List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Sulfur Dioxide, Reporting and recordkeeping requirements.

Dated: February 24, 2015.

Karl Brooks,

Regional Administrator, Region 7.

For the reasons stated in the preamble, the Environmental Protection Agency proposes to amend 40 CFR part 52 as set forth below:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart R—Kansas

■ 2. In § 52.870(e) the table is amended by adding entry (40) in numerical order to read as follows:

§ 52.870 Identification of plan.

* * * * *

(e) * * *

EPA-APPROVED KANSAS NONREGULATORY PROVISIONS

Name of nonregulatory SIP provision	Applicable geographic area or Nonattainment area	State submittal date	EPA Approval date	Explanation
*	*	*	*	*
(40) Section 110(a)(2) Infrastructure Requirements for the 2010 SO_2 NAAQS.	Statewide	3/19/2013	3/6/2015, [Insert **Federal Register** citation].	This action addresses the following CAA elements 110(a)(2)(A), (B), (C), (D)(i)(II), (D)(ii), (E), (F), (G), (H), (J), (K), (L), and (M).

[FR Doc. 2015–05328 Filed 3–5–15; 08:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 15, 90, and 95

[ET Docket Nos. 15–26, 11–90, 10–28, RM–11555, RM–11666, and WT Docket No. 11–202; FCC 15–16]

Operation of Radar Systems in the 76–81 GHz Band

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) proposes to authorize radar applications in the 76–81 GHz band. The Commission seeks to develop a flexible and streamlined regulatory framework that will encourage efficient, innovative uses of the spectrum and to allow various services to operate on an interference-protected basis. In doing so, it further seeks to adopt service rules that will allow for the deployment of the various radar applications in this band, both within and outside the U.S. The Commission takes this action in response to a petition for rulemaking filed by Robert Bosch, LLC (Bosch) and two petitions for reconsideration of the 2012 *Vehicular Radar R&O.*

DATES: Comments must be filed on or before April 6, 2015, and reply comments must be filed on or before April 20, 2015.

FOR FURTHER INFORMATION CONTACT: Aamer Zain, Office of Engineering and Technology, (202) 418–2437, email: *aamer.zain@fcc.gov,* TTY (202) 418–2989.

ADDRESSES: You may submit comments, identified by ET Docket No. 15–26, by any of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.
- *Federal Communications Commission's Web site: http://www.fcc.gov/cgb/ecfs/.* Follow the instructions for submitting comments.
- *People with Disabilities:* Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by email: *FCC504@fcc.gov* or phone: 202–418–0530 or TTY: 202–418–0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Notice of Proposed Rulemaking and Reconsideration Order,* ET Docket No. 15–26, RM–11555, RM–11666, ET Docket Nos. 11–90, 10–28 and WT Docket No. 11–202; FCC 15–16, adopted February 3, 2015, and released February 5, 2015. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Center (Room CY–A257), 445 12th Street SW., Washington, DC 20554.

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings,* 63 FR 24121 (1998).

- *Electronic Filers:* Comments may be filed electronically using the Internet by accessing the ECFS: *http://fjallfoss.fcc.gov/ecfs2/.*
- *Paper Filers:* Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St. SW., Room TW–A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of *before* entering the building.

▪ Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

▪ U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street SW., Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to *fcc504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (tty).

Summary of Notice of Proposed Rulemaking

1. In the Notice of Proposed Rule Making and Reconsideration Order (NPRM), the Commission proposes rules that will accommodate the commercial development and use of various radar technologies in the 76–81 GHz band under part 95 of its rules. These proposals include allocation changes to the bands as well as provisions to ensure that new and incumbent operations can share the available frequencies in the band. Specifically, the Commission seeks comment on the following 76–81 GHz band matters;

• Expanding radar operations in the 76–81 GHz band;

• Modifying the Table of Frequency Allocations to provide an allocation for the radiolocation service in the 77.5–78 GHz band;

• Authorizing the expanded radar operations on a licensed basis under part 95;

• Shifting vehicular and other users away from the existing part 15 unlicensed operating model; and

• Evaluating the compatibility of incumbent operations, including that of amateur radio, with radar applications in the 77–81 GHz band.

Collectively, these actions propose a unified approach for providing allocation and service rules for the various types of radar applications that will operate within the 76–81 GHz range.

Background

2. The 76–77.5 GHz and 78–81 GHz bands are allocated to the Radio Astronomy service (RAS) and the Radiolocation service on a primary basis and to the Amateur and Space research (space-to-Earth) services on a secondary basis. The 77.5–78 GHz band is allocated to the Amateur and Amateur-Satellite services on a primary basis and to the Radio astronomy and Space research (space-to-Earth) services on a secondary basis. Discussed further are primary radiolocation services that are allocated in the 76–77.5 GHz and 78–81 GHz bands.

3. These bands are in the region of the radiofrequency spectrum known as ''millimeter wave'' spectrum. At these frequencies, radio propagation decreases more rapidly with distance than at lower frequencies and antennas that can narrowly focus transmitted energy are practical and of modest size. While the limited range of such transmissions might be a disadvantage for many applications, it does allow frequency reuse within very short distances and thereby enables a higher concentration of transmitters in a geographical area than is possible at lower frequencies.

4. In recent years, the Commission has sought to make frequencies in the 76–81 GHz range available for new and innovative radar applications that can provide important benefits to the public at large. In a series of rulemaking proceedings that date back to 1995, the Commission has established rules to allow the use of this spectrum by automotive collision avoidance radar applications (''vehicular radars'') and radar systems that detect foreign object debris (FOD) at airport facilities (''FOD detection radars''). Vehicular radars are authorized under part 15 of our rules, while FOD detection radars currently are permitted to operate under parts 15 and 90 of the Commission's rules.

Vehicular Radar

5. Vehicular radars can determine the exact distance and relative speed of objects in front of, beside, or behind a car to improve the driver's ability to perceive objects under bad visibility conditions or objects in blind spots. In 1995, the Commission adopted rules to allow the use of the 76–77 GHz band by vehicular radars on an unlicensed basis. These provisions were limited to vehicle-mounted radars; fixed applications were not permitted.

6. On May 24, 2011, Toyota Motor Corporation filed a petition to modify the technical rules for vehicular radars to allow greater flexibility in vehicular radar applications. In response, the Commission issued a *Notice of Proposed Rule Making* (*Vehicular Radar NPRM*) and subsequently issued a *Report and Order* (*Vehicular Radar R&O*) modifying the part 15 rules for vehicular radars in the 76–77 GHz band. The Commission, *inter alia,* modified the rules to specify average and peak radiated emission limits in equivalent EIRP and power density units so that manufacturers could use either specification to express the emissions from their devices.

7. Vehicular radar technology has continued to evolve, and industry has developed more enhanced and cost-effective long-range vehicular radars (LRR) in the 76–77 GHz band. Developers of these technologies claim that the existing 1 gigahertz bandwidth used by LRR is insufficient to develop high-resolution short-range vehicular radars (SRR) that can implement safety features such as collision warning, lane departure warning, lane change assistance, blind-spot detection, and pedestrian protection. As background, LRRs have narrow beams with bandwidth less than1 gigahertz and typical spatial resolution of 0.5 meters. Their range of operation is up to 150 to 250 meters. SRRs on the other hand have wide beam with bandwidths up to 4 gigahertz and typical spatial resolution of 0.1 meters. Their range of operation is up to 30 meters.

8. Recently, Bosch filed a petition for rulemaking to modify § 15.253 of the Commission's rules to expand the operation of unlicensed vehicular radar systems from 76–77 GHz to the 76–81 GHz band to develop SRR applications. It claims that the additional 4 gigahertz bandwidth will provide SRR with both frequency separation from LRR and the necessary bandwidth for range accuracy, angular accuracy, and good object discrimination.

9. On July 17, 2012, the Commission issued a public notice seeking comment on Bosch's petition. The petition drew general support from the automotive industry, opposition from an individual amateur radio operator and interest from two developing non-vehicular radio applications for the band. Specifically, eight parties filed comments and three parties submitted ex parte written communications.

Millimeter Wave Band Radar Operation at Airports

10. The Commission has recognized the benefits associated with radars that can detect FOD at airports. Generally speaking, FOD include any substance, debris, or object that can damage aircraft or equipment. FOD can seriously threaten the safety of airport personnel and airline passengers and can have a negative impact on airport logistics and operations. According to the Federal Aviation Administration (FAA), FOD ''has the potential to damage aircraft during critical phases of flight, which can lead to catastrophic loss of life and airframe, and at the very least increased maintenance and operating costs.'' Moreover, the direct maintenance costs to airlines caused by FOD have been estimated to be one to four billion dollars per year. The Commission

provides for both unlicensed FOD detection radar use in the 76–77 GHz band under its part 15 rules and licensed FOD detection radar use in the 78–81 GHz band under its part 90 rules.

11. Interest in using the millimeter wave bands to support FOD detection radars dates back to February 23, 2009, when Era Systems Corporation (''Era'') requested for waiver of §§ 2.803, 15.201 and 15.253 of the Commission's rules. In response, the Office of Engineering and Technology issued a public notice seeking comments on Era waiver request and later granted Era a limited waiver to allow the installation of radar systems at Hartsfield-Jackson Atlanta International Airport.

12. Also in a separate proceeding, Era filed comments asking the Commission to amend its part 15 rules to permit fixed use of 76–77 GHz radars at airports for monitoring air traffic and airport service vehicles only. The Office of Engineering and Technology (OET) decided to treat ERA's comments as a Petition for Rulemaking, and consolidated Era and Vehicular Radar petitions into single rule making proceeding in the 76–77 GHz band. During the course of this proceeding, Xsight Systems Ltd. (Xsight) filed *ex parte* comments in support of Era and asked the Commission to allow operation of FOD detection radars in the 76–77 GHz band at airport locations only.

13. Subsequently, as part of the *Vehicular Radar NPRM,* the Commission examined the use of fixed radar systems in the 76–77 GHz band and proposed to allow such use at any location, rather than restrict their use to only airport locations per the Era petition for rulemaking. The Commission stated that limiting fixed radar operations to specific locations such as airports might be overly restrictive and could unnecessarily burden the public. In the subsequent *Vehicular Radar R&O,* the Commission permitted unlicensed operation of fixed radars, including FOD detection radars, in the 76–77 GHz band at airport locations. It permitted such operation on an unlicensed basis under the same part 15 rules and with the same emission limits that it applied to vehicular radars in the band.

14. Licensed FOD detection radar can be traced to an August 10, 2010, petition for Rulemaking in which Trex Enterprises Corporation (Trex) asked us to amend part 90 of the Commission'sr rules to permit FOD detection radars to operate in the 78–81 GHz band and to impose service rules that require each airport location to be individually licensed to operate FOD detection radars. The Commission subsequently issued a *Notice of Proposed Rule Making and Order* seeking comment on the best way to enable the use FOD detection radars. On July 11, 2013, the Commission adopted a Report and Order that permitted the certification, licensing, and use of FOD detection radars in the 78–81 GHz band under our part 90 rules. In that Report and Order, the Commission did not adopt technical specifications for FOD detection radars, *see* 78 FR 45072, July 26, 2013. The Commission addresses this issue herein.

Petitions for Reconsideration

15. Our evaluation of the 76–81 GHz band also implicates two outstanding petitions for reconsideration. Both petitions were filed in response to the *Vehicular Radar R&O* that modified our part 15 rules to permit vehicular radar technologies and airport-based fixed radar applications in the 76–77 GHz band.

16. The first petition concerns the scope of fixed infrastructure applications in the 76–77 GHz band. In the *Vehicular Radar R&O,* the Commission stated that it continues to believe that vehicular radars should be able to share the band with fixed radars operating at the same levels and noted that there were no conclusive test results indicating that there would be incompatibility issues between the two types of radars. It nevertheless declined to adopt provisions for unlicensed fixed radar operations outside of airport locations in the 76–77 GHz band, stating that no parties had come forward to establish a clear demand for fixed radar applications beyond such locations. Navtech Radar (Navtech) asks that the Commission reconsider this decision. Navtech claims that evidence suggests the band can be more broadly shared between vehicular and fixed radars, and that there is demand for new fixed radar applications that are not permitted under the current rules. Numerous parties, including representatives of the automotive industry, oppose the Navtech petition on both substantive and procedural grounds. In a subsequent *ex parte* presentation, Navtech reiterated its claims.

17. Second, Honeywell International, Inc. (Honeywell) asks that the Commission clarify that § 15.253(a) of its rules does not prohibit the operation of 76–77 GHz band radar devices located on aircraft while the aircraft are on the ground. Honeywell envisions that its radar application will help aircraft avoid collisions with other aircraft, stationary objects, and service vehicles.

18. Numerous representatives of the automotive industry as well as Xsight Systems, Inc., filed to oppose the Honeywell petition. These parties raised procedural arguments—that the issue of removing the current prohibition on the use of 76–77 GHz frequency range on aircraft or satellite was not properly raised in the proceeding and is otherwise outside the scope of the decision—as well as claims that there is insufficient evidence that both aircraft-mounted and vehicular radars can co-exist in the 76–77 GHz band. In response, Honeywell claims that the issues it raises are within the scope of the Commission's rulemaking proceeding, that there is no technical reason why aircraft-mounted radar cannot operate in the 76–77 GHz band while the aircraft is on ground, and that there is an urgent and recognized public interest need for the anti-collision benefits its aircraft-mounted radars can provide.

19. The Commission originally adopted rules to allow use of the 76–77 GHz band, limited to vehicle-mounted radars. It recognized concerns raised by the Committee on Radio Frequencies (CORF) of the National Academies about potential interference to radio astronomy operations, and prohibited the use of 76–77 GHz unlicensed devices aboard aircraft and satellites as a way to protect the radio astronomy services. Any change to the restriction on the use of 76–77 GHz unlicensed devices aboard aircraft and satellites was neither part of the *Vehicular Radar NPRM* nor of the subsequent *Vehicular Radar R&O.*

Radio Astronomy Service

20. The radio astronomy service is a passive service that receives radio waves of cosmic origin to better understand our universe. Astronomical research above 50 GHz is particularly well suited for studies of star formation, the properties of the interstellar medium, the chemical evolution of the Universe, detection of extra-solar planets and many other phenomena. RAS has a mix of primary and secondary allocations that span the 76–81 GHz band. RAS installations are remotely located to provide interference protection from active services. The Commission previously concluded that there is very negligible risk of potential interference to RAS equipment from vehicular radars in the 76–77 GHz band. The Commission also concluded that unlicensed FOD detection equipment would not cause harmful interference to RAS equipment as both applications only operate fixed stations, are limited

in number and are not located in close proximity.

Amateur

21. In addition to the above services, the Commission also allows amateur radio use within the 76–81 GHz band. Generally speaking, amateur operators use radio spectrum for private recreation, non-commercial exchange of messages, wireless experimentation, self-training, and emergency communication purposes. The amateur radio community previously stated that the frequencies in the 76–81 GHz range (which it identifies as the ''4 mm band'') are well suited for experiments relating to short-range high-speed data communication. The Commission has previously considered compatibility issues for amateur operations with vehicular radar and FOD detection radar operations. In light of concerns about interference between amateur operations and vehicular radars, the Commission imposed (and, more recently, maintained) a suspension of the amateur-satellite service allocation in the 76–77 GHz band.

Level Probing Radar

22. An additional permitted operation in the 77–81 GHz band is that of level probing radars (LPRs) which operate on an unlicensed basis under part 15. LPRs are used to measure the amount of various materials contained in storage tanks or vessels or to measure water or other material levels in outdoor locations. They are typically mounted inside storage tanks or on bridges or on other elevated structures in outdoor locations, and emit radio frequency (RF) signals through an antenna aimed downwards to the surface of the substance to be measured. The Commission recently concluded that LPR devices would be able to co-exist successfully with vehicular radars. It based its conclusion on the nature of LPR equipment, which is installed in a downward-looking position at fixed locations, and because the main-beam emission limits have been carefully calculated to avoid harmful interference to other radio services.

Notice of Proposed Rulemaking

23. The Commission undertakes this proceeding to expand the available spectrum for radar operations in the 76–81 GHz band. Specifically, it proposes to add rules for radars in the 76–81 GHz band as licensed services under part 95 of our rules. In doing so, the Commission recognizes that the millimeter wave bands support numerous beneficial services and incumbent operations, including vehicular radars, radio astronomy, FOD detection radars, level probing radars and amateur applications, and that this frequency band could host other additional applications in the future. The following discussion addresses the compatibility issues among services and proposes rules to authorize vehicular radars, FOD detection radars, fixed infrastructure radars and aircraft-mounted radars in the 76–81 GHz band. As with other spectrum users, the Commission seeks to promote the efficient use of these resources by radar applications.

Vehicular Radar

24. The Commission recognizes that the usage of vehicular radar applications has continued to grow and evolve since the Commission issued the *Vehicular Radar R&O,* and that providing expanded access to the 76–81 GHz band could help those applications deliver important public benefits. Therefore, the Commission has set forth, a compressive approach for authorizing vehicular radars in the 76–81 GHz band while maintaining a view to ensuring an efficient use of spectrum by radar applications.

25. The Commission's proposals are informed in large part by the Bosch petition, which was filed on behalf of the ''79 GHz Project''—an industry-backed group that seeks to make the 77–81 GHz frequency range available for short-range automotive radar systems on a worldwide basis. In its petition, Bosch describes the development of short-range radar (SRR) applications that are used for both active and passive automotive safety applications. According to Bosch, SRR active safety applications include ''stop and follow,'' ''stop and go,'' autonomous braking, firing of restraint systems and pedestrian protection. Passive safety applications include obstacle and pedestrian avoidance, collision warning, lane departure warning, lane change aids, blind spot detection, parking aids and airbag arming. Collectively, collision-warning systems, vehicle environmental sensing systems, and other SRR applications are referred to as a ''safety belt'' for vehicles. As a practical matter, these applications offer new and tangible ways to enhance the safety of the Nation's drivers, and to meet important automotive safety objectives.

26. The Commission proposes to make additional spectrum available for vehicular radars to accommodate the new SRR applications. As an initial matter, Bosch contends that sharing studies conducted by the automotive industry have concluded that sharing is not achievable between the LRR systems that are currently deployed in the 76–77 GHz band and new high-resolution SRR applications, due to foreseeable saturating interference from LRRs into SRRs (but not vice-versa). Bosch claims that in such a co-channel environment, the SRRs would be jammed due to the lack of frequency separation. Bosch further notes that the 76–77 GHz band has already been designated for vehicular and infrastructure radar systems in the United States pursuant to § 15.253, and in Europe pursuant to ECC Decision ECC/DEC/(02)01 on Road Transport and Traffic Telematic (RTTT) systems, and is used for such LRR applications as Adaptive Cruise Control (ACC) systems, with a maximum bandwidth of 1 gigahertz. For these reasons, it asserts that a common band between the two systems is not feasible, and that the Commission should identify alternate spectrum for SRR use.

27. Bosch identifies a 4 gigahertz-wide band in the 77–81 GHz range for SRR applications. Other automotive interests support Bosch's request. They argue that the existing LRR systems must be supplemented by a wider bandwidth segment of up to 4 gigahertz for SRRs to perform effectively. They contend that greater bandwidth leads to better range separation and object discrimination that enables SRRs to implement functions such as pedestrian/automotive collision avoidance, side impact warning, and roadwork avoidance. Trex, however, urges the Commission to examine closely the need for 4 GHz of bandwidth for automotive radars in the context of ensuing efficient and flexible use of our spectrum resources, and asks that in addressing Bosch's request, the Commission also ensure that any rules that it adopts do not unreasonably restrict additional, valuable uses of the band. The Commission seeks comment on how the FCC can accommodate SRR applications while ensuring efficient and flexible use of spectrum by radar applications.

28. The Commission finds merit in Bosch's request, and proposes to grant SRR applications access to additional spectrum apart and distinct from the spectrum currently used for LRR. In particular, the Commission proposes to provide up to 4 gigahertz of bandwidth for SRRs so that these radars can gather information about objects with a sufficient resolution. Moreover, the extensive catalogue of enhanced features supported by SRR and the expectation that their deployment will become more widespread suggests that the public interest would be served by providing SRR with expanded access to

the 77–81 GHz band. Given that the LRR applications use a narrower bandwidth than that used by SRR applications, the SRR applications will have a lower transmit power density level than that for LRR applications and therefore will have low likelihood for causing any potential interference. The Commission seek comment on these observations.

29. The Commission also believes that the spectrum identified by Bosch—the 77–81 GHz band—is a good fit for vehicular radar. At these millimeter wave frequencies, radio propagation losses increase more rapidly with distance than at lower frequencies and antennas that can narrowly focus transmitted energy are practical and of modest size. While the limited range of such transmissions might appear to be a major disadvantage for many applications, it does allow the reuse of frequencies within very short distances and, thereby enables a higher concentration of transmitters to be located in a geographic area than is possible at lower frequencies. This characteristic makes the band especially desirable as vehicular radars become more common throughout the transportation ecosystem. Moreover, these frequencies are adjacent to the 76–77 GHz band, which has already proven to be well suited for LRR applications. Because manufacturers can adapt equipment already designed to operate in the 76–77 GHz band, they will enjoy the benefits of expanded radar use at a lower cost than if they had to design equipment for a different non-adjacent band.

30. As Bosch notes in its petition, permitting vehicular radars throughout the 76–81 GHz band can also support industry efforts to consolidate vehicular radar into an internationally harmonized frequency band. Materials prepared by the 79 GHz project indicate that the 77–81 GHz band is already available for SRR applications in many parts of the world, including Europe, Australia, Russia, and Chile, and is in progress in many others. Bosch and Continental further note that the 2015 World Radio Communication Conference is expected to adopt an allocation to support the operation of vehicular radars in the 76–81 GHz range on a worldwide basis. In response to the Bosch petition, several commenters contend that global spectrum harmonization of LRRs at 76–77 GHz and SRRs at 78–81 GHz will reduce prices and will encourage deployment of automotive radars in lower-cost vehicles. Lastly, the National Telecommunications and Information Administration (NTIA), in prior matters regarding vehicular radars operating in the 24 GHz band, encouraged us to continue to monitor technology advancements in the 77–81 GHz range and committed to ''work with the Commission to ensure that an adequate frequency allocation in the 77–81 GHz band is available for the operation of vehicular radar systems.''

31. The Commission believes that new proposed radar operations will be compatible with incumbent operations in the 76–81 GHz band. As a general matter, the same technical principles that already allow successful shared operation in the 76–77 GHz band should apply in the larger 76–81 GHz range.

32. In the *Vehicular Radar R&O,* the Commission has already established that vehicular radars and RAS are compatible in the 76–77 GHz band. In that proceeding, it noted that the National Science Foundation (NSF) sponsored a study documenting measurements performed jointly by representatives from the radio astronomy community and several vehicular radar manufacturers in which vehicular radar emissions were measured in the 77–80 GHz range. Tests performed in the study with stationary short range vehicular radar systems, positioned at distances of 1.7 km and 26.9 km from the University of Arizona's 12 Meter millimeter wave telescope, demonstrated that these radars could have a significant impact upon radio astronomy observations in the 77 to 81 GHz region. The Joint Study concludes that a zone of avoidance of about 30 to 40 km around a mm-wave observatory would be needed, in order to keep interference from a single vehicle below the threshold defined in ITU–R RA.769–2. It further concludes that smaller zones of avoidance might suffice in areas without direct line of sight to the radio telescope and/or by taking mitigation factors into account. The study acknowledged that mitigation factors, such as terrain shielding, orientation of the vehicular radar transmitter antenna with respect to the observatory, or attenuation of the vehicular radar transmitter if mounted behind the vehicle bumper, were not taken into account and would tend to reduce the distance at which interference could occur. Commenters offered mixed views on the interference issue; however, none offered specific reasons to refute the conclusions in the study. The Commission therefore seeks comment on the conclusions of the study and how the results of the study would impact a proposal to adopt technical requirements for the entire 76–81 GHz band similar to the existing vehicular radars operating in 76–77 GHz band. How can mitigation factors be used to reduce interference to radio observatories? The Commission invites interested parties to comment on the potential for such interference. In particular, it invites interested parties who believe that the NSF study does not accurately describe the potential for such interference to submit evidence in the record sufficient to support their arguments. The Commission also seeks comment on whether the potential for interference resulting from vehicular radars in the 76–77 GHz band is likely to be similar to or different from the potential for such interference in the entire 76–81 GHz band. Finally, the Commission seeks comment on whether the mitigation factors identified in the study should be implemented for vehicular radars.

33. The Commission also believes that vehicular radar use in the expanded frequency range of 77–81 GHz will be compatible with FOD detection radars and LPR devices in that range. Although the Commission discusses proposals to expand the use of FOD detection radars in detail, it tentatively concludes here the same principles that informed our conclusion in the *Vehicular Radar R&O* that these uses are compatible in the 76–77 GHz band also apply in the 77–81 GHz band. The Commission believes that the limited geographic usage of FOD detection radars (*i.e.* at airports and not illuminating public roadways) along with the propagation characteristics of the millimeter wave band yields negligible risk of interference potential between vehicular and FOD detection radars. In the expanded 76–81 GHz frequency range, the Commission similarly believes that LPR devices will be able to continue to co-exist with vehicular radars. LPR equipment is installed in a downward-looking position at fixed locations and the main-beam emission limits have been carefully calculated to avoid receiving or causing harmful interference to other radio services. The Commission seeks comment on these observations and tentative conclusions.

34. In its petition, Bosch states that it expects no interference issues between Amateur Radio operation and vehicular radar operations at 77–81 GHz. It notes that it is unconvinced after several meetings with the technical staff of ARRL that there is any ''significant incompatibility'' and describes how amateur operations in the band ''tend to be largely experimental, occurring in geographic areas such as mountaintops and other rural areas where motor vehicle operation is not typical.'' However, the Commission has previously recognized evidence of potential interference conflicts between

the amateur-satellite service and vehicular radar systems in the 76–77 GHz band. Given that similar propagation characteristics exist throughout the millimeter wave band frequencies, there appears to be the potential for similar compatibility issues to exist between the amateur-satellite service and vehicular radar systems above 77 GHz. The Commission seeks to expand its record on the compatibility between amateur and vehicular radar services. In particular, are there any mitigation strategies for compatibility between the two services? Are there any additional interference or compatibility studies that may exist on the subject? The goal is to adopt rules that address amateur use, including amateur satellite use, within the 76–81 GHz band in a comprehensive and consistent manner.

35. In its proposal, Bosch suggests that the Commission support SRR in the 77–81 GHz band by modifying our existing part 15 rules. Because the existing vehicular radars are governed under our rules for unlicensed devices, they may not cause interference to licensed services, and must accept interference from both licensed and unlicensed users. For reasons discussed in more detail below, this regulatory structure may not be the most appropriate fit. Nevertheless, the Commission seeks comment on the proposal.

36. The Commission is proposing an approach by which it would establish vehicular radars as a service licensed by rule within part 95 of its rules under a radiolocation allocation, but also seek comment on other options, including authorizing an expansion of vehicular radars under the current part 15 model. The Commission's approach in proposing to migrate vehicular radar services from part 15 to part 95 of its rules is based on several factors. A licensed approach would make the 76–81 GHz vehicular radar services consistent with other transportation-related services currently operating under parts 90 and 95 of the rules—in particular, the 5.9 GHz Dedicated Short-range Communication (DSRC) services, a Department of Transportation initiative to integrate communication and information technology to advance transportation systems. Additionally, Bosch, in its petition, states that SRRs in the 79 GHz band ''require a certain (albeit low) degree of interference protection in order to function adequately.'' A unified licensed approach for all vehicular radars under our part 95 rules can offer a level of interference protection that the part 15 rules cannot provide. While the Commission notes that Bosch proposes modifying only the existing part 15 rules to support vehicular radar applications, it does not anticipate any opposition from Bosch for a licensing approach under the part 95 rules. Finally, in light of these considerations and the ongoing work to adopt an international allocation to support the operation of vehicular radars in the 76–81 GHz range on a worldwide basis, the Commission seeks comment on licensing by rule, pursuant to part 95, the proposed 77–81 GHz vehicular radar services the Commission proposed and on migrating existing 76–77 GHz vehicular radar services to part 95 of the s rules. In particular, the Commission seeks comment on any benefits or drawbacks such an approach would provide and whether it would be appropriate to continue to authorize vehicular radars on an unlicensed basis.

37. The Commission's Personal Radio Services rules, codified in part 95, provide for a variety of personal communications, radio signaling, and business communications. In addition, many of these services are licensed by rule—that is, a user is not required to obtain an individual license document and is instead authorized to operate so long as it does so in accordance with the applicable service rules. Radio services licensed in this manner—such as the Family Radio Service and the Wireless Medical Telemetry Service—are typically designed to support a particular type of application (*e.g.* voice communication or telemetry), and its users must cooperatively share use of the spectrum. The Commission believes such an arrangement is a good match for vehicular radars—especially because it would likely be impractical to individually license users (*e.g.* each vehicle owner or driver) and because the nature of the millimeter wave band makes it possible for LRR and SSR vehicular radars to share use of the band. Accordingly, the Commission proposes to modify part 95 of our rules to incorporate the range of frequencies available to vehicular radars under a new 76–81 GHz Band Radar Service. In addition, by making vehicular radars authorized as a licensed service, the Commission would also promote greater regulatory parity with other radar applications, including the FOD detection radars and other types of radars that it discusses in detail in the following text, in the band. The Commission seeks comment on this proposal.

38. Under the proposed rules, the Commission would adopt the same emission limits as those defined in its rules for unlicensed vehicular radars in the 76–77 GHz band for the entire 76–81 GHz band, and to likewise adopt technical specifications that mirror those currently provided under the Commission's part 15 rules for the newly expanded radar band. The Commission does not propose to distinguish between SRR and LRR operations in our rules, but instead rely on the market to determine the appropriate portions of the 76–81 GHz band for particular types of vehicular radar applications. As noted in the Bosch petition, as well as the related comment record, it already appears that there is widespread industry consensus on locating new SRR applications above 77 GHz. The Commission seeks comment on the applicability of these rules for both SRR and LRR across the 76–81 GHz band. Commenters that advocate different rules should provide detailed technical analyses showing how their preferred rules will provide for both SRR and LRR in the band as well as minimize any potential harmful interference with other services. In addition, the Commission seeks comment on our proposal not to specify specific portions of the band for SRR and LRR, but instead to rely on the market and the standards process to determine the best use of the available bandwidth. The Commission is proposing to upgrade the allocation status of the radiolocation service in the 77.5–78 GHz band. Currently the radio astronomy and space research (space-to-Earth) services are allocated on a secondary basis in the 77.5–78 GHz band. Should the radio astronomy and space research services also be upgraded to a primary allocation status in the 77.5–78 GHz band?

39. To support the expanded frequency range for vehicular radar use, the Commission proposes to allocate the 77.5–78 GHz band segment to the radiolocation service on a co-primary basis for Federal and non-Federal use. This would result in a co-primary allocation throughout the entire 77–81 GHz band. The Commission seeks comment on this allocation proposal.

40. Alternatively, the Commission seeks comment on whether vehicular radars should continue to operate as unlicensed devices under the part 15 rules. And, if so, whether FOD detection devices and other radar applications should be authorized in a consistent manner. Given anticipated extensive use of this spectrum, would band sharing under an unlicensed approach without any assurance of protection from harmful interference under the rules? What would be the relative benefits and disadvantages of unlicensed operation compared with the license-by-rule approach under part 95 or with the

individual station licensing under part 90? The Commission seeks comment on our proposals and these alternatives.

41. Lastly, the Commission proposes to consolidate future vehicular radar use into the new 76–81 GHz band as part of our effort to ensure spectrally efficient use of resources. Currently, vehicular radars may operate on an unlicensed basis in the 16.2–17.7 GHz, 23.12–29.0 GHz, 46.7–46.9 GHz, and 76–77 GHz bands. Continental, in its comments supporting the Bosch petition, notes that the use of the 24 GHz band for vehicular radars is being phased out in Europe and that ''the effect of the cessation of the use of that band in Europe will strongly affect availability of 24 GHz radars in the United States in the near term.'' In addition, the Commission's records indicate no certifications in the 16.2–17.7 GHz and 46.7–46.9 GHz bands, and only three certifications in the 23.12–29 GHz band. This record suggests that there is little or no use of vehicular radars outside the 24 GHz and 76–77 GHz bands.

42. The Commission proposes to grandfather, for the life of the equipment, vehicular radars that are already installed or in use in the 22–29 GHz band range. It may be financially burdensome and logistically difficult for automobile owners to upgrade existing equipment; alternately, discontinuing the use of these radars would mean that drivers might not be able to repair existing equipment or might have to forego useful safety features. The Commission intends to prohibit the certification of new vehicular radars that do not operate in the 76–81 GHz range, effective 30 days from the date of publication of our final rules in the **Federal Register**. However, the Commission also believes that the ultimate transition of SRR applications from 22–29 GHz band to 77–81 GHz is best driven by the marketplace. If not, the Commission seeks comment as to how should the life cycle of SRRs operating in the 22–29 GHz band be taken into account in facilitating the transition of these radars to the 77–81 GHz band. The Commission also seeks comment on what appropriate methods of making a determination should be considered to set forth reasonable periods of time required for market place to make the 77–81 GHz band SRR readily available. To implement its proposal, the Commission intends to modify Sections 15.37, 15.252, 15.253, and 15.515, as shown in the attached rules appendix. In addition, given that there appears to be no equipment certified to operate in the 16.2–17.7 GHz and 46.7–46.9 GHz bands, should the Commission instead delete the portions of those rules that relate to vehicular radars in those bands?

FOD Detection Radar

43. As previously mentioned, FOD at airports includes any substance, debris, or object in a location that can damage aircraft or equipment. FOD detection radars currently operate under part 15 and under part 90 of the Commission's rules in the frequency bands 76–77 GHz (unlicensed) and 78–81 GHz (licensed) respectively. However, the Commission only recently authorized and not yet established technical rules for licensed FOD detection radar operation under part 90.

44. The Commission proposes to consolidate the FOD detection radar operations in the 76–81 GHz band under part 95 on a non-exclusive licensed basis. Also, with the introduction of specific technical requirements for these applications, the burden to facilitate coordination for these applications will be reduced. This proposal will afford an additional one gigahertz of spectrum (77–78 GHz), for these important applications. By providing a contiguous band of spectrum for FOD detection radars, the Commission can foster the development of technologically improved and cost-effective safety measures that will benefit both airport personnel and the general public. The 76–81 GHz band is well suited for FOD detection radar functions, including real-time monitoring of the position and shape of the foreign objects debris on the runways and taxiways.

45. As an initial matter, the Commission believes that the rationale for concluding that increased vehicular radar operations can be expanded throughout the 76–81 GHz band and such operations can co-exist with FOD detection radars is broadly applicable. In other words, there is good reason to conclude that, if vehicular radars can co-exist with FOD detection radars in 76–77 GHz band, then both vehicular radars and FOD detection radars operating under the part 95 rules will be able to operate successfully throughout the 76–81 GHz band. Furthermore, the Commission believes that our proposal will not increase the interference potential to any other authorized services operating in the band. The services that the Commission proposes to reallocate to the 76–81 GHz band typically employ highly directional antennas both to detect vehicles or objects in a particular area and to compensate for the relatively high propagation losses over short distances at these frequencies. The narrow beams utilized by the FOD detection radars, the geographic location of operations, and the very high path losses in this region of the spectrum, should mitigate any potential interference. The location of FOD detection radars should prevent them from illuminating public roads, and should further reduce any likelihood of interference to vehicular radars while enabling airports to improve debris detection on the runways.

46. Our proposal would result in all radar applications operating in the 76–81 GHz range—including vehicular radars and mobile and fixed radars used at airport only for FOD detection and for monitoring aircraft and airport service vehicles—being governed by a single new subpart in part 95. This approach will promote spectrum efficiency and maximize the shared use of our spectrum resource, while also providing a comprehensive and consistent set of rules and policies to govern each of the different types of radar applications. In the case of FOD detection radars, it reduces the application and licensing burdens that will be associated with operation in the 78–81 GHz band under the part 90 model, and it offers the simplicity of operation under a singular licensing model. Also, the limited geographic use area and limited number of FOD detection radars alleviates any burdens associated with the sharing of spectrum. Thus, the Commission believes that the benefits in the unified licensing of FOD detection radars under part 95 outweigh any burdens. The Commission seeks comment on these proposals.

47. The Commission proposes to grandfather, for the life of the equipment, FOD detection radars that are already installed or in use in the 76–81 GHz band range. The Commission intends to prohibit the certification of new FOD detection radars, operating in the 76–81 GHz range, under part 90 of our Rules effective April 6, 2015. The Commission seeks comment on its proposals.

Fixed Radar

48. The Commission proposes to adopt rules that would permit fixed radar infrastructure applications as discussed below. Fixed infrastructure radars can detect locations of stopped vehicles or pedestrians on roads, provide obstacle detection capability for industrial machinery including port cranes, mining trucks and locomotives, and provide security monitoring for government and public infrastructures. As previously mentioned, Navtech filed a petition for partial reconsideration asking the Commission to reconsider its decision that limited the use of fixed infrastructure radars in the 76–77 GHz

band to airports only. The Commission's proposal largely tracks the issues Navtech raised in its petition.

49. In the *Vehicular Radar NPRM,* the Commission stated that the proposal to limit fixed radar operations to specific locations such as airports or other places where fixed radars would not illuminate public roads may be overly restrictive and could cause unnecessary burdens to the public if implemented. The Commission stated that fixed radars operating at the same maximum power levels as vehicular-mounted radars would be even less likely to interfere with the RAS and Radiolocation services than vehicle-mounted radars because the locations where they are used would not change. The Commission stated that fixed radars should be able to co-exist with vehicular radars because they both operate with the same power level and use antennas with narrow beam-widths, thus reducing the chances that the signal from one radar would be within the main lobe of the receive antenna of the other. In a worst-case scenario, where two radars are aiming directly at each other, fixed radar should have no more impact on vehicular radar then that by another radar located on a stationary vehicle. The Commission continues to believe this is the case.

50. The Commission's decision in the *Vehicular Radar R&O* to restrict the use of fixed infrastructure radar operation to airports was based on the fact that no parties had come forward to establish a clear demand for fixed radar applications beyond airport locations in the band and there were no conclusive data indicating that there would be compatibility between the vehicular and fixed radar types. The Commission observes that Navtech's petition for partial reconsideration demonstrates that that there is demand for fixed infrastructure radars beyond airport locations. In its petition, Navtech describes current and future applications of fixed infrastructure radars. Examples of such current use includes monitoring tunnels or bridges for stopped vehicles, providing collision warning system for ship-to-shore cranes, and providing train detection for automatic control functions. Moreover, in April 2014, Mantissa Ltd. stated that it supported further proceedings consistent with the Navtech petition because it is interested in deploying fixed radar technologies in the United States for security applications.

51. In the *Vehicular Radar R&O,* the Commission stated that it continued to believe that vehicular radars should be able to share the band with fixed radars operating at the same level and thinks those observations continue to be sound. At that time, the Commission noted that there were also no existing reports or studies that indicated incompatibility between the two types of radars. The Commission is unaware of any report or study that indicates incompatibility between the two types of radars, but the it recognizes that the record on this matter may still be evolving. The limited record that is available on this subject does not have the support of all interested parties in the matter. In the most recent comments received by the Commission in response to fixed infrastructure radars, the automotive industry opposes the use of these radars citing interference with vehicular radars. The automotive industry cites an ongoing study known as MOSARIM (More Safety for All by Radar Interference Mitigation), which suggested that vehicular radars and fixed infrastructure radars are incompatible due to the interference issues. Navtech, on the other hand, refutes the study and asserts that it was unfairly designed to favor the automotive industry. The Commission continues to believe that shared use by vehicular radars and fixed radars best promotes the public interest.

52. The Commission seeks to update the record and is especially interested in whether there are interference studies or reports indicating compatibility or lack thereof between vehicular and fixed radars in the 76–77 GHz band. As mentioned before, the Commission continues to believe that where two radars are aiming directly at each other, fixed radar should have no more impact on a vehicular radar then that from a radar located on a stationary vehicle. The Commission seeks comment on its conclusion and is particularly interested in the arguments as to why or why not a fixed radar would be more interfering than a vehicular radar located on a stopped vehicle.

53. While the Commission seeks broad comment on allowing the fixed infrastructure radar use within the 76–81 GHz range, it also asks commenters to address whether fixed infrastructure radars should be limited to the 76–77 GHz band. Because fixed infrastructure radars are intended to detect obstacles that are relatively large (*e.g.* pedestrians, vehicles, ships), a bandwidth of 1 gigahertz or less would appear to be sufficient for these fixed radars to identify the type and presence of such obstacles. For these reasons, the Commission is proposing to limit available bandwidth for fixed radars to 1 gigahertz and restricting operation to the 76–77 GHz band. Alternatively, the Commission seeks comment on other approaches for accommodating fixed radars. Such approaches could include permitting fixed infrastructure radars to operate in a different one gigahertz frequency range between 77–81 GHz band, or allowing them in the entire 76–81 GHz band but with limited bandwidth usage of 1 gigahertz or less for any given operation. Our goal here is to seek efficient use of the spectrum, harmonize global use of the spectrum, and facilitate development of technologies that serve public interest and convenience.

Aircraft-Mounted Radar

54. The Commission also seeks comment on expanding the use of radar in the 76–77 GHz band to provide for aircraft-mounted radars used only on the ground. This application, also referred to by Honeywell as ''wingtip radar,'' is used while aircraft are on the ground to prevent and or mitigate the severity of aircraft wing collisions while planes are moving between gates and runways. This matter tracks the issues Honeywell first raised in its petition for reconsideration in ET Docket No. 10–28.

55. The Commission believes that wingtip radar technologies can provide important public benefits. Aircraft wingtip collisions, which account for approximately 25 percent of all aircraft ground accidents, involve substantial costs, both in terms of repairs to aircraft and ground facilities and in lost time for passengers due to flight delays and cancellations. Honeywell asserts that mitigating the risk of wingtip collisions can reduce these costs and improve safety for both aviation personnel and the travelling public. The use of wingtip radar also appears to support National Transportation Safety Board (NTSB) safety recommendations regarding the use of anti-collision aids on aircraft.

56. The Commission seeks to develop a full record on the compatibility of aircraft-mounted radar used only on the ground with the other applications in the 76–81 GHz band. At the time, Honeywell filed its petition, many automotive radar supporters expressed concern about the potential for interference. However, because the Commission expects that wingtip radars will be used in the same locations as FOD detection radars (that is, on airport property and, in the case of aircraft-mounted radars, only during taxi and other ground activities), and because the Commission has already tentatively concluded that FOD detection radars and automotive radars can successfully co-exist, it also tentatively concludes that aircraft-mounted radars should likewise be compatible with vehicular radars.

57. As an initial matter, the Commission notes that there are functional differences between the FOD detection radar and wingtip radar applications that may promote compatibility between the two operations: wingtip radars can be useful during times of aircraft movement, such as taxiing between runways and ramp areas and while being pushed out of gates, while FOD detection appear to have high value in runway environments and before takeoff and landing. Therefore, it may be possible to create time and space separation between the FOD detection radar and wingtip radar application uses to reduce the potential for interference. In addition, the nature of the millimeter wave bands, as the Commission discussed *supra,* allows for extensive frequency reuse and can accommodate many discrete users. In response to Honeywell's petition, Xsight Systems—a manufacturer of FOD detection products—stated that it was ''in the process of setting up a meeting with Honeywell to . . . investigate whether a potential for interference exists between Xsight's system and equipment that would operate under Honeywell's proposal.'' The Commission seeks further information about the results of such discussions, as well as updated information about the status of wingtip radar product development.

58. The Commission also seeks comment on whether it would be feasible to employ an automatic shut-off mechanism for wingtip radars that would prevent radar operation any time the aircraft is not on the ground. Are there existing aircraft components (such as altimeters) that could be used in conjunction with such a system, and if so, how easily could wingtip radar be integrated with such devices? Could such an automated system be easily deployable on all types of aircraft (*e.g.* commercial and personal)? The Commission tentatively concludes that it should adopt such an automatic shut-off mechanism, if such a mechanism is feasible, to protect the radio astronomy service from harmful interference that could be caused by inadvertent operation of a wingtip radar system while an aircraft is in flight. For this reason, the Commission proposes to distinguish wingtip radars from vehicular radars in our rules, as aircraft should not be considered as vehicles for purposes of radar use in the 76–81 GHz band. Finally, the Commission seeks comment on any compatibility issues with respect to other existing and proposed radar uses in the band, as well as to amateur radio users.

59. While the Commission seeks broad comment on allowing wingtip radar use within the 76–81 GHz range, it notes that the wingtip radar may only require bandwidth of one gigahertz or less to detect obstacles in its path. For this reason, the Commission proposes to allow wingtip radars to operate with a bandwidth of 1 gigahertz in the 76–77 GHz band. Alternatively, and similar to the fixed radar proposals discussed above, the Commission seeks comment on other ways the it could accommodate wingtip radars. Such approaches could include permitting wingtip radars to operate in a different one gigahertz frequency range between 77–81 GHz band, or allowing them in the entire 76–81 GHz band but with limited bandwidth usage of one Gigahertz or less over any portion of the band. Our overall objective is to promote efficient use of the spectrum and facilitate development of technologies that will improve airport operations and provide important benefits to both airport personnel and the general public.

Amateur Radio Use

60. In conjunction with our efforts to develop a comprehensive policy for use of the 76–81 GHz band, the Commission seeks comment on how it should structure future amateur 4 mm band use. As background, the Commission decided to temporarily restrict amateur station access to the 76–77 GHz band in 1998 to ensure against potential interference to what were then newly developing vehicular radar systems. The Commission observed that amateur station transmissions in the 76–77 GHz were not significant at the time, reasoned that its action would not have an immediate impact on amateur operators, and stated that it planned to revisit the issue later. In 2004, the Commission extended the amateur-satellite allocation suspension, citing interference issues and suggesting that it would be useful to consider the development of technical sharing criteria for the band. Bosch, in its petition, does not seek to alter the current 76–77 GHz arrangement.

61. Based on our proposals for new vehicular and other radars in the 77–81 GHz band, the Commission proposes to adopt a comprehensive approach for amateur radio use on these frequencies. Given the continuing lack of technical sharing criteria or any other evidence of compatibility, should the Commission extend the 76–77 GHz amateur suspension to the entire 76–81 GHz band? If so, should the Commission modify the current amateur suspension of use of the 76–77 GHz band by removing all amateur allocations from the 76–81 GHz band? Alternately, would it be possible to lift our suspension of the amateur service and conduct both amateur and vehicular radar operations in the entire 76–81 GHz band? The Commission tentatively concludes that there is no apparent technical reason to treat the 76–77 GHz and the 77–81 GHz bands differently. Commenters who believe that the Commission should continue to distinguish between the two bands should explain the reasons for doing so. The Commission also seeks comment on whether there are other approaches that would achieve compatibility between the amateur and radiolocation services within the 76–81 GHz band that the Commission has not discussed above.

62. Bosch, in its petition, states that it ''is unconvinced, after several meetings with technical staff of ARRL, the national association for Amateur Radio, that there is any significant incompatibility between Amateur Radio and SRR operation at 79 GHz.'' It says the nature of amateur use of this spectrum—largely experimental and occurring on mountaintops and locations where motor vehicle operation is not typical—will provide sufficient geographic separation to prevent interference from amateur users to new vehicular radar operations above 77 GHz. However, Bosch also notes that European regulators previously determined ''that the use of SRR within the band 77–81 may be incompatible with the Radio Amateur Service,'' but also concluded that amateur users could be accommodated in the 75.5–76 GHz band (which is not currently available in the U.S.). The Commission seeks comment on these points. Additionally, to help better inform its decision, the Commission seeks to develop a record on the types of amateur use, and the extent of such use, that is currently undertaken in the amateur 4 mm band.

63. To the extent that commenters believe that amateur operators can continue to use the millimeter band, the Commission seeks comment on what additional rule modifications it would have to adopt to realize successful shared use of the entire band. For example, our existing service rules would permit amateur operators to transmit with significantly higher power than other proposed operations. Would adopting the same emission limits for amateur operations as the Commission proposed for other services in this band reduce the potential for mutual interference? Are there any additional conforming edits to the part 97 amateur radio service rules that the Commission would have to implement?

64. If, instead, the Commission were to remove all amateur allocations from the 76–81 GHz range, it seeks comment on alternate spectrum that it might be able to make available in this general region. Bosch recommends an amateur allocation at 75.5–76 GHz, arguing that such an allocation would permit re-accommodation of any displaced Amateur Radio operators as the result of aggregate noise from SRRs in the 79 GHz band, and harmonize the United States Amateur allocation with that in ITU Region 1 and in other areas of the world. The Commission seeks comment on allocating the 75.5–76 GHz band to the amateur service if the Commission were to remove the amateur allocation, including amateur satellite, in the 76–81 GHz band.

Service and Technical Rules

65. The Commission set forth proposed rules that would license vehicular and FOD detection radars in the 76–81 GHz band and aircraft-mounted and fixed infrastructure radars in the 76–77 GHz band as licensed services under part 95 of our rules. The Commission also proposes to add a primary allocation for radiolocation in the 77.5–78 GHz band. The Commission proposes technical rules that would be appropriate for a part 95 licensed-by-rule approach.

66. In general, the proposed technical rules are consistent with those already set forth for existing vehicular radar and FOD detection radars under part 15 of our rules, including that the average and peak emission limits for vehicular radars in the 76–81 GHz band not to exceed 88 μW/cm^2 and 279 μW/cm^2 respectively, measured at a distance of 3 meters from the exterior surface of the radiating structure. However, as discussed, the existing part 15 use is on a non-interference basis and may not be the best fit for the types of safety related applications that the Commission envisions being deployed in the 76–81 GHz range. Under our draft rules, users would operate on a licensed basis fully supported by a primary radiolocation allocation throughout the 76–81 GHz range. Authorizing these radars under part 95 of our rules will permit license-by-rule operation pursuant to section 307(e) of the Communications Act (Act). Under this approach, these devices may operate on a shared, non-exclusive basis with respect to each other and without the need for these radar systems to be individually licensed. By doing this, the Commission can provide for a greater range of radar uses while still allowing for an easy transition of existing equipment to part 95 operation. The Commission seeks comment on these proposed rules. To the extent commenters support either regulatory approach, such as unlicensed operation under part 15, they should identify any rules that need to be modified to support the different types of radar applications the Commission discuss herein.

67. Because the existing part 95 rules do not specify rules for vehicular, FOD detection, aircraft-mounted and fixed infrastructure radar operations, the Commission propose to create a new subpart of part 95, titled the 76–81 GHz radar service, that will accommodate all authorized radar types within the band, but that will not otherwise distinguish among the different radar types. Our proposed service rules are intended to facilitate the industry in developing the various radar types in their authorized specific frequency ranges. For example, in the case of vehicular radars, the Commission leaves it up to the automotive industry to optimize the use of the 76–81 GHz frequency band and develop the SRR and LRR vehicular radar application within the band. Alternately, the Commission seeks comment on whether distinctive or differentiating rules for the different radars would be appropriate and if so, what those rules should be.

68. To fully implement our proposal to accommodate radars under part 95, the Commission also proposes to make additional modifications to parts 1, 2, 15, and 90 of our rules. All of our proposed rule modifications are shown in this NPRM. The Commission seeks comment on all of these proposals, and invites commenters to identify any additional rules that the Commission would need to update to accomplish our objectives.

Reconsideration Order

69. As part of our comprehensive look at shared use of the 76–81 GHz band, the Commission has incorporated matters that were first raised in pleadings filed in ET Docket Nos. 10–28 and 11–90—namely Honeywell Aircraft's Petition relating to aircraft-mounted radar applications and Navtech's Fixed Radar Petition. Although the Commission believes that there is merit in considering the issues raised by Honeywell and Navtech in the context of the *Vehicular Radar NPRM,* the Commission concludes that the parties underlying petitions in the respective dockets should be denied.

Honeywell Petition

70. As background, Honeywell first submitted a letter to the Office of Engineering and Technology seeking clarification of the rules adopted in the *Vehicular Radar R&O,* but later refiled with the Commission's Secretary asking that it the Commission treat the letter as a petition for reconsideration. On October 31, 2012, the Commission issued a Public Notice treating it as such.

71. Numerous representatives of the automotive industry as well as Xsight Systems, Inc., filed to oppose the Honeywell petition. These parties raised procedural arguments—that the issue of removing the current prohibition on the use of 76–77 GHz frequency range on aircraft or satellite was not properly raised in the proceeding and is otherwise outside the scope of the decision—as well as claims that there is insufficient evidence that both aircraft-mounted and vehicular radars can co-exist in the 76–77 GHz band. In response, Honeywell claims that the issues it raises are within the scope of the Commission's rulemaking proceeding, that there is no technical reason why aircraft-mounted radar cannot operate in the 76–77 GHz band while the aircraft is on ground, and that there is an urgent and recognized public interest need for the anti-collision benefits its aircraft-mounted radars can provide.

72. The Commission deny Honeywell's petition. Section 1.429(b) of the Commission's rules provide three ways in which a petition for reconsideration can be granted, and none of these have been met. Honeywell has not shown that its petition relies on facts regarding fixed radar use which had not previously been presented to the Commission, nor does it show that its petition relies on facts that relate to events that changed since Honeywell had the last opportunity to present its facts regarding fixed radar use. Indeed, Honeywell did not previously participate in the proceeding before filing its letter. Moreover, it does not serve the public interest to consider Honeywell's facts and arguments via reconsideration of the existing dockets. The Commission agrees with the commenters who opposed the petition that there may be technical and policy considerations associated with aircraft-mounted radar applications that parties could not have reasonably anticipated nor had an opportunity to address. Any public interest associated with the consideration of Honeywell's arguments will be fully captured and considered within the new docket that the Commission initiates with this rulemaking By doing so, it can ensure that another aspect of the public interest is served—that is, that all interested parties have ample notice and comment opportunities with respect to the

possible use of wingtip radars under our rules.

Navtech Petition

73. Similarly, the Commission agrees with those parties who oppose the Navtech pleading as procedurally defective. The Commission stated in the in the *Vehicular Radar R&O* that ''no parties have come forward to support fixed radar applications beyond airport locations in this band,'' and it decided not to adopt provisions for unlicensed fixed radar use other than those for FOD detection applications at airport locations. Because Navtech first participated in the proceeding when it filed its petition well after the decision was published, its petition fails to meet the timeliness standard of § 1.429(d).

74. The Commission emphasize that our decision does not address whether there are substantive merits to these claims. Such issues are fully incorporated into the proposals the Commission makes in conjunction with the *Vehicular Radar NPRM.*

75. Finally, because the Commission is considering several different types of radar applications that would share use within the millimeter wave bands, and because it is proposing a consolidated licensing scheme under our part 95 rules, the Commission concludes that it can best promote efficiency and reduce administrative burdens by opening a new docket, ET Docket No. 15–26. Here, the Commission will consider ongoing and future matters pertaining to the entire 76–81 GHz band in a consolidated and comprehensive manner. To that end, and in connection with its decision to deny the petitions for reconsideration discussed above, the Commission terminates ET Docket Nos. 10–28 and 11–90 (pertaining to vehicular radar) and WT Docket No. 11–202 (addressing FOD detection radar applications). The Commission concludes that future decisions regarding matters that it previously considered within those dockets can more practically be made within the comprehensive ET Docket No. 15–26 proceeding.

Initial Regulatory Flexibility Analysis

76. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this Notice of Proposed Rulemaking and Reconsideration Order (NPRM). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines specified in the NPRM for comments. The Commission will send a copy of this NPRM, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the Notice and IRFA (or summaries thereof) will be published in the **Federal Register**.[3]

A. Need for, and Objectives of, the Proposed Rules

77. This Notice responds to petitions for rulemaking filed by Robert Bosch, LLC (Bosch) requesting modifications to § 15.253 of the rules to extend operating frequency for vehicular radar systems from 76–77 GHz to the 76–81 GHz band. Vehicular radars can determine the exact distance and relative speed of objects in front of, beside, or behind a car to improve the driver's ability to perceive objects under bad visibility conditions or objects that are in blind spots. Some examples of vehicular radar systems include collision warning and mitigation systems, blind spot detection systems, lane change assist, and parking aid systems. The Notice proposes to extend the operating frequency for unlicensed vehicular radar systems from 76–77 GHz to 76–81 GHz. These modifications to the rules will provide more efficient use of spectrum, and enable the automotive industries to develop enhanced safety measures for drivers and the general public.

78. Airports are challenged with managing increasing congestion on the ground. These rule modification will add to the tools that enhance an airport's ability to determine the location of airplanes and airport ground vehicles that are operating in taxiways and runways. The presence of foreign object debris (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.[4] These rule modification will help reduce FOD hazards through the implementation of a FOD management program and the effective use of FOD detection and removal equipment.[5]

79. Our rule modifications also propose to expand the use of radar in the 76–77 GHz band to aircraft-mounted radars. This application, also referred to as ''wingtip radar'' and used only while aircraft are on the ground, is intended to prevent or mitigate the severity of aircraft wing collisions while the plane is taxiing tarmacs. Mitigating the risk of wingtip collisions can reduce costs and improve safety for both aviation personnel and the travelling public.[6] The use of wingtip radar also appears to support National Transportation Safety Board (NTSB) safety recommendation regarding the use of anti-collision aids on aircraft.[7] Our overall objective is to promote efficient use of the spectrum and facilitate development of technologies that will improve airport operations and provide enhance safety measures for both airport personnel and the general public.

80. There is new demand for fixed infrastructure radar applications beyond airport locations. Some of these applications are monitoring tunnels or bridges for stopped vehicles, providing collision warning systems for ship-to-shore cranes and providing train detection for automatic train control.[8] In our rule modifications to permit such use we seek efficient use of the spectrum, harmonize global use of the spectrum, and facilitate development of technologies that serve public interest and convenience.

B. Legal Basis

81. This action is authorized under sections 1, 4(i), 302, 303(f) and (r), 332, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. 1, 4(i), 154(i), 302, 303(f) and (r), 332, 337.

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[1] *See* 5 U.S.C. 603. The RFA, *see* 5 U.S.C. 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996, (SBREFA) Public Law 104–121, Title II, 110 Stat. 857 (1996).

[2] *See* 5 U.S.C. 603(a).

[3] *See* 5 U.S.C. 603(a).

[4] On July 25, 2000, Air France Flight 4590 crashed shortly after take-off from Charles de Gaulle Airport outside Paris, France. All one hundred passengers and nine crewmembers, plus four people on the ground, were killed. The official investigation, concluded by France's Bureau Enquetes-Accidents, determined that the catastrophic series of events that caused the Concorde crash were precipitated when FOD on the runway tore a tire, resulting in additional damage to the aircraft. *http://www.guardian.co.uk/uk/2002/jan/17/concorde.world.*

[5] *See* U.S. Department of Transportation, Federal Aviation administration Advisory Circular No. 105/5210–24, *http://www.faa.gov/documentLibrary/media/Advisory_Circular/150_5210_24.pdf* (hereinafter AC 105/5210–24).

[6] *See Aircraft Petition Reply* at 4.

[7] *See* NTSB Mar. 13, 2013 *ex parte* filing in ET Docket No. 10–28 and RM–1190. All newly manufactured and newly type-certificated large airplanes and other airplane models where the wingtips are not easily visible from the cockpit to provide a cockpit indication that will help pilots determine wingtip clearance and path during taxi. The recommendation also requires retrofitting all existing airplane models with an anti-collision aid where the wingtips are not easily visible from the cockpit.

[8] *See Fixed Radar Petition* at 3–4

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rule Will Apply

82. 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 herein.[9] The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' [10] In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act.[11] 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).[12]

83. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category 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.'' [13] 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. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. According to Census bureau data for 2007, there were a total of 939 firms in this category that operated for the entire year. Of this total, 912 had fewer than 500 employees and 17 had more than 1000 employees.[14] Thus, under that size standard, the majority of firms can be considered small.

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

84. Radars operating in the 76–81 GHz band are required to be authorized under the Commission's certification procedure as a prerequisite to marketing and importation, and the NPRM proposes no change to that requirement.

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

85. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[15]

86. The proposals contained in this NPRM are deregulatory in nature, which we expect will simplify compliance requirements for all parties, particularly small entities, and permit the development of improved radar systems. Extending the frequency for unlicensed vehicular radar from 76–77 GHz to 76–81 GHz will enable global spectrum harmonization of LRRs at 76–77 GHz and SRRs at 77–81 GHz that will reduce prices and encourage deployment of automotive radars in lower-cost vehicles. Consolidating FOD detection radars to operate under part 95 in lieu of current rules will reduce unnecessary burdens for the general public and will provide increased spectrum efficiency.

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

87. None.

Ordering Clauses

88. Pursuant to sections 1, 2, 4(i), 301, 302, and 303(f) of the Communications Act of 1934, 47 U.S.C. 151, 152, 154(i), 301, 302a, and 303(f), that the Notice of Proposed Rulemaking *is adopted* and the Petition for Rulemaking filed by Robert Bosch in RM–11666 *is granted* to the extent described herein.

89. Pursuant to sections 4(i), 302, 303(e), 303(f), and 405 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 302, 303(e), 303(f), and 405, the petitions for reconsideration filed by Honeywell and Navtech in ET Docket Nos. 10–28 and 11–90 *are denied.*

90. Pursuant to the authority contained in sections 4(i), 4(j), and 303 of the Communications Act, as amended, 47 U.S.C. 154(i), 154(j) and 303, that ET Docket Nos. 10–28 and 11–90 and WT Docket No. 11–202 *are closed* and the proceedings are *terminated* should no petitions for reconsideration or applications for review be timely filed.

91. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, *shall send* a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Parts 1, 2, 15, 90 and 95

Administrative practice and procedure, Radio, Unlicensed services.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR parts 1, 2, 15, 90, and 95 as follows:

PART 1—PRACTICE AND PROCEDURE

■ 1. The authority citation for part 1 continues to read as follows:

Authority: 15 U.S.C. 79 *et seq.;* 47 U.S.C. 151, 154(i), 154(j), 155, 157, 160, 201, 225, 227, 303, 309, 332, 1403, 1404, 1451, 1452 and 1455.

■ 2. Section 1.1307 is amended by revising paragraphs (b)(2)(i) and (ii) to read as follows:

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

* * * * *

(b) * * *

(2) * * *

(i) Mobile and portable transmitting devices that operate in the Commercial Mobile Radio Services pursuant to part 20 of this chapter; the Cellular

[9] 5 U.S.C. 604(a)(3).

[10] 5 U.S.C. 601(6).

[11] 5 U.S.C. 601(3) (incorporating by reference the definition of ''small-business concern'' in the Small Business Act, 15 U.S.C. 632). Pursuant to 5 U.S.C. 601(3), 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 of such term which are appropriate to the activities of the agency and publishes such definition(s) in the **Federal Register**.''

[12] 15 U.S.C. 632.

[13] The NAICS Code for this service 334220. *See* 13 C.F.R 121/201. *See also http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-_skip=300&-ds_name=EC0731SG2&-_lang=en.*

[14] *See http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=4500&-ds_name=EC0731SG3&-_lang=en.*

[15] *See* 5 U.S.C. 603(c).

Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services (PCS) pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Maritime Services (ship earth stations only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, the 4.9 GHz Band Service, or the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; the Wireless Medical Telemetry Service (WMTS), the Medical Device Radiocommunication Service (MedRadio), or the 76–81 GHz Band Radar Service pursuant to part 95 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§ 2.1091 and 2.1093 of this chapter.

(ii) Unlicensed PCS, unlicensed NII and millimeter wave devices are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§ 15.255(g), 15.257(g), 15.319(i), and 15.407(f) of this chapter.

* * * * *

PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

■ 3. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

■ 4. Section 2.106, the Table of Frequency Allocations, is amended by revising page 61 to read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

TABLE OF FREQUENCY ALLOCATIONS (EHF) 71–100 GHz PAGE 61

International table			United States table		FCC Rule part(s)
Region 1 table	Region 2 table	Region 3 table	Federal table	Non-federal table	
71–74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			71–74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389		Fixed Microwave (101).
74–76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561			74–76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Space research (space-to-Earth) US389	74–76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) US389	RF Devices (15). Fixed Microwave (101).
76–77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			76–77.5 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) US342	76–77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) US342	RF Devices (15). Amateur Radio (97).
77.5–78 AMATEUR AMATEUR-SATELLITE Radio astronomy Space research (space-to-Earth) 5.149			77.5–78 RADIOLOCATION Radio astronomy Space research (space-to-Earth) US342	77.5–78 AMATEUR AMATEUR-SATELLITE RADIOLOCATION Radio astronomy Space research (space-to-Earth) US342	
78–79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth) 5.149 5.560			78–79 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) 5.560 US342	78–79 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.560 US342	

TABLE OF FREQUENCY ALLOCATIONS (EHF) 71–100 GHz PAGE 61—Continued

International table			United States table		FCC Rule part(s)
Region 1 table	Region 2 table	Region 3 table	Federal table	Non-federal table	
79–81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149			79–81 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) US342	79–81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) US342	

* * * * *

■ 5. Section 2.1091 is amended by revising paragraph (c)(1) introductory text and paragraph (c)(2) to read as follow:

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile devices

* * * * *

(c)(1) Mobile devices that operate in the Commercial Mobile Radio Services pursuant to part 20 of this chapter; the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; and the 76–81 GHz Radar Band Service pursuant to part 95 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if:

* * * * *

(2) Unlicensed personal communications service devices, unlicensed millimeter wave devices and unlicensed NII devices authorized under §§ 15.255(g), 15.257(g), 15.319(i), and 15.407(f) of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in § 2.1093(b) requiring evaluation under the provisions of that section.

* * * * *

■ 6. Section 2.1093 is amended by revising paragraph (c)(1) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * * *

(c)(1) Portable devices that operate in the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Service (PCS) pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, the 4.9 GHz Band Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; and the Wireless Medical Telemetry Service (WMTS), the Medical Device Radiocommunication Service (MedRadio), and the 76–81 GHz Band Radar Service, pursuant to subparts H, I, and M of part 95 of this chapter, respectively, and unlicensed personal communication service, unlicensed NII devices and millimeter wave devices authorized under §§ 15.255(g), 15.257(g), 15.319(i), and 15.407(f) of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use.

* * * * *

PART 15—RADIO FREQUENCY DEVICES

■ 7. The authority citation for part 15 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, 304, 307, 336, 544a and 549.

■ 8. Section 15.37 is amended by adding paragraphs (i) and (j) to read as follows:

§ 15.37 Transition provision for compliance with the rules.

* * * * *

(i) Effective [DATE 30 DAYS AFTER DATE OF **Federal Register** PUBLICATION OF FINAL RULE] the certification of UWB vehicular radars that operate in the 22–29 GHz band will no longer be permitted. Existing equipment may continue to operate in accordance with their previous certification.

(j) Effective [DATE 30 DAYS AFTER DATE OF **Federal Register** PUBLICATION OF FINAL RULE] the certification of field disturbance sensors that operate in the 16.2–17.7 GHz, 23.12–29.0 GHz, 46.7–46.9 GHz and 76.0–77.0 GHz bands will no longer be permitted. Existing equipment may continue to operate in accordance with their previous certification.

■ 9. Section 15.252 is amended by adding introductory text to read as follows:

§ 15.252 Operation of wideband vehicular radar systems within the bands 16.2–17.7 GHz and 23.12–29.0 GHz.

Effective [DATE 30 DAYS AFTER DATE OF **Federal Register** PUBLICATION OF FINAL RULE] field disturbance sensors that operate in the 16.2–17.7 GHz and 23.12–29.0 GHz bands will no longer be certified.

* * * * *

■ 10. Section 15.253 is amended by adding introductory text to read as follows:

§ 15.253 Operation within the bands 46.7–46.9 GHz and 76.0–77.0 GHz.

Effective [DATE 30 DAYS AFTER DATE OF **Federal Register** PUBLICATION OF FINAL RULE] field disturbance sensors and fixed radars that operate in the 46.7–46.9 GHz and 76.0–77.0 GHz bands will no longer be certified.

* * * * *

■ 11. Section 15.515 is amended by adding introductory text to read as follows:

§ 15.515 Technical requirements for vehicular radar systems.

Effective [DATE 30 DAYS AFTER DATE OF **Federal Register** PUBLICATION OF FINAL RULE] UWB field disturbance sensors that operate in

the 22–29 GHz band will no longer be certified.

* * * * *

PART 90–PRIVATE LAND MOBILE RADIO SERVICES

■ 12. 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), and 332(c)(7), and Title VI of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112–96, 126 Stat. 156.

§ 90.103 [Amended].

■ 13. Section 90.103 is amended by removing the last row of the table in paragraph (b) and removing paragraph (c)(30).

PART 95–PERSONAL RADIO SERVICES

■ 14. The authority citation for part 95 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302(a), 303, and 307(e).

■ 15. Section 95.401 is amended by adding paragraph (h) to read as follows:

Subpart D—Citizens Band (CB) Radio Service

§ 95.401 (CB Rule 1) What are the Citizens Band Radio Services?

* * * * *

(h) The 76–81 GHz Radar Service. The rules for this service are contained in Subpart M of this part. The 76–81 GHz Radar Service applications include, but are not limited to, vehicular radars and aircraft-mounted radars used for collision avoidance and other safety applications, as well as fixed radars used for foreign object debris detection at airports and for other purposes.

* * * * *

(g) The 76–81 GHz Radar Service is governed under subpart M of this part.

■ 16. Section 95.601 is amended to read as follows:

Subpart E—Technical Regulations

§ 95.601 Basis and Purpose.

This section provides the technical standards to which each transmitter (apparatus that converts electrical energy received from a source into RF (radio frequency) energy capable of being radiated) used or intended to be used in a station authorized in any of the Personal Radio Services must comply. This section also provides requirements for obtaining certification for such transmitters. The Personal Radio Services are the GMRS (General Mobile Radio Service)—subpart A, the Family Radio Service (FRS)—subpart B, the R/C (Radio Control Radio Service)—subpart C, the CB (Citizens Band Radio Service)—subpart D, the Low Power Radio Service (LPRS)—subpart G, the Wireless Medical Telemetry Service (WMTS)—subpart H, the Medical Device Radiocommunication Service (MedRadio)—subpart I, the Multi-Use Radio Service (MURS)—subpart J, Dedicated Short-Range Communications Service On-Board Units (DSRCS–OBUs)—subpart L, and the 76–81 GHz Radar Service—subpart M.

■ 17. Section 95.603 is amended by adding paragraph (i) to read as follows:

§ 95.603 Certification required.

* * * * *

(i) Each 76–81 GHz Radar Service transmitter must be certified.

■ 18. Section 95.605 is revised to read as follows:

§ 95.605 Certification procedures.

Any entity may request certification for its transmitter when the transmitter is used in the GMRS, FRS, R/C, CB, 218–219 MHz Service, LPRS, MURS, or MedRadio Service following the procedures in part 2 of this chapter. Dedicated Short-Range Communications Service On-Board Units (DSRCS–OBUs) must be certified in accordance with subpart L of this part and subpart J of part 2 of this chapter. 76–81 GHz Radar Service transmitters must be certified in accordance with subpart M of this part and subpart J of part 2 of this chapter.

■ 19. Add § 95.624 to read as follows:

§ 95.624 76–81 GHz Radar Service frequencies.

Transmitters in the 76–81 GHz Radar Service may operate within the 76–81 GHz frequency band. Specific frequency and bandwidth limitations are specified in subpart M of this part.

■ 20. Section 95.631 is amended by adding paragraph (l) to read as follows:

§ 95.631 Emission types.

* * * * *

(l) The 76–81 GHz Radar Service is governed under subpart M of this part.

■ 21. Section 95.633 is amended by adding paragraph (h) to read as follows:

§ 95.633 Emission bandwidth.

* * * * *

(h) The 76–81 GHz Radar Service is governed under subpart M of this part.

■ 22. Section 95.635 is amended by revising the introductory text and table of paragraph (b) and adding paragraph (g) to read as follows:

§ 95.635 Unwanted radiation.

* * * * *

(b) The power of each unwanted emission shall be less than TP as specified in the applicable paragraphs listed in the following table:

Transmitter	Emission type	Applicable paragraphs (b)
GMRS	A1D, A3E, F1D, G1D, F3E, G3E with filtering	(1), (3), (7).
	A1D, A3E, F1D, G1D, F3E, G3E without filtering	(5), (6), (7).
	H1D, J1D, R1D, H3E, J3E, R3E	(2), (4), (7).
FRS	F3E with filtering	(1), (3), (7).
R/C:		
27 MHz	As specified in § 95.631(b)	(1), (3), (7).
72–76 MHz	As specified in § 95.631(b)	(1), (3), (7), (10), (11), (12).
CB	A1D, A3E	(1), (3), (8), (9).
	H1D, J1D, R1D, H3E, J3E, R3E	(2), (4), (8), (9).
	A1D, A3E type accepted before September 10, 1976	(1), (3), (7).
	H1D, J1D, R1D, H3E, J3E, R3E type accepted before September 10, 1986.	(2), (4), (7).
LPRS	As specified in paragraph (c).	
MedRadio	As specified in paragraph (d).	
DSRCS–OBU	As specified in paragraph (f) of this section.	
76–81 GHz Radar Service	As specified in paragraph (g) of this section.	

■ 23. Section 95.637 is amended by adding paragraph (g) to read as follows:

§ 95.637 Modulation standard.

* * * * *

(g) The 76–81 GHz Radar Service is governed under subpart M of this part.

■ 24. Section 95.639 is amended by adding paragraph (j) to read as follows:

§ 95.639 Maximum transmitter power.

* * * * *

(j) The 76–81 GHz Radar Service is governed under subpart M of this part.

■ 25. Add § 95.641 under the undesignated center heading **TECHNICAL STANDARDS** to read as follows:

§ 95.641 76–81 GHz Radar Service certification.

Sections 95.643 through 95.655 do not apply to certification of vehicular radar devices and fixed radar devices operating in the 76–81 GHz Band Radar Service. These devices must be certified in accordance with subpart M of this part and subpart J of part 2 of this chapter.

■ 26. Appendix 1 to Subpart E of part 95—Glossary of Terms is amended by adding the definition of ''Field disturbance sensor'' in alphabetical order to read as follows:

Appendix 1 to Subpart E of Part 95—Glossary of Terms

* * * * *

Field disturbance sensor. A device that establishes a radio frequency field in its vicinity and detects changes in that field resulting from the movement of persons or objects within its range.

* * * * *

■ 27. Add Subpart M to part 95 to read as follows:

Subpart M—The 76–81 GHz Band Radar Service

Sec.

§ 95.1601 Scope.

This subpart sets out the regulations governing the operation of vehicular and fixed radars operating within the band 76.0–81 GHz. The following uses are permitted:

In the 76–81 GHz band: vehicle-mounted field disturbance sensors used as vehicular radar systems; and mobile and fixed radar systems used at airport locations for foreign object debris detection on runways and for monitoring aircraft and service vehicles on taxiways and other airport vehicle service areas that have no public vehicle access. In the 76–77 GHz band: Fixed radars (other than the type described above), and radars that are mounted on aircraft and that are operated only while the aircraft is on the ground.

§ 95.1603 Permissible communications.

The transmission of data is permitted provided the primary mode of operation is as a field disturbance sensor. Voice and video transmissions are prohibited.

§ 95.1605 Station identification.

A station is not required to transmit a station identification announcement.

§ 95.1607 Station inspection.

All 76–81 GHz Band Radar Service equipment must be made available for inspection upon request by an authorized FCC representative.

§ 95.1609 Authorized locations.

The operation of a 76–81 GHz Band Radar Service transmitter under this part is authorized anywhere CB station operation is permitted under § 95.405 of this part.

§ 95.1611 Information to user.

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

§ 95.1613 Frequency use policy.

(a) The frequencies authorized to 76–81 GHz Band Radar Service systems by this part are available on a shared basis only and will not be assigned for the exclusive use of any entity. Users should select and use frequencies in a manner that mitigates the risk of potential interference between authorized services.

§ 95.1615 Technical requirements.

(a) The fundamental radiated emission limits within the band 76–81 GHz provided in this section are expressed in terms of Equivalent Isotropic Radiated Power (EIRP) and are as follows:

(1) The maximum power (EIRP) within the bands specified in this section shall not exceed 50 dBm based on measurements employing a power averaging detector with a 1 MHz RBW.

(2) The maximum peak power (EIRP) within the bands specified in this section shall not exceed 55 dBm based on measurements employing a peak detector with a 1 MHz RBW.

(b) The unwanted emissions outside the operating band, 76–81 GHz, shall consist solely of spurious emissions and shall not exceed the following:

(1) Radiated emissions below 40 GHz shall not exceed the field strength as shown in the following emission table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88–216	150	3
216–960	200	3
Above 960	500	3

(i) In the emission table in paragraph (b)(1) of this section, the tighter limit applies at the band edges.

(ii) The limits in the table in paragraph (b)(1) of this section are based on the frequency of the unwanted emission and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.

(iii) The emission limits shown in the table in paragraph (b)(1) of this section are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9.0–90.0 kHz, 110.0–

490.0 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector with a 1 MHz RBW.

(2) The power density of radiated emissions outside the operating band above 40.0 GHz shall not exceed the following employing an average detector with a 1 MHz RBW:

(i) For radiated emissions between 40 and 200 GHz from field disturbance sensors and radar systems operating in the band 76–81 GHz: 600 pW/cm^2 at a distance of 3 meters from the exterior surface of the radiating structure.

(ii) For radiated emissions above 200 GHz from field disturbance sensors and radar systems operating in the 76–81 GHz band: 1000 pW/cm^2 at a distance of 3 meters from the exterior surface of the radiating structure.

(3) For field disturbance sensors and radar systems operating in the 76–81 GHz band, the spectrum shall be investigated up to 231.0 GHz.

(c) Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range −20 to +50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

§ 95.1617 RF safety.

Regardless of the power density levels permitted under this subpart, devices operating under the provisions of this subpart are subject to the radiofrequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

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DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

49 CFR Chapter III

[Docket No. FMCSA–2007–27748]

Minimum Training Requirements for Entry-Level Drivers of Commercial Motor Vehicles: Negotiated Rulemaking Committee Meetings

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice of advisory committee public meetings.

SUMMARY: FMCSA announces the meeting schedule for the Entry-Level Driver Training Advisory Committee (ELDTAC), established to complete a negotiated rulemaking on Entry-Level Driver Training (ELDT) for individuals who want to operate Commercial Motor Vehicles (CMVs). ELDTAC is a negotiated rulemaking committee established to develop a Notice of Proposed Rulemaking (NPRM) to implement section 32304 of the Moving Ahead for Progress in the 21st Century (MAP–21) concerning ELDT standards for individuals applying for a commercial driver's license (CDL) or CDL upgrade. The meetings will be held Thursday–Friday, March 19–20, April 9–10 and 23–24, and May 14–15 and 28–29, 2015. The meetings are open to the public for their entirety.

DATES: The meetings will be held Thursday–Friday, March 19–20, April 9–10 and 23–24, and May 14–15 and 28–29, 2015, from 9 a.m. to 4:30 p.m., Eastern Daylight Time (E.T.), on Thursdays and 9 a.m. to 3 p.m., E.T., on Fridays at various locations in Washington, DC, and Arlington, VA. Specific locations and an agenda for each meeting will be posted in advance of the meetings at *http://www.fmcsa.dot.gov/eldtac.*

FOR FURTHER INFORMATION CONTACT: Ms. Shannon L. Watson, Senior Policy Advisor, Federal Motor Carrier Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue SE., Washington, DC 20590, (202) 366–2551, *eldtac@dot.gov.*

Services for Individuals With Disabilities: For information on facilities or services for individuals with disabilities or to request special assistance at the meeting, contact Eran Segev at (617) 494–3174, *eran.segev@dot.gov,* one week prior to each meeting.

SUPPLEMENTARY INFORMATION:

I. Background

Entry-Level Driver Training

Section 32304 of the Moving Ahead for Progress in the 21st Century (MAP–21) (Pub. L. 112–141, 126 Stat. 405 (July 6, 2012)) requires FMCSA to establish new regulations concerning ELDT. MAP–21 requires ''that the training regulations address knowledge and skills for motor vehicle operation, specific requirements for hazmat and passenger endorsements, create a certificate system for meeting requirements, and require training providers to demonstrate that their training meets uniform standards.'' The new requirements would apply to individuals seeking a CDL to operate CMVs, as defined in 49 CFR 383.5.

On August 19, 2014 (79 FR 49044), FMCSA announced that the Agency would explore the feasibility of conducting a negotiated rulemaking concerning entry-level driver training for drivers of CMVs. The Agency announced the hiring of a convener to speak with interested parties about the feasibility of conducting an ELDT negotiated rulemaking and requested public comments by September 18, 2014. As part of the first step in this process, the convener conducted these interviews and submitted a report to the Agency on November 26, 2014, regarding the feasibility of conducting a negotiated rulemaking. The convening report is available both in the rulemaking docket at FMCSA–2007–27748 and on the Internet at *eldtac.fmcsa.dot.gov.*

On December 10, 2014 (79 FR 73273), FMCSA announced its intent to establish a negotiated rulemaking committee to negotiate and develop proposed regulations to implement the MAP–21 provision concerning ELDT based on the recommendations of the convener. On February 12, 2015 (80 FR 7814), FMCSA announced the appointment of members to the Entry-Level Driver Training Advisory Committee (ELDTAC) established to complete a negotiated rulemaking on ELDT for individuals who want to operate CMVs.

ELDTAC

The ELDTAC is established by charter in accordance with the Federal Advisory committee Act (FACA), 5 U.S.C., App. 2. Transportation Secretary Anthony Foxx signed the ELDTAC charter on January 15, 2015, which provides up to 2 years for the Committee's duration, in accordance with section 14 of FACA. Additionally, as the ELDTAC is a negotiated rulemaking committee (''Reg Neg''), it