



Federal Aviation Administration
Office of Spectrum Policy and Management
ASR-1
800 Independence Ave. SW
Washington DC 20591

November 4, 2024

Dear Review Committee:

Pursuant to 47 CFR §87.147(d), we are notifying you that Echodyne Corp. ("Echodyne") will be filing an application with the Federal Communications Commission for equipment certification of a ground-based radar operating in the 15.400 GHz to 15.700 GHz radionavigation band.

By way of background, Echodyne obtained equipment certification of its EchoShield radar in September 2023 under the FCC ID 2ANLB-MESA00054. The equipment that is the subject of the new application that soon will be submitted to the TCB is a very similar radar to the EchoShield product certified in 2023. The updated radar, EchoShield 700025-300 & 700025-350 ("Block 2"), will include certain replacement parts and incorporate mechanical and electrical updates as described in the bullets below. It will be made available under two part numbers (700025-300 & 700025-350) for the two oscillator options as outlined in the first bullet. The purpose of the planned part changes and updates is to achieve greater ruggedization and increased vibration resilience for on-the-move operations as well as durability of the radar in deployments in hazardous environments, and to address supply chain challenges. No other modifications will be made. There will be no changes to the frequencies that the radar operates in, nor will the updated product be used for applications different than those identified for Echodyne's previously approved EchoShield radar. The performance specifications for EchoShield Block 2 will be substantially similar to the specifications of our previously approved radar.

The following mechanical and electrical updates are made in EchoShield 700025-300 & 700025-350 Block 2:

- Mechanical updates to certain existing parts: replacement of the existing oscillator with two oscillator options, replacement of radome, bezel, front housing, and addition of new internal assembly to support replacement of the existing oscillator.
- Electrical updates to certain boards to replace some end-of-life components and to address supply chain shortages as well as achieve cost reduction on some parts.

Since the July 2023 equipment grant, the original EchoShield radar has been licensed for deployment, and deployed and tested at numerous sites throughout the United States without any observed interference to other equipment in the frequency bands described below, including any FAA airport surface detection radars. The FAA was consulted during the site licensing process and will continue being consulted for site license applications by users of the EchoShield 700025-350 Block 2.

We hereby provide the information required by 47 CFR §87.147(d) as follows:

1. Equipment Description: Echodyne's EchoShield 700025-350 is a Medium Range Radar (MRR) built upon Echodyne's MESA (Metamaterial Electronically Scanned Array) architecture enabling airspace management applications requiring medium detection ranges (3km and beyond) and greater accuracy. The radar has been designed to provide Ground-Based Detect and Avoid (GB-DAA) capability for airspace management and can be configured at specific sites to operate in the radionavigation band 15.400 – 15.700 GHz with 5 frequency channels. It is a Linear Frequency Modulated (LFM) Pulsed Doppler radar with a peak transmitter power of 160W. The radar is being certified under Part 87 of the FCC Rules. Echodyne is also requesting that the equipment be certified under Part 90 of the FCC Rules to operate in the 15.700 – 16.600 GHz band for radiolocation applications.

2. Manufacturer's Identification: The manufacturer's identification for the radar is FCC ID: 2ANLB-MESA00055.

3. Antenna Characteristics: Dimensions: 42.5 cm x 33 cm x 18 cm

Polarization: Linear, Horizontal

Maximum field of regard: Azimuth $130^{\circ} \pm 65^{\circ}$, Elevation $90^{\circ} (+50^{\circ}/-40^{\circ})$

Gain: 27 dBi (max), Gain roll-off = 2 dB typ. over full field of regard. HP Beam width = 8.7° (AZ plane), 4.6° (EL plane) one-way. Side Lobe Level = -50 dB (RMS average) two-way.

4. Rated Output Power: 79.0 dBm EIRP

5. Emission Type and Characteristics: Q3N Pulse, carrier also angle-modulated during pulse with single analog channel.

6. Frequencies of Operation:

Channel	Frequency (GHz)							
	Center	BW: 25 MHz		BW: 50 MHz		BW: 100 MHz		BW: 200 MHz
L1	15.450	15.438	15.463					
L2	15.500	15.488	15.513	15.475	15.525			
L3	15.550	15.538	15.563	15.525	15.575	15.500	15.600	15.4500 15.6500
L4	15.600	15.588	15.613	15.575	15.625			
L5	15.650	15.638	15.663					

7. Essential Receiver Characteristics: Not applicable, no protection required.

If you have any questions or need further information, please contact me.

Signed by:

Hanna Cox
Signature

Best regards,

Hanna Cox

Print name

Echodyne Corp.

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