Vehicular Radar Certification Under Part 95 Subpart M

Steven K. Jones
Background

- Reallocated 77.5 to 78.0 GHz to Radiolocation Service on a primary allocation basis.
- Facilitates a globally-harmonized vehicular radar band extending from 76.0-81.0 GHz.
- Consolidates domestic vehicular radar operations using a licensed-by-rule approach.
- Provides for interference protection commensurate with a primary service allocation.
- Allows for limited non-vehicular fixed and mobile radar applications in airport terminal areas
  • Foreign object debris (FOD) detection
  • Aircraft-mounted radars for ground use only
    – wingtip collision avoidance
  • Rotary aircraft included

KDB Publication 653005 is evolving to provide certification guidance relative to this new rule part.
What Constitutes a Vehicle?

- Radars certified under Part 95 Subpart M can be installed on:
  - Automobiles and trucks,
  - Railroad train locomotives and cars,
  - Monorails or trams,
  - Construction and farming vehicles,
  - Motorcycles, scooters, and motorbikes,
  - Mobile work platforms (e.g., scissor lifts), and
  - Marine vessels (boats and ships) operating within U.S. territorial waters.

- All installations must comply with grant conditions and relevant technical standards.

- Separate grants unnecessary for use of approved radars on different vehicle types.
Certification Issues

Removes references to vehicular radar operations in the 16.2-17.7 GHz band (§ 15.252) and the 46.7-46.9 GHz band (§ 15.253).

Phases out wideband vehicular radar operations in 23.12-29.0 GHz band (§ 15.252) and ultra-wideband vehicular radar operations in 22-29 GHz (§ 15.515).

- Certification applications no longer accepted after September 20th, 2018.
- Class II permissive changes no longer permitted after January 1, 2022.
- Manufacture, importation, marketing, sales, and installation will not be permitted after January 1, 2022, with the exception of the replacement or repair of malfunctioning equipment that was installed prior to January 1, 2022.
Certification Issues (continued)

- Does not apply to unlicensed radars operating in the 24.075-24.175 GHz frequency bands under §15.245 and/or §15.249.
  - Vehicular radar applications under these rule parts can continue unabated.

- Vehicular radars previously certified for operation in 76-77 GHz band segment under §15.253 need not be recertified under Part 95 M; however operation will now be on a licensed-by-rule basis and any permissive changes must be made under the Part 95 M requirements.
Technical Requirements

Radar equipment intended for operation shall be certified in accordance with Part 95 Subpart M and Part 2 Subpart J.
- New Equipment Class: Vehicle Radar Devices (VRD)

Radiated power limits specified in §95.3367
- Maximum (RMS average) EIRP shall not exceed 50 dBm.
- Maximum peak EIRP spectral density shall not exceed 55 dBm when measured with a peak power detector using a 1 MHz RBW.

Unwanted emissions limits specified in §95.3379

An effort to develop specific compliance measurement guidance in collaboration with C63 is being initiated.
- Relevant technical comments received in response to the draft publication of KDB 653005 will be considered.

Existing guidance in C63.10 can be utilized in the interim.
Specific compliance measurement questions should be referred to us by means of the KDB inquiry system.