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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 15

[ET Docket No. 13-49; FCC 16-24]

Unlicensed – National Information Infrastructure, Order on Reconsideration

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document responds to seven petitions for reconsideration of certain rules adopted in the First Report and Order (First R&O) in this proceeding, the Commission amends its Part 15 rules governing the operation of unlicensed National Information Infrastructure (U-NII) devices in the 5 GHz band. These rule changes are intended to make broadband technologies more widely available for consumers and businesses by temporarily increasing the in-band power limits and permanently increasing the out-of-band power limits for certain U-NII-3 band devices. The Commission also takes steps to maintain certain levels of interference protection for other authorized operations within the 5 GHz band.

DATES: Effective [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

FOR FURTHER INFORMATION CONTACT: Aole Wilkins, Office of Engineering and Technology, (202) 418-2406, e-mail: Aole.Wilkins@fcc.gov, TTY (202) 418-2989.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Memorandum Opinion & Order (MO&O), ET Docket No. 13-49, FCC 16-24, adopted March 1, 2015, and released March 2, 2016. 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. The full text may also be downloaded at: www.fcc.gov. People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Summary of Memorandum Opinion and Order

A. U-NII-3 Band Proposals for Changes to the First R&O

1. Prior to adoption of the First R&O, the FCC's rules permitted the certification of devices that operate in the 5.725-5.85 GHz (U-NII-3) band under two different rule sections (*i.e.* Sections 15.247 and 15.407). In some instances, and especially for devices that operate in point-to-point configurations with high gain antennas, the old Section 15.247 out-of-band emission (OOBE) limits were as much as 47 dB more permissive than the Section 15.407 OOBE limits and, therefore devices certified under the old limits were significantly more likely to create harmful interference to other operations. In the First R&O, the Commission adopted a consolidated set of rules for the 5.725-5.85 GHz band devices under the Section 15.407 U-NII rules to resolve interference issues to Terminal Doppler Weather Radar (TDWR) and other radar facilities in the adjacent band. In the First R&O, the Commission recognized that point-to-point systems utilizing high gain transmit antennas certified under the old Section 15.247 requirement may have to be modified to comply with the lower OOBE limit required for operation under Section 15.407. The Commission stated that manufacturers had the flexibility to determine how they should meet the lower OOBE limits, whether by reducing output power, decreasing the transmit antenna gain, or utilizing improved bandpass filters.

2. In response to the First R&O, the Commission received several petitions for reconsideration of its decision. Petitioners, mainly manufacturers and operators of high gain

point-to-point communication systems, ask that the Commission's decision to impose more restrictive OOB limits for devices in the U-NII-3 band should either be reversed or modified. The petitions express concerns regarding increased equipment costs, sustainability of existing service, and diminished performance of devices in the band. The petitioners' state that the limits adopted in the First R&O will prevent remote communities from receiving access to critical services and will render required upgrades costly and unobtainable. Numerous comments were filed in general support of the petitions requesting modification of the new OOB limits.

3. Consensus Certification Proposal. This approach proposed multiple equipment certification requirements for point-to-point equipment intended to reduce the probability of harmful interference while minimizing burdens on manufacturers and users. Under this approach, users would verify that a device's location and transmission direction would not cause interference with TDWRs; allow equipment that supports dynamic frequency selection (DFS) in the U-NII-2C band to automatically allow increased emissions from the U-NII-3 band in frequency ranges where no radars are detected; and create a 5 km radius exclusion zone around each TDWR and prohibit the peak of a transmitter's antenna beam from intersecting with such exclusion zones.

4. Ubiquiti Proposal. Under this approach, for transmitters operating in the 5.725-5.85 GHz band, all out-of-band emissions be limited to a level of -27 dBm/MHz at 75 MHz beyond the band edge, increasing linearly to 10 dBm/MHz at 25 MHz beyond the band edge, and from 25 MHz beyond the band edge, increasing linearly to a level of 17 dBm/MHz at the band edge.

5. Joint Emissions Proposal. This approach closely resembled the Ubiquiti proposal, but would provide further relief from the OOB limits in the 5 MHz closest to the band edge by allowing emissions to increase linearly to a maximum level of 27 dBm/MHz.

6. Broadcom Proposal. This approach mimics the Ubiquiti and the Joint Emissions Proposals, but would roll off emissions to -17 dBm/MHz at 75 MHz beyond the band edge.

Broadcom believes the change is necessary because of an artifact that occurs outside of the in-band wanted emissions in certain of their current model chips. These spurious emissions are unintentional artifacts in the design of their current chipsets and did not create a compliance issue until the UNII rules were modified in 2014. Broadcom asserts that the mask can be modified to accommodate their circumstance while continuing to provide the same level of interference protection to TDWRs.

7. The Commission believes that the Joint Emissions Proposal best addresses the need for amended rules in the U-NII-3 band. It recognizes that, without further accommodation, point-to-point systems that utilize high gain transmit antennas with full permissible output power may not readily be able to comply with the OOB limit adopted in the First R&O. Based on the record, in order for today's systems to suppress emissions to the degree required by the existing OOB limits, they would require prohibitively expensive equipment modifications which would add an undue amount of weight to the devices. The Commission believes that the rules we are adopting here will allow point-to-point systems to operate, while avoiding harmful out of band interference, without excessive difficulty or cost. Unlike the Consensus Certification Proposal, which would apply different OOB requirements based on a variety of situations, including the location of each installation relative to TDWRs, the approach adopted here will provide a single, consistent OOB requirement for all equipment. Also unlike the Consensus Certification Proposal, the chosen approach will also avoid the need for onerous oversight by the Commission and it will, ultimately, better protect TDWRs against harmful interference because it is simpler to administer and enforce at the certification level. The Commission does not believe that Broadcom's difficulty in meeting the new limits for its current product is sufficient reason to further relax the OOB limits. Instead, the Commission provides relief to all manufacturers by allowing some extra time to certify and to bring newly compliant devices into the marketplace.

8. As demonstrated in Ubiquiti's ex parte presentation, the proposed emission limits closely reflect the emissions mask seen in devices that are currently being sold, and thus the

manufacturers may have a reduced need to undergo extensive redesigns to their equipment. Additionally, this revision should provide relief for wireless Internet service providers (WISPSs) and operators of long range point-to-point U-NII-3 equipment by reducing the need to redesign their networks because manufacturers will be able to use the rules adopted herein to design equipment that achieves link distances comparable to what they were able to achieve with the old rules. The Commission therefore adds new language for Section 15.407 (b)(4) that would provide relief from the OOB limits adopted in the First R&O by permitting emissions to roll off linearly from 27 dBm/MHz at the band edge to a level of 15.6 dBm/MHz at 5 MHz from the band edge, then decreasing linearly to 10 dBm / MHz at 25 MHz from the band edge and continue to decrease linearly to a level of - 27 dBm / MHz at all frequencies more than 75 MHz from band edge. The Commission adopts additional provisions in the first 5 MHz outside of the band edge because manufacturers have sufficiently demonstrated their inability to suppress their emissions to meet the Ubiquiti Proposal mask within this region. This approach will offer the needed relief to manufacturers, but will still provide a level of interference protection to adjacent band services that is greater than that provided in Section 15.247. This approach offers relief for users and manufacturers by relaxing the OOB roll-off requirement outside of the TDWR band while maintaining the same level of interference protection within the TDWR band as specified under the rules the Commission adopted in the First R&O.

B. Association of Global Automakers Petition

9. Dedicated Short Range Communications (DSRC) Systems are designed to operate under the FCC provisions for the Intelligent Transportation Systems (ITS) radio service in the 5.85-5.925 GHz band. Prior to the adoption of the First R&O, unlicensed devices were permitted in the adjacent 5.725-5.85 GHz band under two different rules, Sections 15.247 and 15.407. The Commission, in the First R&O, consolidated the rules for devices operating in the 5.725-5.85 GHz band and imposed the more stringent Section 15.407 OOB limits, which provide more protection from interference to adjacent band incumbent spectrum users.

10. In its petition for reconsideration, the Association of Global Automakers, Inc. (Global) requests that the Commission suspend or reverse key decisions made in the First R&O because it failed to explain how its decision to allow additional, higher-powered, unlicensed U-NII devices to operate in the 5 GHz band would not cause harmful interference to previously-authorized DSRC operations. It claims that substantial evidence suggests that harmful interference will likely result to DSRC operations from expanded “high power Wi-Fi” operations in the 5 GHz band. Global further states that the FCC should explain what steps the agency will take to protect DSRC operations against that harmful interference; the Commission should adopt procedures that will swiftly and effectively resolve any harmful interference that may subsequently occur to DSRC from U-NII devices; and if the FCC expects that there will be some level of interference between these adjacent-band operations, the FCC should clarify what level of interference will be acceptable and what course of action will be available to DSRC operators to protect their networks from unacceptable levels of interference. The majority of parties that responded to Global’s petition were opposed to reversing the decisions that the Commission made in the First R&O regarding the U-NII-3 band.

11. The Commission rejects Global’s Request and declines to reverse or suspend its decision to consolidate the rules for unlicensed devices operating in the 5.725-5.85 GHz band under one rule section. The Commission finds that DSRC systems will receive greater interference protection under the emission mask adopted in this MO&O than was provided under the old rules. In the First R&O the Commission explained that higher powered operations in the 5.725- 5.85 GHz band are already permitted to operate under Section 15.247, and that adopting more stringent limits for the newly modified Section 15.407 rules would reduce the OOB from each U-NII-3 device and, in turn, should reduce the aggregate emissions from these devices. Therefore, the decisions made in the First R&O with respect to U-NII-3 did not result in an expansion of use but, instead, provided increased protection for systems operating in the adjacent bands, such as DSRC systems and TDWRs. Even with the slight relaxation of the U-NII-3

OOBE limit that are being adopted in this MO&O, the allowed emissions from U-NII devices into the DSRC band will still be held to a lower limit than what was permitted by Section 15.247 prior to the adoption of the First R&O. This in turn will result in less potential interference to ITS operating in the adjacent band because the per device and aggregate emissions in the band will be reduced. Additionally, the Commission believes the additional level of protection afforded to DSRC systems is sufficient because, unlike the TDWR, the DSRC systems were not experiencing interference problems previously. Given that the new rules increase protections for the ITS systems, the Commission does not consider additional protections from adjacent band signals to be necessary.

C. EchoStar Proposal

12. Prior to adoption of the First R&O, the 5.15-5.25 GHz (U-NII-1) band had a very low peak transmitter conducted output power limit of 50 mW, and U-NII operations were restricted to indoor only operations. In the First R&O, the Commission adopted rules to remove the indoor-only restriction and increased the permitted power for these devices in order to increase the utility of the U- NII-1 band and to accommodate the next generation of Wi-Fi technology. Specifically, under the new rules all client devices in the U-NII-1 band may now operate at conducted power levels up to 250 mW without distinction as to whether devices are located indoors or outdoors. The new rules permit Access Points to operate in the U-NII-1 band at conducted power levels up to 1 Watt if they use antennas that limit gain in the upward direction, or if they are located indoors. Client devices are permitted to operate in the U-NII-1 band without limiting the antenna gain in the vertical direction because they typically represent mobile or portable devices, such as handsets, laptops, and tablets. These devices are not typically installed in permanent outdoor locations, and due to their mobile nature the antenna gain in any particular direction cannot be guaranteed. Finally, many client devices incorporate power control features that encourage the device to use as little power as necessary to establish and maintain the communications link. In consideration of all of these factors, the Commission anticipated a

negligible interference potential associated with client devices that operate as described and, as a result, determined that the antenna requirements described above for access points were not necessary for client devices.

13. EchoStar (ETC) argues that the First R&O is unclear regarding the power limit applicable to its set-top boxes that serve as client devices for indoor wireless access points and operate in the U-NII-1 band (5.15-5.25 GHz). ETC further asks the Commission to permit such set-top boxes to operate at the maximum power level afforded under new Section 15.407(a)(1)(ii) (i.e., 1 Watt). ETC states that it has integrated Wi-Fi technologies into its set-top boxes and systems to facilitate the distribution of programming within a customer location, at faster speeds than those achievable via in-home cable connections. By including an access point as part of the customer's installation, the system effectively creates a private Wi-Fi network in the home. ETC claims that it is essential that they be permitted to operate at the same maximum power levels that Part 15 affords to facilitate access points and other indoor devices that operate in an entirely stationary mode.

14. ETC stated in its petition that while these devices are not usually attached to anything physically, the box can only operate while sitting still and, generally cannot be moved throughout the home without risking a degradation or loss of video service. As such, the box is functionally identical to an indoor access point, and therefore, the interference considerations are the same for both. Thus, ETC claims there is no reason not to permit both types of devices to transmit at a maximum power level of 1 Watt when operating in the U-NII-1 band. Several parties supported ETC's request for a clarification of the rules.

15. The Commission clarifies that in the First R&O it adopted a power limit of 250 mW for all client devices, regardless of whether they are fixed, mobile, or portable. While the Commission noted that client devices are "typically mobile or portable," it also made clear that the new 250 mW power limit applies to "any client device which operates under control of an access point." To avoid further confusion, the Commission on reconsideration modifies Section

15.407(a)(1)(iv) by deleting the words “mobile and portable”.

16. In response to ETC’s recommendation to adopt rules that allow U-NII-1 band indoor set-top boxes or any other type of client devices to operate at 1 Watt, the same power levels as U-NII-1 band access points, the Commission declines to do so. As a point of clarification, the Commission has allowed set-top boxes that serve as access points to operate up to 1 Watt based on the rationale that access points generally remain in one location. However, it has treated client devices as subject to the 250 mW limit because it is generally more difficult to control the location and use of these devices (i.e., client devices can be used outdoors). Some commenters have suggested that a possible point of distinction between fixed and mobile client devices could be the need for AC power. The Commission notes, however, that many mobile devices can operate from AC power as an alternative to battery power. While it understands from Echostar’s petition that their particular set-top box is not designed to be moved throughout the home, the Commission is not convinced that this can be ensured on a general basis for all “fixed” client devices and there is no reliable way to determine whether or not a client device will be positioned indoors or outdoors.

17. It is unclear from Echostar’s petition that its set top box qualifies as an access point and therefore would be permitted to operate at 1 W. This will depend on the specific characteristics of the device as presented through the equipment authorization process. Echostar and any other entity can, therefore, seek approval, at the time it files for equipment authorization, for a set-top box or other such device to operate up to 1 Watt by making a showing that it serves as an access point. However, the Commission is not convinced of the need to increase the in-band power levels for set-top boxes, and if consumers desire to increase the range between the access point and the set-top boxes, repeaters are widely available at commercially reasonable prices for this purpose. The Commission concludes that 250 mW is adequate for most client device installations. For the aforementioned reasons, the Commission will continue to limit client devices in the U-NII-1 band to operating at conducted power levels up to 250 mW with a

maximum PSD level of 11dBm/MHz using a transmit antenna with a maximum gain of 6 dBi. It continues to impose this limit on client devices, and without distinction as to whether devices are located indoors or outdoors.

D. Proposals to Increase OOB in Restricted Bands 5.091-5.15 GHz

18. Section 15.205 identifies a number of restricted bands in which low power, non-licensed transmitters are not allowed to place any portion of their fundamental emission because of potential interference to sensitive radio communications such as commercial aviation communications and navigation, radio astronomy, search and rescue operations, and other critical government radio services. Additionally, unwanted emissions from non-licensed transmitters that fall into restricted bands must comply with the general radiated emission limits in Section 15.209. The 5.091-5.15 GHz band falls within the larger 4.5-5.15 GHz restricted band, as specified in Section 15.205(a).

19. The 5.091-5.15 GHz band is allocated to the Aeronautical Mobile Service (AMS) on a primary basis for Federal and non-Federal use, including aeronautical fixed communications; Aeronautical Mobile Telemetry (AMT), restricted to 52 designated flight test areas and additional locations authorized for flight testing on a case-by-case basis; and the Fixed Satellite Service (FSS) limited to feeder links for non-geostationary orbit (NGSO) satellite systems in the Mobile Satellite Service (MSS).

20. The Wireless Internet Service Provider Association (WISPA) et al. supports relaxing the Section 15.205 provisions between 5.091 GHz and 5.15 GHz by 1dB for every dB that the antenna gain exceeds 6 dBi, provided that the antenna is oriented at 30 degrees or less above the horizon. Fastback proposes to change the restricted band at 4.5-5.15 GHz to end at 5.091 GHz, thus allowing higher out of band emissions (up to -17 dBm/MHz) from U-NII-1 devices into the 5.091-5.15 GHz portion. It states that adopting its proposed recommendations would enable an increase in EIRP for U-NII-1 point-to-point links, corresponding to an increased communication range of two hundred and fifty percent.

21. The Commission declines to increase the allowable emissions from U-NII band devices into the restricted band below 5.15 GHz. The restricted bands were created to protect radio communications services that are sensitive to interference and that provide critical benefits to public safety and national security. WISPA and Fastback have not offered any analysis showing that increasing the emissions limit in this restricted band would not create an unacceptable risk of interference in the restricted band. Moreover, to the extent that WISPA and Fastback make their proposals in order to increase the utilization of the U-NII-1 band, the Commission observes that its other rule revisions adopted in this order accomplish this purpose, by removing the restriction to indoor operation and increasing the permitted power level for U-NII-1 devices. The emission limits into the adjacent restricted band from U-NII-1 devices may not provide all of the benefits that some equipment suppliers desire, and some equipment manufacturers may find that they need to reduce power below the level permitted under the rules in order to achieve compliance with the OOB limit below 5.15 GHz. However, the removal of the indoor restriction and the increase in power permitted in the 5.15 – 5.25 GHz band provide greater opportunities than were available before. Other parts of the 5 GHz band can accommodate higher powered operation where it may not be possible to achieve the desired power level and compliance with the OOB limit at 5.15 – 5.25 GHz.

E. Proposals to Extend the Transition Period

22. The Commission adopted rules requiring that, 12 months after the effective date of the First R&O (June 2, 2015), applications for certification of 5 GHz devices must meet the new and modified rules. Additionally, the Commission required that the manufacture, marketing, sale and importation into the United States of devices that did not meet the new or modified rules must cease two years after the effective date of the rules adopted in the First R&O (June 2, 2016). While the Commission was sympathetic to the arguments of commenters that the more restrictive unwanted emission limits for digital modulation devices may present design challenges for some manufacturers, the Commission ultimately found that it was in the public interest to implement

the changes as soon as possible to eliminate the potential of harmful interference to TDWRs.

23. Motorola Solutions, Inc. (MSI) asks that the Commission reconsider its requirement that the manufacture, marketing, sale and importation into the United States of digitally modulated and hybrid devices certified under Section 15.247 cease operating in the 5.725- 5.850 GHz U- NII-3 band two years after the effective date of the First R&O. MSI estimates that almost all of its nearly 200 enterprise WLAN products and access points will require reengineering to comply with the more stringent OOB requirements and believes this undertaking cannot be completed in two years. MSI recommends a five-year transition, but they believe it is unnecessary and arbitrary to impose any time limit on the continued sale of pre-approved devices, as the new certification obligations adopted by the Commission will facilitate a prompt transition on their own. Similarly, Cambium requests that the one-year and two-year deadlines be extended to three years for equipment not yet certified and the two-year deadline be eliminated for product models certified under the old rules. They claim that this will allow manufacturers a reasonable timeframe to address design issues with meeting new requirements.

24. Cisco raises no objection to a short extension of the transition deadlines if manufacturers can make a compelling case that it is not possible to redesign and re-certify equipment with a reasonable effort, but given the central role U-NII-3 equipment has played in causing interference to TDWR, any extension that delays the introduction of enhanced security features should be as brief as possible. MSI clarifies that its petition was not intended to extend the deadline for introduction of enhanced security features to previously certified devices, but to limit the period of time in which equipment previously certified under the legacy rules could continue to be manufactured and marketed. Broadcom claims that enterprise and home router devices that use its chipsets, which are generally operated indoors using a lower gain antenna, have less potential to cause interference than the point-to-point systems operating outdoors that are using high-gain antennas that prompted the industry emission limits proposal adopted in this proceeding. Broadcom states that although it would be able to meet the emission limits we

adopted above, it would need more time to bring their devices into compliance.

25. The Commission modifies the dates by which the certification, manufacture, marketing, sale and importation into the United States of U-NII-3 band devices that do not meet the modified emission limits adopted in this Memorandum Opinion and Order must cease. The Commission modifies Section 15.407(b)(4) to permit manufacturers of devices certified before March 2, 2017 with antenna gain greater than 10 dBi to demonstrate compliance with the emission limits in Section 15.247(d), but manufacturing, marketing, sale and importing of devices certified under this alternative must cease by March 2, 2018. The Commission further modify Section 15.407(b)(4) to permit manufacturers of devices certified before March 2, 2018 with an antenna gain of 10 dBi or less to demonstrate compliance with the emission limits in Section 15.247(d), but manufacturing, marketing, sale and importing of devices certified under this alternative must cease before March 2, 2020. The Commission has already issued two orders that have provided a 10-month extension that permitted manufacturers to continue to certify devices under the old rules until March 2, 2016. Here, the Commission does not further extend the transition provisions in Section 15.37(h) allowing certification and marketing under the old rules, but rather implement a phased implementation of only the out-of-band limits in Section 15.407.

26. The Commission understands Cisco's concerns and agrees that manufacturers should be granted an extension of time only if they cannot comply with the modified rules with reasonable effort and that the time extension should not be indefinite. The Commission recognizes that during the years leading up to the rule change, the industry had made a significant investment in the research, design, and development of new product lines. The Commission also recognizes that manufacturers have made a significant effort to design compliant equipment but are not able to reasonably suppress their OOBes without significantly reducing the in-band power and thereby reducing the range of their devices. The majority of products that are effected, operate with relatively low power and employ antenna gains of less than 10dBi. The Commission understands that the typical design cycle for enterprise and home routers can last two to three

years and that there is no simple solution for manufacturers to swiftly redesign compliant products before the transition period deadlines. Therefore, the Commission will provide a slightly longer transition period for devices that operate a 10 dBi or lower antenna. The Commission notes that these devices tend to present a lower risk of harmful interference because they are typically lower powered and are installed indoor. The Commission recognizes that in theory, harmful interference could occur from an enterprise or home access point, however it has not observed this in practice. In practice, harmful interference to the TDWR was typically caused by long-range devices that were unlawfully modified and typically operated with antenna gains of 15 dBi and above. The devices that employ higher gain antennas are typically operated by service providers for the purposes of wireless back haul and are installed in outdoor environments. The Commission therefore concludes that in the case of devices that employ an antenna with a gain of 10 dBi or less, appropriate deadlines are March 2, 2018 for certification, and March 2, 2020 as the cut-off for devices that can be imported or marketed within the United States under the old emission limits.

27. The Commission believes these extensions will give manufacturers and vendors sufficient time to come into compliance with the new emission limits. The Commission does not believe a short extension of the deadlines will represent a significant risk of harmful interference for the TDWR. The new certification and marketing deadlines apply to devices that operate in the U-NII-3 band.

28. The Commission notes that the ultimate purpose of the transition date is to expediently reduce the threat of harmful interference to the TDWR and other radar facilities from devices on the market that were easily and unlawfully modified. However, the Commission recognizes that manufacturers will need additional time to design new product lines that comply with the new rules. Extending the emission limit deadlines will permit manufacturers to plan their research and design activities to comply with the outcome of our actions here. Permitting this extended period will provide economic relief by allowing manufacturers to continue to sell

through remaining inventory. The Commission has already provided more time than originally intended to bring these devices into compliance and no further extensions are contemplated.

PROCEDURAL MATTERS

29. Final Regulatory Flexibility Certification. The Regulatory Flexibility Act of 1980, as amended (RFA)¹ requires that a regulatory flexibility analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that “the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.”² The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”³ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁴ 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 U.S. Small Business Administration (SBA).⁵ The adopted rules pertain to manufacturers of unlicensed communications devices. The appropriate small business size standard is that which the SBA has established for 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

¹ The RFA, *see* 5 U.S.C. 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. 104-121, Title II, 110 Stat. 857 (1996).

² 5 U.S.C. 605(b).

³ 5 U.S.C. 601(6).

⁴ 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.”

⁵ 15 U.S.C. 632.

studio and broadcasting equipment.”⁶ The SBA has developed a small business size standard for firms in this category, which is: all such firms having 750 or fewer employees.⁷ 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. Of this total, 784 had fewer than 500 employees and 155 had more than 100 employees.⁸ Thus, under this size standard, the majority of firms can be considered small.

30. Pursuant to the RFA, the Commission incorporated an Initial Regulatory Flexibility Analysis (IRFA) into the Notice of Proposed Rulemaking (NPRM) in ET Docket No. 13-49.⁹ There were no public comments filed that specifically addressed the rules and policies proposed in the IRFA, and the Commission concluded in the Final Regulatory Flexibility Analysis (FRFA) in the First Report and Order (First R&O)¹⁰ that the rules adopted in the First R&O do not add substantial additional compliance burden on small businesses. For the reasons described below, the Commission now certifies that the policies and rules adopted in the present Memorandum Opinion and Order (MO&O) will not have a significant economic impact on a substantial number of small entities.

31. In the First R&O, the Commission prepared a FRFA detailing the ways in which the Commission sought to minimize the impact of the new regulations on small businesses.¹¹ The rule change adopted in this MO&O is merely a modification of the rule adopted in the First R&O that will provide relief for those entities that are required to comply with rules adopted in the First

⁶ U.S. Census Bureau, 2007 NAICS Definitions, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing”; <http://www.census.gov/naics/2007/def/ND334220.HTM#N334220>.

⁷ 13 CFR 121.201, NAICS code 334220.

⁸ http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-_skip=300&-ds_name=EC0731SG2&-_lang=en.

⁹ See Revision of Part 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band in ET Docket No. 13-40, Notice of Proposed Rulemaking, 28 FCC Rcd. 1769 (2013) (NPRM).

¹⁰ See Revision of Part 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5GHz Band, ET Docket 13-49, 29 FCC Rcd 4127 (2014) (First R&O).

¹¹ See First R&O at 4165-4168.

R&O and modified herein. Therefore, the Commission certify pursuant to the RFA that the final rule adopted in this order will not have a significant economic impact on a substantial number of small entities.¹²

32. The Commission will send a copy of the MO&O, including a copy of this final Regulatory Flexibility Certification¹³, in a report to Congress pursuant to the Congressional Review Act. In addition, the MO&O and this final certification will be sent to the Chief Counsel for Advocacy of the SBA, and will be published in the Federal Register.¹⁴

33. Paperwork Reduction Act Analysis. This document contains no new or modified information collection requirement that are subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. The Commission note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, 44 U.S.C. 3506(c)(4), the Commission previously sought specific comment on how it might further reduce the information collection burden for small business concerns with fewer than 25 employees.

34. Congressional Review Act. The Commission will send a copy of this Memorandum Opinion and Order in a report to Congress and the Government Accountability Office pursuant to the Congressional Review Act, 5 U.S.C. 801(a)(1)(A).

ORDERING CLAUSES

35. Pursuant to Sections 4(i), 301, 302, 303(e), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 301, 302a, 303(e), 303(f), 303(g), and 303(r), this Memorandum Opinion and Order IS ADOPTED and Part 15 of the Commission's Rules, 47 CFR. Part 15, IS AMENDED. The revisions will be effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]** of this Memorandum Opinion and Order.

¹² See 5 U.S.C. 605 (b).

¹³ See 5 U.S.C. 801(a)(1)(A).

¹⁴ See 5 U.S.C. 605(b).

36. Pursuant to Sections 4(i), 302, 303(e) 303(f), 303(g), 303(r), and 405 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 302, 303(e), 303(f), 303(g), 303(r), and 405, the petitions for reconsideration addressed ARE GRANTED, to the extent indicated above, and otherwise ARE DENIED.

37. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Memorandum Opinion and Order, including the Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Part 15

Communications equipment.

FEDERAL COMMUNICATIONS COMMISSION.

Marlene H. Dortch,
Secretary.

Final Rules

For the reasons discussed in the preamble the Federal Communications Commission amends 47 CFR Part 15 as follows:

PART 15 – RADIO FREQUENCY DEVICES

1. 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.

2. Section 15.407 is amended by revising paragraphs (a)(1)(iv) and (b)(4) to read as follows:

§ 15.407 General technical requirements.

(a) * * *

(1) * * *

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

* * * * *

(b) * * *

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the

band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

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