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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Possible Revision or Elimination of	)	
Rules Under The Regulatory Flexibility	)	~~GB Docket No~~. 09-102
Act, 5 U.S.C. 610	)	

Comments
of
Era Systems Corporation

SUMMARY

Era Systems Corporation ("Era"), applauds the Commission's decision to examine §15.253 in its recently announced review pursuant to section 610 of the Regulatory Flexibility Act of 1980, as amended.[1] Era requests herein that §15.253 be amended to permit the use of 76-77 GHz radars at airports for monitoring terrestrial vehicle movement in addition to the automobile radar use presently permitted. When this rule was adopted in 1995 there was no practical experience in automotive radars in the 76-77 GHz and the rules were - of necessity - made very conservative to assure that the safety related use of such radars would be protected from harmful interference. Subsequent experience in other countries with this type of system has shown that one restriction of the original rules, allowing use of such radars only on moving vehicles[2], is overly restrictive and can be replaced with a less restrictive alternative that will also accomplish the original intent. Era urges the Commission to relax this restriction as its European

[1] 74 FR 32093 (July 7, 2009)

counterparts have already done and proposes three alternatives for doing so. This change would allow this radar technology within the existing allocation to be used for monitoring movement of aircraft and ground vehicles on airport movement and non-movement areas such as taxiways, ramps, and gates. Two of the alternatives would also allow use for traffic monitoring on highways, but these latter options raise other issues that might be time consuming to resolve.

Background

§15.253 was adopted in 1995 in General Docket 94-124 as part of an effort to remove barriers to technology above 40 GHz. Docket 94-124 dealt with two such issues: unlicensed systems at 59-64 GHz[3] for point-to-point and local area network use and vehicle radars at 76-77 GHz. During the pendency of the rulemaking there was no operational experience with vehicle radars and there was uncertainty about how well they could share spectrum with other possible users of the same band. It was anticipated that many of the uses of such radars would be related to vehicle safety in that they would involve the detection of fixed or moving objects near the vehicle and either warn the driver or make adjustments in vehicle speed.[4] In the NPRM that proposed these rules initially the Commission stated,

> In view of the promise and importance of this technology, and its intended use for public safety purposes, we believe it merits special consideration. We tentatively conclude that it is appropriate to take steps to minimize the likelihood of interference to such systems, notwithstanding the assertions of the automobile manufacturers that this technology would have a low susceptibility to

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[2] §15.253(a)

[3] This band was later expanded to 57-64 GHz. *See* §15.255

[4] A current example of such a vehicle radar system is the Delphi Smart Cruise Control system, http://delphi.com/manufacturers/auto/safety/active/stopgo/ . This system controls vehicle speed to maintain a selected speed unless traffic conditions require a slower speed to maintain safe spacing to the vehicle in front, in which case spacing becomes the controlling factor.

> reeeiving interference. Accordingly, we are proposing to designate three of the twelve millimeter wave bands, as well as part of a fourth band, for use by vehicular radar systems and we are not proposing any other new uses for them at this time.[5]

Thus, the Commission chose to err on the side of caution with respect to sharing the 76-77 GHz band between vehicle radars and other systems while recognizing that such sharing was possible. This was reaffirmed when the rules were adopted

> Because of safety considerations, we agree with commenters that unlicensed use of the 76-77 GHz band should be limited for the time being to vehicle radar systems. In addition, as discussed below in the Second Notice of Proposed Rule Making, we also propose to temporarily restrict amateur use of the band until sharing criteria can be developed. We anticipate that vehicle radar systems may eventually be used for vehicle control, and this heightens our safety concerns regarding possible interference to these systems. Because the development of vehicle radar systems is still ongoing, it is difficult at this time to develop appropriate sharing criteria. While we are concerned about safety considerations, unlicensed bands are generally allocated to uses which can co-exist without causing detrimental interference. In the future, we expect that there will be non-vehiele radar systems which can successfully operate in these bands without causing interference. However, we wish to ensure that vehicle radar systems will have sufficient spectrum and design flexibility to develop their systems successfully, so that <u>at this time</u> we are restricting use of the band to vehicle radar systems.[6] (Emphasis added)

There was also concern that radar equipped automobiles might be stationary, *e.g.* at a traffic light, and that pedestrians might be very close to the transmitter antenna for several minutes resulting in a high RF exposure due to the short distance. As a result of these concerns, §15.253 included provisions that restricted use to "vehicle-mounted field disturbance sensors used as vehicle radar systems" (§15.253(a)) and had special restrictions decreasing permitted power "[i]f the vehicle is not in motion" (§15.253(b)(1)).

On May 1, 2009, Toyota Motor North America on behalf of Toyota Motor Corporation filed a Petition for Rulemaking seeking a modification of §15.253 that would increase the

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[5] *Notice of Proposed Rulemaking*, Docket 94-124 (November 8, 1994) 9 FCC Rcd 7078 at para. 29

[6] *First Report and Order and Second Notice of Proposed Rule Making,* Docket 94-124 (December 15, 1995) 11 FCC Rcd 4481 at para. 20

power limit for "vehicles not in motion" stating that "the current emission limits governing vehicle radar systems at 76-77 GHz are too conservative". The issue Era wishes to address is an independent one that does not conflict with the Toyota request. The public interest and the orderly conduct of the Commission's business would be well served by addressing both Era's concerns and Toyota's in a single Notice of Proposed Rulemaking dealing with §15.253.

§15.253 restricts 76-77 GHz to "vehicle-mounted" radars. Initial European regulations for this band had a similar restriction. However, the Commission's European counterparts have now taken a different approach for the band. In 2001 the European Telecommunications Standards Institute, ETSI,[7] modified its standards to allow use of radars in this band to be used for fixed "infrastructure", including fixed radars that monitor road traffic. ETSI required that regulatory documents change "the comments relative to the 76 – 77 GHz band from 'vehicular systems' or 'vehicle radar systems' to 'vehicle or road to vehicles systems' or any equivalent sentence"[8]. At the CEPT level,

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[7] ETSI is a France-based non-profit organization recognized by the European Commission as a European Standards Organization. The role of ETSI is different from its US counterparts such as ANSI in that its standards frequently are adopted by the European Commission and CEPT as *de facto* regulation.

> "Standardization is an integral part of the EU goal to achieve the Lisbon goals by carrying out better regulation and by simplifying legislation, by increasing competitiveness of enterprises and by removing barriers of trade at international level. ETSI has made a very significant contribution to European legislation by producing many Harmonized Standards to be used in the application of European Directives."
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> http://www.etsi.org/WebSite/AboutETSI/RoleinEurope/OurroleinEurope.aspx

[8] ETSI TR 101 983 V1.1.I (2001-07), "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment to be used in the 76 GHz to 77 GHz band; System Reference Document for Short-Range Radar to be fitted on road infrastructure"

the European Communications Committee adopted this change and decided that "that the band 76-77 GHz shall be used for vehicular or infrastructure radar systems"[9].

The FCC's UK counterpart, Ofcom has also implemented this change. Ofcom now states that "[t]he 76 to 77 GHz band is for onboard vehicle and infrastructure radar systems."[10] Ofcom has adopted a 55 dBm peak power limit for both vehicle radars and "infrastructure radar"[11]. The Danish regulator, National IT and Telecom Agency, has adopted the same basic regulation.[12] These changes were enabled by the development and adoption of a technical standard for this band: ETSI EN 301 091.[13] Thus, in Europe there is a technical monoculture in 76-77 GHz in that only fixed and mobile ETSI EN 301 091 are allowed. In the US there is no *de jure* recognition of ETSI EN 301 09 in Commission rules or actions although Era believes that all systems now marketed in the US meet this standard due to the economies of multinational markets.

On February 6, 2009, Era requested a waiver of various FCC rules to permit the installation of no more than 10 76-77 GHz radars at Hartsfield-Jackson Atlanta

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[9] ECC/DEC/(02)01 "ECC Decision of 15 March 2002 on the frequency bands to be designated for the co-ordinated introduction of Road Transport and Traffic Telematic Systems"

[10] http://www.ofcom.org.uk/radiocomms/ifi/licensing/classes/rlans/short/ *See* Section 7k

[11] Ofcom, "UK Interface Requirement 2030 - Licence Exempt Short Range Devices November 2006, Table 3.11 (http://www.ofcom.org.uk/radiocomms/ifi/tech/interface_req/archived/uk2030.pdf?page=22)

[12] National IT and Telecom Agency, Danish radio interface 00 030,Radio equipment for Road Transport and Traffic Telematics (RTTT), August 2002 (http://en.itst.dk/r-tte-equipment/filarkiv/radio-interface-regulations/030%20INTERFACE-RTTT-ENG.pdf?page=2)

[13] ETSI EN 301 091-1 V1.2.1 (2004-11),*European Standard (Telecommunications series,* Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Radar equipment operating in the 76 GHz to 77 GHz range;

International Airport.[14] The Commission requested public comment on this request on April 16, 2009 by public notice.[15] This petition seeks to create permanent rules analogous to what was requested in the waiver request.

Requested Rules

Era requests that §15.253 be amended to permit the unlicensed use of fixed radars at airports under the following conditions:

- Power and other technical parameters comply with present §15.253 provisions for vehicles in motion

- Radars are professionally installed and the installer certifies that location of the radar will not result in Maximum Permissible Exposures in excess of what is permitted by §1.1309[16]

- Radars may only be used at airports recognized by FAA and must be owned and operated by either the airport operator or an air carrier licensed by FAA, or operated on their behalf

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[14] Letter from William E. Colligan, Era to Julius Knapp, FCC/OET, February 6, 2009, http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520214263

[15] FCC Public Notice, OFFICE OF ENGINEERING AND TECHNOLOGY DECLARES THE ERA SYSTEMS CORPORATION REQUEST FOR A WAIVER OF PARTS 2 AND 15 FOR THE 76-77 GHZ BAND TO BE A PERMIT-BUT-DISCLOSE PROCEEDING FOR EX PARTE PURPOSES AND REQUESTS COMMENTS, ET Docket No. 09-55, DA 09-842, http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520214945

[16] Era anticipates that these radars would be located in high locations such as lamp posts and roofs of terminal buildings. Thus, the MPE limits will be met because of distance separation of any humans from the main beam of the radars.

• Radars are installed so as to limit the power flux density (pfd) reaching roads that can be used by the general public does not exceed peak power of -57 dBW/m^2 [17]

• Installer must take measurements to verify pfd compliance on public roads at time of installation.

Era recognizes the potential contribution of vehicle radars to automotive safety and seeks "win-win" rules that prevent any risk of interference to such systems while allowing the same band to be used on parts of airport not accessible to the public for monitoring the movement of vehicles and aircraft on the ground. Use of this millimeterwave band permits high enough spatial resolution to identify and track vehicles without any special electronics on the vehicles and to track aircraft even if the radar transponder is turned off – as it often is at the gate. Since there is a multinational market for such radars in the 76-77 GHz band as a result of the current ETSI standard, equipment is now available for airports at a reasonable cost. Era sees no tangible public benefit to allocating a different millimeterwave band for this application if reasonable rules will allow sharing with the present vehicle radar use.

The requested pfd limit at roads accessible by the public was chosen low enough to protect both radar complying with ETSI EN 301 091 and future vehicle radars that may

[17] This is a tentative number that may need to be revised during the rulemaking. It is based on informal communications with radar manufacturers that resulted in an initial number of 0.027 V/m as the maximum undesired signal that the vehicle radars could tolerate. It is understood that this number will probably change in the context of a specific proposal and when all relevant factors are analyzed and considered.

use alternative technologies. Thus, this requested change maintains FCC neutrality on technical standards for radars and only addresses interference issues.

Alternative Approaches

The approach taken in this petition is technical neutrality in radar design consistent with the original intent and current text of §15.253. In practice, Era plans to use radars compliant with ETSI EN 301 091. Era does not seek to make this ETSI standard a part of the Commission's rules and create a uniform monoculture for automotive radar technology.

However, if the Commission maintains technical neutrality with respect to automotive radar designs, it may be impossible to authorize other fixed uses of 76 GHz radar technology that are currently used in other countries such as monitoring of vehicle traffic from fixed locations.

The Commission could take any of the following approaches in this matter:

1. Maintain strict technical neutrality and limit fixed radars to airports and other applications that do not illuminate public roads.

2. Maintain strict neutrality with respect to airport systems and other systems that do not illuminate public roads, but require either the ETSI standard or strict compatibility testing for any system that illuminates public roads.

3. Mandate the ETSI standard for all 76 GHz radar systems.

Era does not have a strong preference for which approach the Commission takes here but recognizes that options 2 and 3 would be much more time consuming to complete in a

rulemaking process. Therefore, the Commission might want to take the first option as an initial step and consider the other two alternatives at a later point.

/S/

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