

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 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
)	

REPORT AND ORDER

Adopted: July 10, 2013

Released: July 11, 2013

By the Commission:

I. INTRODUCTION

1. In this *Report and Order*, we amend our rules to permit the certification, licensing, and use of foreign object debris (FOD) detection radar equipment in the 78-81 GHz band. The presence of FOD on airport runways, taxiways, aprons, and ramps poses a significant threat to the safety of air travel. FOD detection radar equipment will be authorized on a licensed basis under Part 90 of our rules. Authorization of other potential radiolocation uses of the 78-81 GHz band will be considered in other proceedings. .

II. BACKGROUND

2. Foreign object debris (FOD) at airports, including any substance, debris, or object in a location that can damage aircraft or equipment, can seriously threaten the safety of airport personnel and airline passengers, and can have a negative impact on airport logistics and operations.¹ As we recently stated:

The presence of FOD in an airport’s air operations area (AOA) poses a significant threat to the safety of air travel. Foreign object debris on taxiways and runways has the potential to damage aircraft during the critical phases of takeoffs and landings, which can lead to catastrophic loss of life and at the very least increased maintenance and operating costs.²

¹ Advisory Circular No. 150/5210-24, Airport Foreign Object Debris (FOD) Management, Federal Aviation Administration, U.S. Department of Transportation, September 30, 2010, at ¶ 1.1.d. FOD varies in size and form and includes a wide range of items such as parts fallen from aircraft; misplaced tools, equipment, and supplies; rocks and pavement fragments; luggage; and wildlife. *Id.* at ¶ 2.2.c. Dark-colored items that are difficult to detect visually against the tarmac make up almost half of FOD. *Id.*

² Amendment of Sections 15.35 and 15.253 of the Commission’s Rules Regarding Operation of Radar Systems in the 76-77 GHz Band, *Report and Order*, ET Docket No. 10-28, 27 FCC Rcd 7880, 7888 ¶ 25 (2012) (*76-77 GHz R&O*). The direct maintenance costs to airlines caused by FOD have been estimated to be one to four billion dollars per year. Indirect costs (delays, plane changes, fuel inefficiencies, etc.) are estimated to be another eleven billion (continued....)

3. Trex Enterprises Corporation (Trex) has developed radar technology that meets the Federal Aviation Administration's (FAA) guidance and performance specifications for FOD detection equipment and can reduce this risk to personal safety and property by detecting the presence of FOD on airport runways. The 78-81 GHz band in which Trex's equipment operates is allocated on a primary basis for Federal and non-Federal radio astronomy and radiolocation systems³ but is not listed in the table of frequencies available under Part 90, which authorizes non-Federal radiolocation operations such as Trex's FOD detection equipment.⁴ Trex filed a petition for rulemaking proposing that the Commission amend the rules to include such a listing.⁵

4. In the *Notice of Proposed Rule Making and Order (NPRM and Order, respectively)* in this proceeding, the Commission proposed to amend Part 90 to permit non-Federal radiolocation operations, including FOD radar detection technology, in the 78-81 GHz band, and granted Trex a waiver of Part 90 to permit certification, manufacture, and licensing of its FOD detection radar equipment pending the resolution of its petition for rulemaking.⁶

III. DISCUSSION

5. The Commission tentatively concluded in the *NPRM* that the public interest would be served by amending the rules to permit FOD detection radar in the 78-81 GHz band.⁷ The Commission proposed to authorize radiolocation use of the 78-81 GHz band on a licensed basis under Part 90, but also sought comment on whether such operations should instead be authorized on an unlicensed basis under Part 15 of our rules.⁸ It also sought comment on whether licensed use of the band should be limited to FOD detection.⁹ We continue to believe that the public interest would be served by permitting the use of radar at airports to detect FOD.¹⁰

6. Commenters argue that authorizing FOD detection radar in the 78-81 GHz band on a Part 90 licensed basis will promote interference-free operation and coordination with co-channel users.¹¹ In

(...continued from previous page)

dollars. See Insight SRI Ltd., "The economic cost of FOD to airlines," at 9 (2008), available at <http://fod-detection.com/wp-content/uploads/2009/12/the-economic-cost-of-fod.PDF>.

³ See 47 C.F.R. § 2.106. The band is allocated for space research (space-to-earth), amateur, and amateur-satellite operations on a secondary basis. *Id.*

⁴ See 47 C.F.R. § 90.103(b).

⁵ See Petition for Rulemaking to Amend Part 90.103(b) to Add the 78-81 GHz Band to the Table Specifying Frequencies Available for Assignment to Stations in the Radiolocation Service, RM-11612 (filed August 10, 2010).

⁶ See Amendment of the Commission's Rules to Permit Radiolocation Operations in the 78-81 GHz Band, *Notice of Proposed Rule Making and Order*, WT Docket 11-202, 26 FCC Rcd 17476 (2011) (*NPRM*). The Wireless Telecommunications Bureau's Mobility Division subsequently clarified the technical parameters of the waiver. See Letter dated Aug. 20, 2012 from Scot Stone, Deputy Chief, Mobility Division, Wireless Telecommunications Bureau to Randall W. Sifers, available at <http://apps.fcc.gov/ecfs/document/view?id=7022007326>. Comments in response to the *NPRM* were filed by Robert Bosch GmbH (Bosch), the National Radio Astronomy Observatory (NRAO), the Strategic Automotive Radar Frequency Allocation Group (SARA), and Trex. Reply comments were filed by the National Academy of Sciences through the National Research Council's Committee on Radio Frequencies (CORF) and Trex. *Ex parte* comments were submitted by Delphi Automotive (Delphi).

⁷ See *NPRM*, 26 FCC Rcd at 17477 ¶ 5.

⁸ See *id.* at 17477 ¶ 6, 17479 ¶ 11.

⁹ See *id.* at 17477 ¶ 6.

¹⁰ See *76-77 GHz R&O*, 27 FCC Rcd at 7883 ¶ 8.

¹¹ See Bosch comments at 2; SARA comments at 2; Trex comments at 4; CORF reply comments at 1; Delphi *ex parte* comments at 1.

addition, no commenter supports Part 90 licensing of any 78-81 GHz non-Federal radiolocation other than FOD detection. We therefore amend Part 90 to authorize only FOD detection radar on a licensed basis.¹² We note that this regulatory scheme differs from what we adopted for FOD detection radar in the 76-77 GHz band, which is authorized on an unlicensed basis under Part 15.¹³ In the 76-77 GHz band, we adopted technical limits for FOD detection radar to reduce the likelihood of interference to other users.¹⁴ As discussed below, however, we decline at this time to adopt technical specifications for FOD detection radar in the 78-81 GHz.¹⁵ Consequently, the review process afforded by individual licensing is appropriate to ensure compatibility between 78-81 GHz band FOD detection radar and other uses of the band. We note that while the use of FOD detection radars will improve the safety and efficiency of airport operations, the use of the band by FOD detection radars is not considered a safety service that is entitled to any additional interference protection than that afforded to other radio services operating in the band on a primary basis.

7. The Commission noted in the *NPRM* that Part 90 contains no specific power limit, bandwidth limitation, or frequency stability requirements for operations in this band and that applications are considered and authorized on a case-by-case basis.¹⁶ It sought comment on whether to set forth technical specifications for the 78-81 GHz band in Part 90.¹⁷ We did not receive specific recommendations on technical parameters.¹⁸ Consequently, we do not adopt technical specifications for FOD detection radar in the 78-81 GHz band at this time. Two commenters, however, argue that FOD detection radar should be licensed on the condition that the radar be mounted and utilized so that the main beamwidth of the antenna (azimuth or elevation) does not illuminate a public roadway near the airport.¹⁹ Trex does not oppose such a requirement,²⁰ which we believe will further to reduce the likelihood of interference to other users. We note that fixed FOD detection radar is similarly limited to prevent illumination of public roadways.²¹ We will amend Part 90 accordingly.

8. With respect to potential interference from FOD detection radar to radio astronomy operations, the Commission sought comment on what interference mitigation measures should be required.²² Trex had proposed that an entity seeking to conduct radiolocation operations in the 78-81 GHz band first reach a coordination agreement with the National Science Foundation (NSF), then submit the agreement to the Wireless Telecommunications Bureau, which would issue a public notice stating that the entity may commence operations in thirty days if no party has opposed the operations.²³ The Commission tentatively concluded that Trex's proposal, which appears to be based on the model for

¹² See *76-77 GHz R&O*, 27 FCC Rcd at 7888-89 ¶ 26 (authorizing fixed radar use of the 76-77 GHz band for vehicular radar and FOD detection, but not for radiolocation generally, because commenters did not support any additional uses and opposed the authorization of unspecified other uses that might prove incompatible without prior study).

¹³ See *id.* at 7888 ¶ 24.

¹⁴ *Id.*

¹⁵ See *infra*, paras. 7, 10.

¹⁶ See *NPRM*, 26 FCC Rcd at 17480 ¶ 14 (citing 47 C.F.R. §§ 90.205(r) (power and antenna height limits), 90.207 (types of emissions), 90.209 (bandwidth limitations), 90.210 (emission masks), 90.213 (frequency stability)).

¹⁷ See *id.*

¹⁸ See Trex comments at 9.

¹⁹ See Bosch comments at 10; SARA comments at 2-3.

²⁰ See Trex reply comments at 9.

²¹ See *76-77 GHz R&O*, 27 FCC Rcd at 7888 ¶ 24.

²² See *NPRM*, 26 FCC Rcd at 17479-80 ¶¶ 12-13.

²³ See *id.* at 17479-80 n.25.

coordinating vehicle-mounted earth stations in the 14.47-14.5 GHz band,²⁴ was unnecessarily burdensome.²⁵ The Commission therefore proposed that if operation of FOD detection radars were authorized on a licensed basis under Part 90, it would rely on coordination of the applications with the National Telecommunications and Information Administration's Interdepartment Radio Advisory Committee (IRAC) to mitigate interference to radio astronomy observatories.²⁶

9. The National Radio Astronomy Observatory concludes that either alternative will provide for protection of radio astronomy operations from interference or other harm,²⁷ but the National Academy of Sciences through the National Research Council's Committee on Radio Frequencies (CORF) suggests that coordination be done as proposed by Trex.²⁸ CORF argues that this would be more efficient and less burdensome than the IRAC process since it would involve only NSF and FAA instead of all of the agencies in the IRAC. As noted above, however, 78-81 GHz is a shared Federal/non-Federal band, so non-Federal applications must be coordinated with NTIA.²⁹ Thus, the Trex proposal would be more burdensome because it would add steps to, rather than replace, NTIA coordination. Thus, CORF is not persuasive in asserting that it is necessary to adopt a coordination procedure in addition to the NTIA coordination process in order to protect radio astronomy operations from harmful interference. Consequently, we will not adopt any such additional interference mitigation procedures.³⁰

10. Finally, the Commission sought comment on whether use of the 78-81 GHz band for purposes other than FOD detection, such as level probing radar (LPR) devices and vehicular short-range radar (SRR), should be authorized on an unlicensed basis under Part 15.³¹ It asked whether measures were necessary to prevent FOD detection operations from causing interference to or incurring interference from other co-channel users.³² Subsequently, the Commission proposed to authorize use of the band for LPR devices³³ and sought comment on a petition for rulemaking proposing that SRR be permitted in the band,³⁴ both under Part 15. We agree with CORF that issues relating to those uses of the band are more

²⁴ See 47 C.F.R. § 25.226(d); see also Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum and Adopt Service Rules and Procedures to Govern the Use of Vehicle-Mounted Earth Stations in Certain Frequency Bands Allocated to the Fixed-Satellite Service, *Report and Order*, IB Docket No. 07-101, 24 FCC Rcd 10414, 10433-34 ¶¶ 58-64 (2009).

²⁵ See *NPRM*, 26 FCC Rcd at 17479-80 ¶ 12. The Commission noted that unlike FOD detection at airports, vehicle-mounted earth stations in the 14.47-14.5 GHz band operate ubiquitously with an upward-oriented antenna.

²⁶ See *id.* at 17480 ¶ 13.

²⁷ See NRAO comments at 2.

²⁸ See CORF reply comments at 6.

²⁹ See *NPRM*, 26 FCC Rcd at 17480 ¶ 13.

³⁰ In addition, we note that we recently concluded that no special interference mitigation procedures were required to protect radio astronomy operations in the adjacent 76-77 GHz band. See *76-77 GHz R&O*, 27 FCC Rcd at 7887 ¶ 20.

³¹ See *NPRM*, 26 FCC Rcd at 17478 ¶ 8.

³² See *id.* at 17478 ¶ 8, 17479 ¶ 10.

³³ See Amendment of Part 15 of the Commission's Rules to Establish Regulations for Tank Level Probing Radars in the Frequency Band 77-81 GHz, *Further Notice of Proposed Rule Making*, ET Docket No. 10-23, 27 FCC Rcd 3660 (2012); see also Amendment of Part 15 of the Commission's Rules to Establish Regulations for Tank Level Probing Radars in the Frequency Band 77-81 GHz, *Notice of Proposed Rule Making and Order*, ET Docket No. 10-23, 25 FCC Rcd 601 (2010).

³⁴ See Office of Engineering and Technology, Petition for Rulemaking Filed, *Public Notice*, RM-11666, 27 FCC Rcd 8052 (OET 2012) (seeking comment on Robert Bosch, LLC Petition for Rulemaking, Amendment of Part 15 of the Commission's Rules to Permit the Operation of Vehicular Radar Systems in the 77-81 GHz Band).

appropriately considered in those proceedings, so we will not address them in this item.³⁵ We thus deny the request of Bosch and SARA that we defer final action in this proceeding until the completion of technical studies of the electromagnetic compatibility of FOD radar systems at airports and automotive SRR operations.³⁶

11. The Commission may, in rulemaking proceedings regarding other uses of the 78-81 GHz band, consider whether to adopt additional rules governing FOD detection radar in the band (such as the adoption of technical specifications) in order to ensure compatibility between FOD detection radar and other uses such as SRR, including those that may operate on an unlicensed basis under Part 15 of the Commission's rules. Until such technical specifications or other rules are adopted, we will consider the technical parameters required under the waiver when authorizing FOD equipment.³⁷ During this period we will also accept applications for equipment authorization for devices using similar or more conservative parameters than those specified in the waiver. Any request for equipment authorization of devices with parameters that, in our evaluation, may be considered to cause more interference as compared with the technical parameters in the waiver will be reviewed on a case-by-case basis.³⁸

12. We believe that the benefits of the rule changes adopted herein outweigh any potential costs. The rules will promote safer and more efficient airport operations by allowing the use of FOD detection radar equipment that can reduce or prevent billions of dollars in direct and indirect costs to airlines, airports, and passengers caused by FOD in airport air operations areas. These rules do not impose new obligations on any licensee or prospective licensee. Rather, they give licensees new options to enhance the safety and reliability of their operations.

IV. CONCLUSION

13. In summary, we believe that the public interest will be served by amending the Part 90 rules to permit the certification, licensing, and use of FOD detection radar equipment in the 78-81 GHz band. Permitting such operations will enhance the safety of airport personnel and airline passengers, and reduce costs and other negative impacts on airport logistics and operations due to FOD at airports. Additional issues regarding compatibility between FOD detection radar and other prospective uses of the band will be addressed in the context of rulemaking proceedings regarding those other uses.

14. As noted above, the Commission granted Trex a waiver in the *Order* to permit certification, manufacture, and licensing of its FOD detection radar equipment pending the resolution of its petition for rulemaking. That waiver will terminate as of the effective date of the final rules adopted herein. Licensees operating pursuant to the waiver must thereafter comply with the rules adopted in this proceeding. Any equipment approval that was granted pursuant to the waiver will remain valid.

V. PROCEDURAL MATTERS

15. *Final Regulatory Flexibility Analysis.* As required by Section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603, the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA) of the possible significant economic impact on small entities of the decisions in the *Report and Order*. The FRFA is set forth in Appendix B.

³⁵ See CORF reply comments at 7.

³⁶ See Bosch comments at 14; SARA comments at 3.

³⁷ Those parameters are as follows: transmit power – 100 mW; antenna gain – 45 dBi; system effective isotropic radiated power – 35 dBW; transmit polarization – vertical; 3 dB transmit beamwidth – 1 deg (el) x 0.4 deg (az); FMCW Chirp (el scan) reception rate – 139.5 Hz. See *NPRM*, 26 FCC Red at 17451 ¶ 18; Letter dated Aug. 20, 2012 from Scot Stone, Deputy Chief, Mobility Division, Wireless Telecommunications Bureau to Randall W. Sifers, counsel for Trex.

³⁸ We encourage equipment manufacturers to confer with the FCC Laboratory during the design phase in order to obtain guidance regarding whether interference concerns are raised by their contemplated technical parameters that depart from those in the waiver.

16. *Paperwork Reduction Analysis.* The *Report and Order* does not contain proposed new or modified information collection requirements.

17. *Congressional Review Act.* The Commission will send a copy of this *Report and Order* to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A).

18. *Alternative formats.* To request materials in alternative formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to <FCC504@fcc.gov> or call the Consumer and Government Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY). This *Report and Order* also may be downloaded from the Commission's web site at <<http://www.fcc.gov/>>.

VI. ORDERING CLAUSES

19. IT IS ORDERED that pursuant to Sections 1, 4(i), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 303(f), 303(g), and 303(r), this *Report and Order* IS ADOPTED.

20. IT IS FURTHER ORDERED that Parts 87 and 90 of the Commission's Rules ARE AMENDED as set forth in Appendix A, effective 30 days after publication in the Federal Register.

21. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Final Rules

Parts 87 and 90 of Chapter 1 of Title 47 of the Code of Federal Regulations are amended as follows:

1. The authority citation for Part 87 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 303 and 307(e), unless otherwise noted.

2. Section 87.5 is amended by adding a definition “air operations area” in alphabetical order to read as follows:

§ 87.5 Definitions.

* * * * *

Air operations area. All airport areas where aircraft can operate, either under their own power or while in tow. The airport operations area includes runways, taxiways, apron areas, and all unpaved surfaces within the airport’s perimeter fence. An apron area is a surface in the air operations area where aircraft park and are serviced (refueled, loaded with cargo, and/or boarded by passengers).

* * * * *

3. The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7).

4. Section 90.103(b) is revised by amending the table in paragraph (b) by inserting a new entry at the end of the table, and adding a new paragraph (c)(30) to read as follows:

§ 90.103 Radiolocation Service.

* * * * *

(b) * * *

RADIOLOCATION SERVICE FREQUENCY TABLE

Frequency or band	Class of stations	Limitations
* * *	* * *	* * *
78,000-81,000do	30

(c) * * *

(30) Use is limited to foreign object debris detection in airport air operations areas (see section 87.5 of this chapter). The radar must be mounted and utilized so when in use it does not, within the main beamwidth of the antenna (azimuth or elevation), illuminate a public roadway near the airport.

APPENDIX B**Final Regulatory Flexibility Analysis**

As required by the Regulatory Flexibility Act (RFA),³⁹ the Commission prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in its *Notice of Proposed Rule Making*.⁴⁰ Written public comments were sought in the *NPRM*, including comments on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.⁴¹

A. Need for, and Objectives of, the Final Rules:

The rules adopted in the *Report and Order* are intended to amend the Part 90 rules to permit foreign object debris (FOD) detection equipment to be certified and licensed. We believe the use of FOD technology will be a critical tool in the detection of FOD at airports. FOD includes any substance, debris, or object in a location that can damage aircraft or equipment, can seriously threaten the safety of airport personnel and airline passengers and have a negative impact on airport logistics and operations.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA:

No comments were submitted specifically in response to the IRFA. As discussed in Section E of this FRFA, we have considered the potential economic impact on small entities of these rules, and we have considered alternatives that would reduce the potential economic impact of the rules enacted herein, regardless of whether the potential economic impact was discussed in any comments.

C. Description and Estimate of the Number of Small Entities to which the Proposed Rules Will Apply:

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted.⁴² The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”⁴³ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁴⁴ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).⁴⁵ A small organization is

³⁹ 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-612 has been amended by the Contract With America Advancement Act of 1996, Public Law No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

⁴⁰ See Amendment of the Commission’s Rules to Permit Radiolocation Operations in the 78-81 GHz Band, Request by the Trex Enterprises Corporation for Waiver of Section 90.103(b) of the Commission’s Rules, *Notice of Proposed Rule Making and Order*, WT Docket 11-202, 26 FCC Rcd 17476 (2012) (*NPRM*).

⁴¹ 5 U.S.C. § 604.

⁴² 5 U.S.C. § 604(a)(4).

⁴³ See 5 U.S.C. § 601(6).

⁴⁴ See 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.

⁴⁵ See Small Business Act, 5 U.S.C. § 632 (1996).

generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”⁴⁶ Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the rules changes adopted in this *Report and Order*.

The SBA has developed a small business size standard for airport operations within the two broad economic census categories of “Air Traffic Control”⁴⁷ and “Other Airport Operations.”⁴⁸ Under both categories, the SBA deems a business to be small if it has average annual receipts of seven million dollars or less. For the census category of Airport Operations, Census Bureau data for 2007 show that there were 1,895 firms in this category that operated for the entire year.⁴⁹ Of this total, 1,567 had annual revenue of less than five million dollars, and 167 had annual revenue between five and ten million dollars.⁵⁰ Thus, under this category and associated small business size standard, the majority of firms can be considered small.

The Census Bureau defines the category of “RF Equipment Manufacturers” as follows: “This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.” The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees.⁵¹ According to Census bureau data for 2007, there were a total of 939 firms in this category that operated that year. Of this total, 912 had fewer than 500 employees and 27 had 500 or more employees.⁵² Thus, under this size standard, the majority of firms can be considered small.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

There are no projected reporting, recordkeeping or other compliance requirements.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered

The RFA requires an agency to describe the steps it has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.⁵³

⁴⁶ See 5 U.S.C. § 601(4).

⁴⁷ 13 C.F.R. § 121.201, NAICS code 488111.

⁴⁸ 13 C.F.R. § 121.201, NAICS code 488119.

⁴⁹ http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_48SSSZ1&prodType=table.

⁵⁰ *Id.*

⁵¹ 13 C.F.R. § 121.201 NAICS code 334220.

⁵² See <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>.

⁵³ 5 U.S.C. § 604(a)(6).

We believe the changes adopted in the *Report and Order* will promote flexibility and more efficient use of the spectrum, and allow licensees to better meet their communication needs. In this *Report and Order*, we will allow the certification, licensing, and use of foreign object debris detection radar in the 78-81 GHz band.

F. Federal Rules That May Duplicate, Overlap, or Conflict with the Proposed Rules

None.

Report to Congress: The Commission will send a copy of the *Report and Order*, including this FRFA, in a report to Congress pursuant to the Congressional Review Act.⁵⁴ In addition, the Commission will send a copy of the *Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Report and Order* and the FRFA (or summaries thereof) will also be published in the Federal Register.

⁵⁴ See 5 U.S.C. § 801(a)(1)(A).