



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

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

MatrixSpace, Inc.
145 South Bedford Street
Burlington, MA 01803

12/1/2023

Dear Mr. Dan Nobbe:

The Federal Aviation Administration (FAA), Spectrum Engineering Services Group was notified by MatrixSpace, Inc 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 the MatrixSpace DopplerSpace MS01100 a small, lightweight, electronically-scanned radar designed to provide detect-and-avoid (DAA) capability for small unmanned aerial systems (sUAS) either while mounted on the sUAS, or while installed on the ground. The radar operates in the radionavigation frequency band of 24.45 – 24.65 GHz, using 3 channels with 43 MHz each with 17 MHz of separation. The radar operates in the same mode whether operating airborne or ground based. MatrixSpace requests equipment certification for use under FCC ID #2BAC9MS0110001.

The Spectrum Planning and International Team of the FAA Spectrum Engineering Services Group has reviewed the information provided by MatrixSpace Inc 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 and Part 2 of the FCC CFR 47 Rules in the 24.45 – 24.65 GHz for Radionavigation service.

We note that an 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 functions in the 24.45 – 24.65 GHz band. Users should check with the FAA for guidance and authorization necessary prior to use of the radar for Ground Based DAA purposes.

In light of ongoing standards developments that could potentially impact current and future use of the MatrixSpace DopplerSpace MS01100 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 MatrixSpace DopplerSpace MS01100 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 MatrixSpace DopplerSpace MS01100 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 MatrixSpace DopplerSpace MS01100 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. Michael Weiler, Group Manager, Spectrum Engineering Services Group, at (202) 267-7531 or 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

cc:
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