

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

In the Matter of	)	
	)	
Amendment of Sections 15.35 and 15.253 of the Commission’s Rules Regarding Operation of Radar Systems in the 76-77 GHz Band	)	ET Docket No. 11-90 RM-11555
	)	
Amendment of Section 15.253 of the Commission’s Rules to Permit Fixed Use of Radar in the 76-77 GHz Band	)	ET Docket No. 10-28
	)	

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

The Strategic Automotive Radar Frequency Allocation Group (“SARA”) hereby submits its reply in response to comments filed to the *Notice of Proposed Rulemaking* (“NPRM”) released by the Federal Communications Commission (“FCC” or “Commission”) in the above-captioned proceedings.<sup>1</sup> In its initial comments, SARA supported the Commission proposal to modify the applicable Section 15.253 emission limits by eliminating the requirement that vehicular radars decrease power when the vehicle on which the radar is mounted is stopped or not in motion. However, SARA expressed caution on the proposal to authorize the use of unlicensed 76-77 GHz band radars in fixed infrastructure systems.

SARA observes that there is widespread agreement among commenters with the proposed modification of the rules concerning vehicular radar and substantial support for the public safety benefits of that technology. In these reply comments, SARA responds solely to the

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<sup>1</sup> *Amendment of Sections 15.35 and 15.253 of the Commission’s Rules Regarding Operation of Radar Systems in the 76-77 GHz Band*, ET Docket No. 11–90, RM-11555, *Amendment of Section 15.253 of the Commission’s Rules to Permit Fixed Use of Radar in the 76-77 GHz Band*, ET Docket No. 10–28, *Notice of Proposed Rulemaking*, 26 FCC Rcd 8107 (2011) (“NPRM”).

comments of the National Radio Astronomy Observatory (“NRAO”), which opposes the use of this life saving technology due to its view that operation in the 76-77 GHz band could cause harmful interference and would apparently conflict with a state zoning statute in West Virginia.<sup>2</sup> SARA then reiterates its position on fixed infrastructure use of this band, in light of the lack of support on the record for the Commission’s proposal.

**I. THE COMMISSION SHOULD NOT IMPOSE ADDITIONAL TECHNICAL RESTRICTIONS ON VEHICULAR RADAR, SUCH AS DEACTIVATION REQUIREMENTS**

Vehicle-based radar systems have been installed in a wide range of automobiles in the United States. This technology was first authorized as early as 1991 in Europe.<sup>3</sup> Its use has been recognized internationally in ITU-R Recommendation M-1452 since 2000.<sup>4</sup> Automotive radars operating at 76-77 GHz have also been used worldwide for Adaptive Cruise Control (“ACC”) since 1998 and, more recently, in more advanced systems such as collision mitigation and pre-crash applications (often in combination with 24 GHz ultra-wideband short range radar). Autonomous emergency braking will be mandatory in Europe for trucks starting in 2013.<sup>5</sup> Hence, there is a lengthy history of this technology being authorized and increasing international efforts to expand its use.

SARA explained in its comments why there is strong public interest justification to support the harmonization of U.S. emission levels and operating conditions for ACC with European ETSI standards and why there is no justification for the distinction between “vehicle in

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<sup>2</sup> Comments of the National Radio Astronomy Observatory (filed July 18, 2011) (“NRAO Comments”) at ¶¶ 4-9; 14-15.

<sup>3</sup> ERC Recommendation 70-03 designated the use of this band for telematics applications in CEPT countries as early as 1991. Later, ECC Decision (02)01 even more specifically recognized this use. *See* ECC Decision of 15 March 2002 on the frequency bands to be designated for the coordinated introduction of Road Transport and Traffic Telematic Systems (ECC/DEC/(02)01).

<sup>4</sup> ITU-R recommendation M.1452 (2000-5, amended in M.1452-1, 2009-10).

<sup>5</sup> *See* Regulation (EC) No. 661/2009 (*cited by* SARA Comments at note 4).

motion” and “vehicle not in motion” rules. NRAO does not respond directly to the latter point, but claims that there is a general interference potential between vehicular radar and radio astronomy, even for a single car (*i.e.*, not only aggregation), apparently regardless of whether the car is in motion or not in motion.<sup>6</sup>

NRAO now suggests that what it terms “high-powered vehicular radars” should be required to include “an easily accessible on/off switch, and that the use of this switch for protection of radio astronomy operations and compliance with the West Virginia Radio Astronomy Zoning Act should be clearly explained in the vehicle operator’s manual.”<sup>7</sup> SARA strongly opposes this requirement.<sup>8</sup>

First, there is over a decade of experience with this technology in Europe, where there is no “vehicle not in motion” restriction, *and* where radio astronomy observatories are located much closer to urban centers than they are in the U.S. To SARA’s knowledge, there have been no substantiated claims of harmful interference arising from vehicular radar in the 76-77 GHz band, and NRAO can point to none. This long term, real world experience is more compelling than any hypothetical concerns raised by NRAO.

Second, if taken literally, NRAO’s request for a new “on/off switch” would require the retrofitting of all cars on the road equipped with ACC. Mandating such a requirement for all vehicles equipped with 76-77 GHz radar would retroactively impose massive costs entirely disproportionate to NRAO’s alleged harms. Moreover, NRAO’s citation to a state statute that

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<sup>6</sup> NRAO Comments at ¶¶ 6-8.

<sup>7</sup> *Id.* at ¶¶ 18-19.

<sup>8</sup> SARA observes that NRAO no longer seems to propose use of automatic deactivation requirements based on GPS-defined coordination zones. NRAO Comments at ¶ 19. In its comments, SARA noted that any such requirement would limit the ability of the automotive industry to install new safety technology in mass market automotive product lines and could possibly deny the benefits of automotive safety radar to consumers of lower-cost vehicles. SARA Comments at 4.

purports to regulate RF emissions is unavailing on its face. Federal courts have recognized the Commission's field preemption with regard to the regulation of radio communications devices, so the Commission need not draft its rules to comply with state laws.<sup>9</sup> For the reasons discussed above, SARA suggests that no new technical or operational limits should be applied to vehicular radar operating in the 76-77 GHz band.

By contrast to speculative risks of interference, there is no question in the record about the public interest benefits of vehicular radar. Safety benefits of ACC radar have been shown in various studies. A useful overview is provided in a presentation made at the Enhanced Safety of Vehicles ("ESV") Conference 2009.<sup>10</sup> An earlier study on ACC and Forward Collision Warning was published by the National Highway Traffic Safety Administration.<sup>11</sup> Both show that the safety benefit is significant, especially using not only ACC, but more advanced vehicle applications such as Collision Mitigation Braking Systems and Autonomous Emergency Braking (often in combination with Short Range Radar). A very detailed analysis was conducted by a

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<sup>9</sup> See, e.g., *N.Y. SMSA Ltd. P'ship v. Town of Clarkstown*, 612 F.3d 97, 105 (2d Cir. 2010) (striking down a zoning ordinance governing the placement of wireless transmitting facilities and holding that the "regulation of technical and operational aspects of wireless telecommunications technology" is "a field that is occupied by federal law"); see also Brief of the United States and the FCC as Amicus Curiae in Support of Appellees at 12-14, *Murray v. Motorola*, 982 A.2d 764 (D.C. 2009) (No. 07-CV-1074) ("The Federal Government Occupies The Field of Regulating Technical Standards for RF Transmissions."); Brief for the Federal Communications Commission as Amicus Curiae in Support of Defendants-Appellants at 4-6, *Freeman v. Burlington Broadcasters*, 204 F.3d 311 (2d Cir.2000) (No. 97-9141) ("[T]he breadth of the powers granted to the FCC under the Communications Act ('the Act') leaves no doubt that . . . federal authority was intended to displace any state or local government role in the technical aspects of radio communications[.] . . . Were localities able to address such technical matters, the FCC would no longer control the radio spectrum as Congress intended.").

<sup>10</sup> See Dr. Helmut Schittenhelm, "The Vision of Accident Free Driving – How Efficient Are We Actually in Avoiding or Mitigating Longitudinal Real World Accidents," Paper No. 09-510, ESV Conference 2009, available at <http://www-nrd.nhtsa.dot.gov/pdf/esv/esv21/09-0510.pdf>.

<sup>11</sup> See National Highway Traffic Safety Administration, "Evaluation of an Automotive Rear-End Collision Avoidance System," DOT HS 810 569 (March 2006), available at <http://www.nhtsa.gov/DOT/NHTSA/NRD/Multimedia/PDFs/Crash%20Avoidance/2006/HS910569.pdf>.

division of the German Insurance Association.<sup>12</sup> Their conclusion was: “After the ESP [Electronic Stability Program], CMBSs [Collision Mitigation Braking Systems] are the systems that deliver the greatest safety potential in the field of active safety. They should therefore be fitted to the car fleet as soon as possible”.<sup>13</sup>

## **II. THE COMMISSION SHOULD DEFER ACTION ON THE PROPOSAL TO AUTHORIZE FIXED USE OF THE 76-77 GHz BAND ON AN UNLICENSED BASIS.**

Although SARA supports the *NPRM*'s vehicular radar proposals, it opposes the proposal to permit general fixed use of 76-77 GHz radars.<sup>14</sup> The fixed use proposal is derived from a concept introduced by Era Systems Corporation (“Era”).

SARA sees no support in the record for the Commission's proposal. In the absence of any comments that actually support this approach, and in light of the risk of harmful interference that the Commission's proposal could cause, we suggest that further analysis is needed to assess the risk of harmful interference from general fixed radars to automotive radars. That analysis is already underway, as SARA demonstrated in its comments,<sup>15</sup> so the Commission could revisit this issue with reliable information if the need arises.

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<sup>12</sup> See Matthias Kuehn *et al.*, German Insurers Accident Research, “Benefit Estimation of Advanced Driver Assistance Systems for Cars Derived from Real-Life Accidents,” Paper No. 09-0317, ESV Conference 2009, available at <http://www-nrd.nhtsa.dot.gov/pdf/esv/esv21/09-0317.pdf>.

<sup>13</sup> *Id.* at 9.

<sup>14</sup> There is no necessary linkage between the two proposals because, even though both involve operation in the 76-77 GHz band, one applies to automotive radar while the other would introduce an entirely different set of fixed installations.

<sup>15</sup> SARA Comments at 6-8.

## Conclusion

For these reasons, SARA continues to support fully Toyota's proposal to modify the emission limits and eliminate the "not in motion" restrictions contained in Section 15.253 of the Commission's rules. SARA urges the Commission, however, not to adopt rules based on NRAO's comments, which a decade of experience has already shown to be unfounded. Further, SARA continues to urge that the Commission defer action on its proposal for fixed use of the 76-77 GHz band until the automotive industry has completed its ongoing, comprehensive interference research (or, as an interim measure, to permit unlicensed fixed 76-77 GHz radar facilities to illuminate only those areas that are not likely to be accessed by motor vehicles, such that public roads are illuminated at a power density of less than  $-57$  dBW/m<sup>2</sup> as proposed by Era).<sup>16</sup>

Respectfully submitted,

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<sup>16</sup> See NPRM at ¶ 5.