period of 8 hours on not more than 3 days each week.

In summary, the analysis conducted by Echodyne indicates the proposed operation should not interfere with any licensed operation.

E. Restrictions on Operation:

Echodyne is not seeking authority to perform a market study under this authorization. After the test is completed, Echodyne will recall and recover all devices that do not comply with FCC regulations.

Echodyne also recognizes that the operation of any equipment under experimental authority must not cause harmful interference to authorized facilities. Should interference occur, Echodyne will take immediate steps to resolve the interference, including if necessary arranging for the discontinuance of operation.

In addition, Echodyne will advise entities using the equipment that permission to operate has been granted under experimental authority issued to Echodyne, that such operation is strictly temporary, and that the equipment may not cause harmful interference. Entities will also be advised in accordance with Section 2.803 of the Commission's rules, 47 C.F.R. §2.803 (2015), that any unapproved devices have not been authorized as required by the rules of the FCC.

F. Public Interest:

Echodyne submits that issuance of an authorization as requested is in the public interest, convenience, and necessity. Grant of an authorization will permit Echodyne to develop innovative equipment that will enhance the use of radar technologies.

G. Contact Information:

For questions about this application, please contact:

Michael Lewis
Consulting Engineer
Wiley Rein LLP
1776 K Street, N.W.
Washington, DC 20006
Telephone: (202) 719-7235
Facsimile: (202) 719-7207
mlewis@wileyrein.com

For questions about the company or the testing, please contact:

Andrea Radosevich
General Counsel
Echodyne Corp.
2380 116th Ave NE
Bellevue, WA 98004
(206) 399-9793
andrea@echodyne.com

In the unlikely event interference concerns should arise during the period of authorization requested by this application, please contact the company's "Stop Buzzer" identified below:

Bill Graves
Echodyne Corp.
2380 116th Ave NE
Bellevue, WA 98004
(813) 758-6256
bill@echodyne.com