



U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D. C. 20591

Echodyne Corp.
12112 115th Ave Ne, Ste A
Kirkland, WA 98034-6958

8/16/2023

Dear Ms. Hanna Cox:

The Federal Aviation Administration (FAA), Spectrum Engineering Services Group was notified by Echodyne Corporation of their filing of an application for equipment certification for a ground-based radar with the Federal Communications Commission (FCC). Specifically, the application refers to Echodyne's EchoShield 700025-200 Medium Range Radar (MRR) built upon Echodyne's Metamaterial Electronically Scanned Array (MESA) architecture that operates in the 15.4 – 15.7 GHz band under the Radionavigation Service and 15.7 – 16.6 GHz band under Radiolocation Service and requests certification for use under FCC ID #2ANLB-MESA00054.

The Spectrum Planning and International Team of the FAA's Spectrum Engineering Services Group has reviewed the information provided by Echodyne Corporation and conditionally supports the FCC granting certification of this equipment. The radar is designed to provide Ground-Based Detect and Avoid (GB-DAA) capability for airspace management requiring detection ranges (3km and beyond) with greater accuracy.

The radar is being certified under Part 87 of the FCC Rules in the 15.4 – 15.7 GHz for Radionavigation service. This radar is also certified under Part 90 of the FCC Rules in the 16.2 – 16.6 GHz for Radiolocation service. It shall be noted that FAA does not recommend certification of this radar in the 15.7 – 16.2 GHz for use of the Radiolocation services due to the potential for interference to FAA airport surface detection radars at major airports throughout the US.

We note that a FCC grant of equipment certification only signifies compliance with the FCC's specific rules and we ask that the grant of FCC equipment certification for this system include the following condition:

FCC authorization does not signify Federal Aviation Administration (FAA) approval for use of this radar for Ground-Based Detect-and-Avoid (DAA) functions in the 15.4 – 15.7 GHz band. Users should coordinate with the FAA for guidance and authorization necessary prior to use of the radar for Ground Based DAA purposes.

The FAA also notes that the current FCC rules only allows for use as a ground based system (see the 15400-15700 MHz line of the frequency band table in Section 87.173 of the FCC rules). The FAA further notes that we support the proposal in Section VII of the "Petition to Adopt Service

Rules for Unmanned Aircraft Systems (“UAS”) Command and Control in the 5030-5091 MHz Band (RM-11798)” that adds the MA class of station symbol to the 15400-15700 MHz line of the frequency table in Section 87.173 of the FCC Rules. While currently the EchoShield radar will primarily provide GB-DAA application, this additional station class will allow the Echodyne's EchoShield 700025-200 radar to also be installed on aircraft for DAA purposes, if adopted by the FCC.

In light of ongoing standards developments that could potentially impact current and future use of the Echodyne's EchoShield 700025-200 radar, the certification that directs users to the FAA for guidance will ensure continued compliance with FAA and FCC rules. By way of background:

1. Aviation has recently developed standards for both ground-based and airborne DAA systems.
2. It is anticipated that the Echodyne's EchoShield 700025-200 radar will be capable of meeting the standards for ground-based DAA that are being developed in RTCA.
3. Aviation has developed standards for unmanned aircraft DAA systems, and the FAA has adopted standards for airborne DAA systems intended for installation on large unmanned aircraft (see FAA Technical Standard Order C212).
4. The proposed Echodyne's EchoShield 700025-200 radar is for ground-based installation only and is not capable of meeting the current requirements for airborne DAA system intended for installation on large unmanned aircraft.
5. Work is underway within RTCA Special Committee 228 to develop standards for DAA systems intended for installation on small unmanned aircraft and these standards should be completed within the next two years.
6. It is anticipated that the FAA will adopt the RTCA developed standards for DAA systems intended for installation on small unmanned aircraft once they are published.
7. It is anticipated that the Echodyne's EchoShield 700025-200 radar will be capable of meeting the standards for DAA systems if future requirement includes installation on small unmanned aircraft that are being developed in RTCA.

If you require any additional information, please contact Mr. Jae Shin, Electronics Engineer, Spectrum Planning and International Team, at (202) 267-7365 or via e-mail jae.w.shin@faa.gov.

Sincerely,

Michael Weiler
Group Manager, Spectrum Engineering Services