

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of the Commission’s Rules to Permit Radiolocation Operations in the 77-81 GHz Band	)	WT Docket No. 11-202
	)	
Request by the Trex Enterprises Corporation for Waiver of Section 90.103(b) of the Commission’s Rules	)	RM-11612
	)	

**COMMENTS OF  
THE STRATEGIC AUTOMOTIVE RADAR FREQUENCY ALLOCATION GROUP**

The Strategic Automotive Radar Frequency Allocation Group (“SARA”) hereby submits these comments in response to the *Notice of Proposed Rule Making and Order* (“NPRM”) released by the Federal Communications Commission (“FCC” or “Commission”) in the above-captioned proceedings.<sup>1</sup> The NPRM seeks comment on the best means by which the Commission can enable a new radar technology designed by Trex Enterprises Corporation (“Trex”) to detect foreign object debris (“FOD”) at airports.<sup>2</sup> As SARA’s members manufacture and install automotive radars (both long-range and short-range) for use in the frequencies

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<sup>1</sup> Amendment of the Commission’s Rules to Permit Radiolocation Operations in the 78-81 GHz Band, WT Docket No. 11-202; Request by the Trex Enterprises Corporation for Waiver of Section 90.103(b) of the Commission’s Rules, RM-11612, *Notice of Proposed Rule Making and Order*, FCC 11-185 (rel. Dec. 20, 2011) (“NPRM”).

<sup>2</sup> *NPRM* ¶ 1. The NPRM also granted Trex’s request for waiver of the FCC’s Part 90 rules to permit certification and use of the FOD radar detection equipment operating in the 78-81 GHz band pending resolution of this rulemaking proceeding. *Id.*

between 76 and 81 GHz,<sup>3</sup> SARA is concerned that the proposed rules regarding FOD radar equipment may result in harmful interference to vehicular-based radar systems.

SARA urges the Commission to refrain from taking any action in this proceeding that could delay or prevent the use and development of vehicle-based short range radar (“SRR”) equipment, which the Commission has recognized will be “an important advance in vehicle safety in the United States.”<sup>4</sup> Use of vehicle-based SRR technologies is currently allowed in the 77-81 GHz band in Europe, and a petition for rulemaking seeking Commission authority for similar use on an unlicensed basis in the United States will likely be filed soon with the Commission.<sup>5</sup>

In view of the vital role that SRR technology will play in promoting vehicle safety in the United States, the Commission should prohibit operation of FOD radars at airports on an unlicensed basis. By authorizing only licensed FOD systems in the 78-81 GHz band, the Commission can minimize the potential for interference between FOD radars and automotive radars in that frequency range. With appropriate technical parameters, licensed FOD radars can co-exist with SRR equipment in the 78-81 GHz band without material interference. However, the Commission’s proposed changes to Section 90.103 are inadequate to ensure device and service compatibility within the 78-81 GHz band. Because the interference risk posed by a FOD radar will depend on its location, a licensing regime that regulates the siting of FOD radars is necessary. One possible licensing approach could be to require that FOD radars be mounted and used in a manner that prevents the main antenna beamwidth from illuminating a public roadway

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<sup>3</sup> See Comments of the Strategic Automotive Radar Frequency Allocation Group, ET Docket No. 11-90, RM-11555, ET Docket No. 10-128 (filed Jul. 18, 2011).

<sup>4</sup> *NPRM* ¶ 7.

<sup>5</sup> The petition for rulemaking will likely be filed with the Commission seeking the amendment of Section 15.253 of the Commission’s rules to permit the operation of automotive SRRs in the 77-81 GHz band. Section 15.253 already authorizes automotive radar in the 76-77 GHz band.

near the airport, where SRR equipment will most likely be adversely affected. Requiring operators of FOD equipment to obtain a license from the Commission would also give due accord to the preferences of the Federal Aviation Administration, which has suggested that, if authorization of FOD radars occurs, it be done on a licensed basis.<sup>6</sup>

Additionally, SARA urges the Commission not to promulgate final rules in this proceeding prior to its receipt of technical submissions demonstrating the electromagnetic compatibility between mobile FOD radar systems at airports and automotive SRR radars and other technologies operating in the 77-81 GHz band. Absent such technical showings, neither the FCC nor other service providers will be able to verify the appropriate operating parameters and license conditions for FOD radar systems. Such uncertainty would risk interference and/or incompatibility with current and future services that operate in the 77-81 GHz band, including vehicle-based SRR. The technical parameters for FOD radar set forth in the portion of the NPRM that temporarily grants Trex's request for waiver may not fully protect automotive SRR systems that operate on public roadways near airports.<sup>7</sup> Consequently, SARA and its members cannot fully determine the extent to which FOD radar operations in the 78-81 GHz band will adversely impact vehicle-based SRR systems in the United States. However, based on the technical information provided by Trex, interference to SRR equipment is likely because Trex proposes to operate its FOD radar systems at 65 dBm e.i.r.p.—more than 38 dB higher than the power at which SRR systems are authorized to operate under the European standards governing vehicular radar.<sup>8</sup> Accordingly, the Commission should require Trex to provide additional

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<sup>6</sup> See Letter from FAA Spectrum Engineering Services to NTIA Office of Spectrum Management (Oct. 13, 2011).

<sup>7</sup> See NPRM ¶ 18 (identifying the technical specifications as including (i) transmit power of 100 mW, (ii) antenna gain of 45 dBi, (iii) system e.i.r.p. of 35 dBw; (iv) vertical transmit polarization, (v) a beamwidth of (3 dB) 1 deg (el) x 0.2 deg (az), and (vi) FMCW chirp (el scan) repetition rate of 139.5 Hz).

<sup>8</sup> See ETSI EN 302 264-1 (V1.1.1), *Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Short Range Radar Equipment Operating in the 77*

information to justify why it requires such high power levels to operate FOD radar systems, including the distance that Trex desires the FOD radar systems to cover, the minimum metal target size that the FOD radar systems are expected to detect, and related information.

Finally, while SARA does not object to the Commission's decision to grant Trex's request for waiver of Section 90.103 of the Commission's rules to allow the certification, manufacture, licensing and use of its FOD radar equipment, it respectfully requests that any licenses ultimately issued pursuant to this waiver be expressly conditioned on the resolution of this proceeding, as well as the technical and compatibility studies necessary to fully understand the effects of FOD radar systems on automotive SRR technology operating in the 77-81 GHz band.

Respectfully submitted,

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*GHz to 81 GHz band; Part 1: Technical Requirements and Methods of Measurement, Annex D at 36 (June 2009)* (limiting the maximum mean power spectral density outside a vehicle resulting from the operation of an SRR device to -9 dBm/MHz e.i.r.p., which translates to a maximum of 27 dBm e.i.r.p. when the full bandwidth of 4000 MHz is used).