

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

In the Matter of
Era Systems Corporation Request for Waiver of
Sections 2.803, 15.201 and 15.253 of the
Commission's Rules
ET Docket No. 09-55

ORDER

Adopted: September 30, 2009

Released: September 30, 2009

By the Chief, Office of Engineering and Technology:

I. INTRODUCTION

1. By this action, we grant in part and deny in part a waiver request by Era Systems Corporation ("Era") to allow the installation of up to ten fixed 76-77 GHz Navtech 1800-E radar systems on ground structures at Hartsfield-Jackson Atlanta International Airport. Specifically, we are waiving Section 15.253(a) of the rules which restricts operation in the 76-77 GHz band to vehicle radar systems, and Section 15.253(b)(1) which requires reduced operating power when a radar is not in motion. We are imposing specific operational conditions to prevent adverse impact on other users of the 76-77 GHz band. In addition, we are denying Era's requests to waive the equipment certification requirement in Section 15.201(b) and the prohibition on marketing uncertified equipment in Section 2.803(a). We find that granting this waiver request, to the extent indicated above and subject to certain conditions set forth below, is in the public interest in that it will allow monitoring of aircraft and vehicles on the ground to improve safety at the Atlanta airport.

II. BACKGROUND

2. Part 15 of the Commission's rules regulates the operation of low power radio frequency devices without an individual license from the Commission. The technical standards in Part 15 are designed to ensure that there is a low probability that these non-licensed devices will cause harmful interference to authorized users of the radio spectrum. Section 15.253 permits the operation of vehicle-mounted radar systems in the 76-77 GHz band. Vehicle-mounted radar systems are the only type of operation permitted under this section; fixed applications are not permitted.

1 See 47 C.F.R. §§ 15.253(a) and 15.253(b)(1).

2 See 47 C.F.R. §§ 15.201(b) and 2.803(a).

3 We note that these systems will not be used by any FAA flight controllers for runway incursion detection or other safety-of-flight functions.

4 Vehicle-mounted radars are permitted to operate with a maximum output in the forward direction of 60 µW/cm² at 3 meters (average) and 6,000 µW/cm² at 3 meters (peak) when the vehicle is in motion. These correspond to equivalent isotropically radiated power (EIRP) levels of 48 dBm (average) and 68 dBm (peak). However Section 15.253(b)(1) requires that the output be reduced to 200 nW/cm² at 3 meters (average) and 20,000 nW/cm² (peak) when the vehicle is not in motion. These correspond to EIRP levels of 23.5 dBm (average) and 43.5 dBm (peak).

3. Era requests that it be permitted to mount up to ten fixed 76-77 GHz radars on terminal building rooftops at the Atlanta airport. It states these radars would have a range of approximately 400 meters and would monitor the position of aircraft and vehicles on the ground to provide, when used in conjunction with other systems, complete tracking information for airport management purposes. Era requests a waiver of the provisions of Section 15.253 that restrict operation in the 76-77 GHz band to vehicle radar systems and that also restrict the amount of radiated emissions that radar can emit when the vehicle is not in motion.<sup>5</sup> Era also requests waivers of Sections 2.803 and 15.201 to permit the marketing of radar equipment for use in the United States without first obtaining equipment certification.

4. Era contends that the Commission's rules that prohibit fixed radars in the 76-77 GHz band were adopted out of concern that such uses could result in interference to vehicle-mounted radars. It notes that when the Commission adopted rules for 76-77 GHz vehicle radars, the Commission expressed an expectation that non-vehicle mounted radar systems could successfully share this band in the future without interference.<sup>6</sup> Era claims that standards have been developed in Europe to allow sharing between automotive radars and fixed radars that comply with a European Telecommunications Standards Institute (ETSI) standard, ETSI EN 301091. To avoid interference to vehicular radars, Era states that it would mount fixed radars at Atlanta airport in a manner that would avoid illuminating roads that are accessible by the general public, and would use equipment that complies with ETSI EN 301091, specifically the Navtech 1800-E radar systems.

5. The Commission issued a Public Notice soliciting comments on Era's request on April 16, 2009.<sup>7</sup> Comments were filed by the Strategic Automotive Radar Frequency Allocation Group ("SARA") and by Era.<sup>8</sup> SARA states that it has been in contact with Era concerning the waiver request and that it does not object to the Commission granting the waiver, provided 1) operation is limited to the Atlanta airport; 2) the radars covered by the waiver are mounted so that no roads accessible by motor vehicles will be illuminated by the radar; and 3) the radar equipment complies with ETSI EN 301091. Era states that the waiver would allow aircraft to be tracked over the entire airport grounds, which would provide enhanced safety and more efficient airport operations.

### III. DISCUSSION

6. It is a well-established principle that the Commission will waive its rules in specific cases only if it determines, after careful consideration of all pertinent factors, that such a grant would serve the public interest without undermining the policy which the rule in question is intended to serve.<sup>9</sup> As discussed below, we find that a waiver of the operational restrictions of Section 15.253 will serve the public interest because it will help improve safety and efficiency of airport operations. The second criteria is whether the waiver undermines the policy which the rule in question is intended to serve, *i.e.*, to protect authorized users of the spectrum from harmful interference. We conclude that, with appropriate operational and technical restrictions, a waiver of the requirements in Section 15.523 can be granted

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<sup>5</sup> See 47 C.F.R. §§ 15.253(b)(2). The limits in this section are expressed in terms of average values. See 47 C.F.R. § 15.35(b). In addition, there is a peak limit of 20 dB above the average limit. See C.F.R. §§ 15.253(d) and 15.35(b).

<sup>6</sup> See *First Report and Order and Second Further Notice of Proposed Rule Making* in ET Docket No. 94-124, 11 FCC Rcd 4481, 4490 (1995).

<sup>7</sup> See Public Notice, DA 09-842.

<sup>8</sup> SARA's members manufacture and operate vehicle-based radars in the 76-77 GHz band.

<sup>9</sup> See *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969). *Northeast Cellular Telephone Co. v FCC*, 897 F.2d 1164 (D.C. Cir. 1990).

without increasing the potential for harmful interference to authorized services or adversely impacting other Part 15 operations and is therefore in the public interest.

7. We believe that, based on Era's representations, use of the proposed radar devices will enhance airport safety. According to Era, when aircraft transponders are switched off or switched to the standby mode, as often happens when aircraft leave the active runway or movement areas of the airport, the aircraft frequently cannot be tracked by conventional airport surveillance systems. Era states that the Navtech 1800-E radar systems would allow airport operators to track aircraft and airport ground vehicles whose transponder systems are not available. It further states that the radar's coverage will be limited to the ramp and gate areas where it will provide updated position information once per second. Data from these radar units, used in conjunction with other flight track data sources, would allow aircraft to be tracked over the entire surface of the airport.

8. We find that grant of the requested waiver will not cause harm to other operations in the 76-77 GHz band. This band is allocated on a primary basis for radio astronomy and radiolocation, and on a secondary basis for space research (space to earth), for both federal and non-federal government use. It is also allocated for non-federal government use on a secondary basis for amateur radio operations, although the Commission does not currently permit amateur operations in this band.<sup>10</sup> Because we are only permitting operations at a single airport and there are currently no federal or non-federal radio operations in the 76-77 GHz band in that vicinity, we conclude that interference to authorized users is unlikely to occur.

9. The 76-77 GHz band is also used by vehicle radar systems that operate on a non-licensed basis under Part 15 of the rules. Non-licensed Part 15 devices must not cause interference to any authorized services and must accept interference received from them or other Part 15 devices.<sup>11</sup> While the rules do not provide Part 15 devices with interference protection from other Part 15 devices, Era submits in its waiver request that it will design its operations to minimize the potential impact on Part 15 vehicle radar systems that operate in the 76-77 GHz band. For the purpose of this waiver, we will require Era to comply with the representations it made in its waiver request concerning its system design.

10. Era states that the Navtech model I800-E radars that it proposes to use operate with a power level of 23.5 dBm (average) and 55 dBm (peak).<sup>12</sup> These power levels meet the Commission's 23.5 dBm average limit but not the peak limit of 43.5 dBm for vehicle-mounted radars when the vehicle is not in motion.<sup>13</sup> However, Era states that the Navtech radar can meet the peak limit of 68 dBm for forward-looking, in-motion vehicle radar systems.<sup>14</sup> Therefore, operation under the requested waiver would be at a power level that poses no greater risk of interference to authorized users than that posed by in-motion vehicle radar systems in this band.

11. We are requiring that Era demonstrate that the Navtech model 1800 E radar system complies with the Part 15 technical requirements instead of the ETSI EN 301091 technical requirements as advocated by Era and SARA. The ETSI out-of-band emission limits for the 76-77 GHz band are slightly higher than the Commission's limits by 1 to 4.6 dB.<sup>15</sup> These slight variations in out-of-band emission

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<sup>10</sup> See 47 C.F.R. § 97.303(r)(1).

<sup>11</sup> See 47 C.F.R. § 15.5(b).

<sup>12</sup> See Era waiver request at 3.

<sup>13</sup> See 47 C.F.R. §§ 15.253(b)(1) and 15.253(d).

<sup>14</sup> See 47 C.F.R. §§ 15.253(b)(2) and 15.253(d).

<sup>15</sup> See 47 C.F.R. §§ 15.253(c).

limits have not been thoroughly studied in the United States, and we believe that compliance with the existing Commission limits is more appropriate. Thus, we will require Era to use radar devices that comply with the emission limits for in-motion, forward looking radars in Section 15.253(b)(2), as well as the out-of-band emission limits and other technical requirements in Section 15.253 (c)-(f).<sup>16</sup>

12. We are denying Era's request for a waiver of the marketing and certification requirements in Sections 2.803 and 15.201 of the rules. Under these rules, Part 15 transmitters are required to be certified by the Commission or a designated Telecommunication Certification Body (TCB) before they can be legally imported into or marketed within the United States. The purpose of the certification requirement is to ensure that equipment is tested and found to comply with the applicable technical requirements to minimize the potential for interference to authorized radio services. Therefore, we decline to waive the transmitter certification requirement as requested by Era and will require that it obtain equipment certification by the Commission as a condition of this waiver.

13. Accordingly, we are waiving Section 15.253(a) of the rules for a period of two years to allow a limited number of fixed radars to operate in the 76-77 GHz band. We are also granting a waiver of Section 15.253(b)(1) to allow Era to apply to have Navtech I800-E fixed radar equipment certified to meet the Commission's limits for in-motion forward looking radars.<sup>17</sup> The radar systems operating under this waiver shall comply with the following conditions:

- 1). Operation under this waiver is limited to a maximum of ten fixed 76-77 GHz radars on ground structures at Hartsfield-Jackson Atlanta International Airport.
- 2). The radars covered by this waiver shall be mounted and operated in a manner that ensures no illumination of roads that are accessible by the general public. This condition can be met through careful siting of the radars and by blanking the radar rotation in directions where there are roads accessible to the general public within the fields of view of the radars.
- 3). Era shall demonstrate that the Navtech I800-E radar complies with the emission limits for in-motion, forward looking radars contained in Section 15.253(b)(2) of the Commission's rules, as well as the out-of band emission limits and other technical requirements in paragraphs (c) through (f) of Section 15.253 of the rules in order to obtain certification through the Commission.
- 4). This waiver expires two years after release or upon the effective date of any changes to the rules being waived herein, whichever occurs sooner.

#### IV. ORDERING CLAUSE

14. Accordingly, pursuant to authority in Section 1.3 of the Commission's rules, 47 C.F.R. section 1.3, and Sections 4(i), 302, 303(e), and 303(r) of the Communications Act of 1934, as amended,

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<sup>16</sup> See 47 C.F.R. §§ 15.253(b)(2), 15.253 (c)-(f).

<sup>17</sup> Era should include a copy of this grant of waiver in its application for certification.

47 U.S.C. Sections 154(i), 302, 303(e), and 303(r), IT IS ORDERED that the Request for Waiver filed by Era Systems Corporation IS GRANTED IN PART AND DENIED IN PART consistent with the terms of this Order. This action is effective upon release of this Order.

FEDERAL COMMUNICATIONS COMMISSION

Julius P. Knapp  
Chief, Office of Engineering and Technology