



**FEDERAL COMMUNICATIONS COMMISSION**

**47 CFR Part 15**

**[ET Docket No. 10-97; FCC 12-33]**

**Unlicensed Personal Communications Service Devices in the 1920-1930 MHz Band**

**AGENCY:** Federal Communications Commission.

**ACTION:** Final rule.

**SUMMARY:** This document modifies the rules governing the operation of Unlicensed Personal Communications Service (UPCS) devices in the 1920-1930 MHz band (UPCS band) to promote more efficient use of the UPCS band and to facilitate the introduction of a new generation of unlicensed devices capable of supporting broadband connectivity using Digital Enhanced Cordless Telecommunications (DECT) technology.

**DATES:** Effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The incorporation by reference listed in the rule is approved by the Director of the Federal Register as of **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

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**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's Report and Order, ET Docket No. 10-97, adopted March 22, 2012, and released March 23, 2012, FCC 12-33. The full text of this document is available on the Commission's Internet site at [www.fcc.gov](http://www.fcc.gov). It is also available for inspection and copying during regular business hours in the

FCC Reference Center (Room CY-A257), 445 12<sup>th</sup> Street, SW, Washington, DC 20554. The full text of this document also may be purchased from the Commission's duplication contractor, Best Copy and Printing Inc., Portals II, 445 12<sup>th</sup> St., SW, Room CY-B402, Washington, DC 20554; telephone (202) 488-5300; fax (202) 488-5563; e-mail FCC@BCPIWEB.COM.

### **Summary of the Report and Order**

1. The Report and Order modifies part 15 of the rules governing the operation of Unlicensed Personal Communications Service (UPCS) devices in the 1920-1930 MHz band (UPCS band) to promote more efficient use of the UPCS band and to facilitate the introduction of a new generation of unlicensed devices capable of supporting broadband connectivity using Digital Enhanced Cordless Telecommunications (DECT) technology. Specifically, the Commission eliminated the least-interfered channel monitoring threshold for UPCS devices and reduced the number of duplex system access channels that a UPCS device must define and monitor from 40 to 20 channels in order to use the least-interfered channel access method. These changes will provide UPCS devices, particularly those designed to transmit with wider bandwidths but that define fewer than 40 channels, access to more usable channels (*i.e.*, combined time and spectrum windows) than are permitted under the existing rules, and unleash innovative cordless broadband technologies in the UPCS band, while limiting the potential for causing interference to other devices. The Commission also modified the rules to remove outdated provisions and to make other minor updates.

### **BACKGROUND**

2. The 1920-1930 MHz band is allocated to Fixed and Mobile services on a primary basis and is designated for use by UPCS devices on an unlicensed basis. Currently, the primary use of the 1920-1930 MHz band is for unlicensed cordless telephones that operate under part 15 of the Commission's rules. The part 15 rules provide that the 1920-1930 MHz band may be used

for both asynchronous (generally data) and isochronous (generally voice) UPCS devices, with maximum and minimum emission bandwidths of 2.5 megahertz and 50 kilohertz, respectively. UPCS devices operating in the 1920-1930 MHz band may not cause harmful interference to authorized radio services and must accept any interference received.

3. To facilitate the sharing of spectrum in the UPCS band, the current rules require use of a “spectrum etiquette” that specifies a process for monitoring the time and spectrum windows that a transmission is intended to occupy for signals above a defined threshold (a “listen-before-transmit” protocol). To protect UPCS devices already using particular time and spectrum windows from transmissions from another device, each UPCS device must monitor the combined time and spectrum windows that it intends to use before beginning transmissions and to defer use or find other spectrum windows if the monitored signal level is above the threshold. Transmissions may commence with the same emission bandwidth in the monitored time and spectrum windows without further monitoring if no signal greater than 30 decibels (dB) above thermal noise is detected. Alternatively, if the UPCS system defines at least 40 duplex system access channels, a UPCS device may access, if available, time and spectrum windows with the lowest signal level below a threshold of 50 dB above thermal noise (henceforth referred to as the “least-interfered channel access method”). If the initially selected combined time and spectrum windows are unavailable, the UPCS device may either monitor and select different windows or seek to use the same windows after waiting a randomly chosen amount of time between 10 and 150 milliseconds.

4. On May 6, 2010, the Commission adopted a Notice of Proposed Rulemaking (UPCS Band NPRM) in this proceeding that proposed changes designed to allow UPCS devices to access additional usable channels. The Commission took this action in response to a petition for

rulemaking filed by the DECT Forum, an industry association that promotes digital cordless radio technology for short-distance voice and data applications. In the UPCS Band NPRM, the Commission proposed to increase the least-interfered channel monitoring threshold from 50 to 65 dB above thermal noise and sought comment on whether some alternative value or elimination of the threshold would be more appropriate. The Commission also proposed to reduce the number of channels that must be defined and monitored under the least-interfered channel access method from 40 to 20 channels. It additionally sought comment on removing §§ 15.303(b) and (e), 15.307, and 15.311 regarding coordination with UTAM, Inc., since the relocation of incumbent fixed services from the UPCS band is now complete. The Commission further sought comment on a number of proposed updates to the part 15 UPCS rules regarding measurement procedures and definitions. Eight parties filed comments in response to the UPCS Band NPRM; these parties all strongly supported the Commission's proposals. No parties filed reply comments.

## **DISCUSSION**

5. The Commission decided to eliminate the 50 dB above thermal noise monitoring threshold for UPCS devices. Without this threshold, after monitoring the required minimum number of channels, UPCS devices may use available combined time and spectrum windows with the lowest signal level, rather than using only those windows with the lowest signal level below 50 dB above thermal noise. Coupled with a reduction in the number of channels from 40 to 20 that must be defined and monitored, elimination of this threshold will permit greater utilization of the UPCS band. For example, manufacturers could optimize cordless telephones for higher-density applications, such as office environments. These changes are also expected to encourage manufacturers to introduce innovative products and services using Internet protocol

connectivity to combine access to broadband and telephony applications in a new generation of cordless devices.

6. First, the Commission concluded that the 50 dB above thermal noise least-interfered channel monitoring threshold for UPCS devices operating in the 1920-1930 MHz band should be eliminated. Eliminating the least-interfered channel monitoring threshold will allow UPCS devices to use additional time and spectrum windows with higher signal levels, which will allow access to more usable time and spectrum windows than under the current rule, thereby increasing the flexibility for innovation, utilization, and efficiency of the UPCS band. Further, this change will not inhibit the ability of UPCS devices to access available time and spectrum windows. Moreover, eliminating, instead of just increasing the monitoring threshold, will provide manufacturers with the flexibility to produce UPCS systems that can operate with the maximum possible traffic capacity and thereby maximize the utilization of the UPCS band. The Commission agreed with commenters that a higher monitoring threshold would not result in an increase in interference due to the path-loss and propagation characteristics of existing UPCS deployments and because UPCS devices are designed to use minimal power at all times. Finally, the Commission noted that although the DECT standard, which is used in over 100 countries, including all European countries, defines an upper signal limit at which a channel is considered busy and should not be used, it has no upper power threshold on least-interfered channels, and it appears that devices are operating under rules similar to those that the Commission adopted in this proceeding without experiencing interference problems.

7. Without a predetermined maximum threshold, manufacturers will also have the flexibility to select an appropriate threshold in order to prevent harmful interference to other UPCS devices. The Commission expects that UPCS devices will continue to operate using the

DECT standard, which includes a listen-before-transmit protocol, and that UPCS devices will continue to monitor the desired channels to avoid causing harmful interference to other UPCS devices. Thus, they will not interfere with each other once a device is transmitting on a channel. Because UPCS devices operate at relatively low power levels, two devices would need to be within less than 1 foot of each other to impact one another. Thus, the probability of interference occurring among UPCS devices operating without a monitoring threshold or between such devices and those operating under the existing monitoring threshold will remain low. Although eliminating the maximum monitoring threshold could, in some cases, result in an increased number of UPCS devices operating simultaneously in a given location, they would be operating with relatively low peak transmitter power and out-of-band emissions limits. Thus, relatively higher-power Advanced Wireless Service and Personal Communications Service devices (either fixed or mobile) receiving in the adjacent 1915-1920 MHz and 1930-1990 MHz bands, respectively, will not experience harmful interference in such cases.

8. Second, the Commission concluded that the minimum number of channels that must be defined and monitored under the least-interfered channel access method can be reduced from 40 to 20 channels without posing an additional risk of interference to adjacent band or in-band operations, nor inhibiting the ability of UPCS devices to access available channels. Reducing the required number of channels that must be defined and monitored to 20 channels will enable UPCS devices that define fewer than 40 channels (i.e., use wider emission bandwidths) to use the least-interfered channel access method and access additional usable channels, and thereby encourage manufacturers to produce cordless products that can provide access to broadband technologies. This action will serve the public interest by promoting increased use of the UPCS band for advanced services and allowing state-of-the-art UPCS devices that can provide higher

throughputs (i.e., data rates) to operate under the least-interfered channel access method, thereby further improving the efficiency and utilization of the UPCS band, while maintaining equal access to the available spectrum on a shared basis for all users.

9. In addition, the Commission took several actions to update the rules in other ways. It modified the part 15 UPCS rules to reflect that UPCS devices no longer need to protect fixed microwave incumbents in the 1920-1930 MHz band and are no longer coordinated by UTAM, Inc. Because the rules to transition the 1920-1930 MHz band from incumbent fixed microwave operations to UPCS use sunset in 2005, there is no longer a need for §15.307(a) and (c)-(h), which sets forth the expired coordination requirements. Furthermore, because UPCS devices are no longer coordinated by UTAM, Inc., the definitions in §15.303(b) and (e) that were applicable when UPCS devices were either coordinatable or non-coordinatable and the UTAM Inc.-related labeling requirement in §15.311 are no longer necessary. Thus, the Commission eliminated §§15.303(b) and (e), 15.307(a) and (c) through (h), and 15.311 of the rules.

10. The Commission maintained that each applicant for FCC equipment authorization of a UPCS-band device must be a participating member of UTAM, Inc. and retained the UTAM, Inc. membership requirement for UPCS-band device manufacturers in § 15.307(b). Under the relocation funding plan approved by the Commission, UTAM, Inc., acting on behalf of future unlicensed PCS manufacturers in the 1910-1930 MHz band, paid to relocate or agreed to share the costs to relocate incumbent services in the band, and future band entrants would reimburse it for their share of those incurred costs. UTAM, Inc. informed the Commission that it has outstanding contractual liabilities from clearing the 1910-1930 MHz band of incumbent microwave stations. Although UTAM, Inc. expects that the cost-sharing reimbursement(s) that it will eventually receive from the Advanced Wireless Service (AWS) licensee(s) of the 1915-1920

MHz band will enable it to pay these outstanding liabilities, it must remain in existence until these liabilities are paid. UTAM, Inc. submitted that for it to remain in existence, the Commission cannot eliminate the membership requirement because membership fees are its sole source of operating revenue. UTAM, Inc. argued that if the membership requirement were eliminated, it would inequitably place the costs of maintaining UTAM, Inc. on existing members, thereby undermining the original purpose of §15.307(b) to equitably distribute the costs of clearing the 1910-1930 MHz band across the manufacturers producing devices that operate in the band. The Commission determined that cost sharing was integral to clearing the UPCS band of incumbent services so new unlicensed devices could be introduced in the band. UTAM, Inc. made a persuasive case that it had incurred obligations, as a result of the UPCS band clearing, that have not been satisfied. The Commission concluded that, if it were to eliminate the membership requirement, there would be no mechanism to ensure that outstanding cost sharing obligations are satisfied. The UPCS Band NPRM proposed no alternative that would equitably distribute these obligations among all manufacturers of equipment in the band, including those who would introduce new products in the band in the future. For these reasons, the Commission decided to maintain the UTAM, Inc. membership requirement for UPCS-band device manufacturers contained in Section 15.307(b).

11. The Commission also corrected the part 15 UPCS rules to make them consistent with previous Commission decisions affecting these rules. Specifically, it removed the definition in §15.303(i) that was applicable when asynchronous and isochronous operations were in separate sub-bands; amended §15.319 to specifically state that both asynchronous and isochronous operations are permitted in the 1920-1930 MHz band, consistent with the decision in the AWS Sixth R&O; revised §15.323 to correct a typographical error in the second sentence of paragraph



(a) and corrected paragraphs (d) and (e) to reference “bands” instead of “sub-bands.” In addition, the Commission amended §§15.31(a)(2) and 15.38(b)(12) of the rules to reference the latest version of the ANSI C63.17-2006 standard by which UPCS devices must be measured for compliance with the requirements in part 15 Subpart D of the rules.

12. To help ensure that the UPCS device rules continue to reflect the most appropriate industry standards, the Commission delegated to the Chief, Office of Engineering and Technology (OET), the authority to approve for use new versions of the ANSI C63.17 standard for methods of measurement of the electromagnetic and operational compatibility of UPCS devices to the extent that the changes do not raise major compliance issues. At the same time, the Commission recognized the necessity to provide opportunity for notice and comment on any changes or modifications that could affect compliance with our regulations. Therefore, in cases where major changes have been made in this standard that could affect compliance, the Commission will initiate an appropriate rulemaking proceeding to consider adoption of updated versions of the ANSI C63.17 standard.

### **Final Regulatory Flexibility Analysis**

13. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the Notice of Proposed Rulemaking (Unlicensed Personal Communications Service (UPCS) Band NPRM) in ET Docket No. 10-97.<sup>2</sup> The Commission sought written public comment on the proposals in the UPCS Band NPRM,

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<sup>1</sup> 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).

<sup>2</sup> See Amendment of Part 15 of the Commission’s Rules Regarding Unlicensed Personal Communications Service Devices in the 1920-1930 MHz Band, ET Docket No. 10-97, RM-11485, Notice of Proposed Rulemaking, 25 FCC Rcd 5118, 5132-36 (2010) (UPCS Band NPRM).

including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.<sup>3</sup>

**A. Need for, and Objectives of, the Report and Order.**

14. In this Report and Order, the Commission took steps to improve the operation of unlicensed Personal Communications Services (UPCS) devices operating in the 1920-1930 MHz band (known as the UPCS band), while limiting the potential for in-band and adjacent-band interference and maintaining equal access to the available spectrum on a shared basis for all users.

15. In this Report and Order, the objectives of the Commission were to improve the utilization of the UPCS band by allowing access to additional usable time and spectrum windows whose use is restricted under the current rules, to reduce infrastructure costs through allowing a greater density of UPCS devices to be used with fewer base stations, and to allow UPCS devices that use wider bandwidth channels, but define and monitor fewer than 40 channels, to use the UPCS least-interfered channel access method and access additional usable time and spectrum windows. Specifically, the Commission eliminated the 50 dB above thermal noise signal threshold that UPCS devices must monitor when using the least-interfered channel access method. Under this method, UPCS devices would survey the required minimum number of channels and use the combined time and spectrum windows with the lowest signal level, instead of using only the windows with the lowest signal level below 50 dB above thermal noise. The Commission also reduced from 40 to 20 channels the number of channels a UPCS device must define and monitor in order to use the least-interfered channel access method. In addition, this Report and Order updated the part 15 UPCS rules to reflect that UPCS devices no longer need to

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<sup>3</sup> See 5 U.S.C. 604.

protect incumbent fixed microwave radio stations in the 1920-1930 MHz band and are no longer coordinated by UTAM, Inc., and to make them consistent with previous changes to the rules.

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

16. No public comments were received in response to the IRFA in the UPCS Band NPRM.

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

17. 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 proposed rules, if adopted.<sup>4</sup> The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.<sup>5</sup> 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 SBA.<sup>6</sup>

18. Nationwide, there are a total of approximately 27.5 million small businesses, according to the SBA.<sup>7</sup> A "small organization" is generally "any not-for-profit enterprise which

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<sup>4</sup> Id. at 603(b)(3).

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

<sup>6</sup> Small Business Act, 15 U.S.C. 632 (1996).

<sup>7</sup> See SBA, Office of Advocacy, "Frequently Asked Questions," <http://www.sba.gov/advo/stats/sbfaq.pdf> (accessed Dec. 2010).

is independently owned and operated and is not dominant in its field.”<sup>8</sup> Nationwide, as of 2002, there were approximately 1.6 million small organizations.<sup>9</sup> The term “small governmental jurisdiction” is defined generally as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”<sup>10</sup> Census Bureau data for 2002 indicate that there were 87,525 local governmental jurisdictions in the United States.<sup>11</sup> The Commission estimates that, of this total, 84,377 entities were “small governmental jurisdictions.”<sup>12</sup> Thus, the Commission estimates that most governmental jurisdictions are small.

19. The changes adopted in this Report and Order affect fixed service (FS) stations licensed under part 101 of our rules, UPCS stations, as well as wireless equipment manufacturers and frequency coordinators.

**Fixed Microwave Services.** Fixed microwave services include common carrier,<sup>13</sup> private operational-fixed,<sup>14</sup> and broadcast auxiliary radio services.<sup>15</sup> At present, there are approximately 22,015 common carrier fixed licensees and 61,670 private operational-fixed

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<sup>8</sup> 5 U.S.C. 601(4).

<sup>9</sup> Independent Sector, *The New Nonprofit Almanac & Desk Reference* (2002).

<sup>10</sup> 5 U.S.C. 601(5).

<sup>11</sup> U.S. Census Bureau, *Statistical Abstract of the United States: 2006*, Section 8, page 272, Table 415.

<sup>12</sup> The Commission assumes that the villages, school districts, and special districts are small, and total 48,558. See U.S. Census Bureau, *Statistical Abstract of the United States: 2006*, section 8, page 273, Table 417. For 2002, Census Bureau data indicate that the total number of county, municipal, and township governments nationwide was 38,967, of which 35,819 were small. Id.

<sup>13</sup> See 47 CFR part 101 et seq. for common carrier fixed microwave services (except Multipoint Distribution Service).

<sup>14</sup> Persons eligible under parts 80 and 90 of the Commission’s Rules can use Private Operational-Fixed Microwave services. See 47 CFR parts 80 and 90. Stations in this service are called operational-fixed to distinguish them from common carrier and public fixed stations. Only the licensee may use the operational-fixed station, and only for communications related to the licensee’s commercial, industrial, or safety operations.

<sup>15</sup> Auxiliary Microwave Service is governed by part 74 of Title 47 of the Commission’s Rules. See 47 CFR part 74. This service is available to licensees of broadcast stations and to broadcast and cable network entities. Broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile television pickups, which relay signals from a remote location back to the studio.

licensees and broadcast auxiliary radio licensees in the microwave services. The Commission has not created a size standard for a small business specifically with respect to fixed microwave services. For purposes of this analysis, the Commission uses the SBA small business size standard for the category Wireless Telecommunications Carriers (except Satellite), which is 1,500 or fewer employees.<sup>16</sup> The Commission does not have data specifying the number of these licensees that have no more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are 22,015 or fewer common carrier fixed licensees and 61,670 or fewer private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies proposed herein. The Commission notes, however, that the common carrier microwave fixed licensee category includes some large entities.

**Unlicensed Personal Communications Services.** As its name indicates, UPCS is not a licensed service. UPCS consists of intentional radiators operating in the frequency band 1920-1930 MHz that provide a wide array of mobile and ancillary fixed communication services to individuals and businesses. The Report and Order affects UPCS operations in the 1920-1930 MHz band; operations in those frequencies are given flexibility to deploy both voice and data-based services. There is no accurate source for the number of operators in the UPCS. Since 2007, the Census Bureau has placed wireless firms within the new, broad, economic census category Wireless Telecommunications Carriers (except Satellite).<sup>17</sup> Prior to that time, such

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<sup>16</sup> 13 CFR 121.201, NAICS code 517210.

<sup>17</sup> U.S. Census Bureau, 2007 NAICS Definitions, "517210 Wireless Telecommunications Categories (Except Satellite)"; <http://www.census.gov/naics/2007/def/ND517210.HTM#N517210>.

firms were within the now-superseded category of “Paging” and “Cellular and Other Wireless Telecommunications.”<sup>18</sup> Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees.<sup>19</sup> Census data for 2007, which supersede data contained in the 2002 Census, show that there were 1,383 firms that operated that year.<sup>20</sup> Of those 1,383, 1,368 had fewer than 100 employees, and 15 firms had more than 100 employees. Thus, under this category and the associated small business size standard, the majority of firms can be considered small.

**Wireless Equipment Manufacturers.** The industry comprises businesses primarily engaged in manufacturing radios 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.<sup>21</sup> In this category, the SBA has deemed a business manufacturing radio and television broadcasting equipment, wireless telecommunications equipment, or both, to be small if it has fewer than 750 employees.<sup>22</sup> For this category of manufacturing, Census data for 2007 show that there were 919 firms that operated that year. Of those establishments, 531 had between 1 and 19 employees; 240 had between 20 and 99 employees; and 148 had more than 100 employees.<sup>23</sup> Since 771

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<sup>18</sup> U.S. Census Bureau, 2002 NAICS Definitions, “517211 Paging”; <http://www.census.gov/epcd/naics02/def/NDEF517.HTM>; U.S. Census Bureau, 2002 NAICS Definitions, “517212 Cellular and Other Wireless Telecommunications”; <http://www.census.gov/epcd/naics02/def/NDEF517.HTM>.

<sup>19</sup> 13 CFR 121.201, NAICS code 517210 (2007 NAICS). The now-superseded, pre-2007 CFR citations were 13 CFR 121.201, NAICS codes 517211 and 517212 (referring to the 2002 NAICS).

<sup>20</sup> U.S. Census Bureau, 2007 Economic Census, Sector 51, 2007 NAICS code 517210 (rel. Oct. 20, 2009), [http://factfinder.census.gov/servlet/IBQTable?\\_bm=y&-geo\\_id=&-fds\\_name=EC0700A1&-\\_skip=700&-ds\\_name=EC0751SSSZ5&-\\_lang=en](http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=700&-ds_name=EC0751SSSZ5&-_lang=en).

<sup>21</sup> <http://www.census.gov/econ/industry/def/d334220.htm>

<sup>22</sup> 13 CFR 121.201, NAICS Code 334220

<sup>23</sup> [http://factfinder.census.gov/servlet/IBQTable?\\_bm=y&-geo\\_id=&-\\_skip=300&-ds\\_name=EC073111&-\\_lang=en](http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-_skip=300&-ds_name=EC073111&-_lang=en)

establishments had less than 100 employees, and since only 148 had more than 100 employees, the vast majority of manufacturers in this category would be considered small under applicable standards.

**Frequency Coordinators.** Neither the Commission nor the SBA has developed a small business size standard specifically applicable to spectrum frequency coordinators. Since 2007, the Census Bureau has placed wireless firms within the new, broad, economic census category Wireless Telecommunications Carriers (except Satellite).<sup>24</sup> Prior to that time, such firms were within the now-superseded category of “Paging” and “Cellular and Other Wireless Telecommunications.”<sup>25</sup> Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees.<sup>26</sup> Census data for 2007, which supersede data contained in the 2002 Census, show that there were 1,383 firms that operated that year.<sup>27</sup> Of those 1,383, 1,368 had fewer than 100 employees, and 15 firms had more than 100 employees. Thus, under this category and the associated small business size standard, the majority of firms can be considered small.

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

20. This Report and Order allows additional flexibility for UPCS devices operating in the 1920-1930 MHz band by eliminating the signal threshold that a UPCS device must monitor

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<sup>24</sup> U.S. Census Bureau, 2007 NAICS Definitions, “517210 Wireless Telecommunications Categories (Except Satellite)”; <http://www.census.gov/naics/2007/def/ND517210.HTM#N517210>.

<sup>25</sup> U.S. Census Bureau, 2002 NAICS Definitions, “517211 Paging”; <http://www.census.gov/epcd/naics02/def/NDEF517.HTM>; U.S. Census Bureau, 2002 NAICS Definitions, “517212 Cellular and Other Wireless Telecommunications”; <http://www.census.gov/epcd/naics02/def/NDEF517.HTM>.

<sup>26</sup> 13 CFR 121.201, NAICS code 517210 (2007 NAICS). The now-superseded, pre-2007 CFR citations were 13 CFR 121.201, NAICS codes 517211 and 517212 (referring to the 2002 NAICS).

<sup>27</sup> U.S. Census Bureau, 2007 Economic Census, Sector 51, 2007 NAICS code 517210 (rel. Oct. 20, 2009), [http://factfinder.census.gov/servlet/IBQTable?\\_bm=y&-geo\\_id=&-fds\\_name=EC0700A1&-\\_skip=700&-ds\\_name=EC0751SSSZ5&-\\_lang=en](http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=700&-ds_name=EC0751SSSZ5&-_lang=en).

when using the least-interfered channel access method. In addition, the Report and Order reduces from 40 to 20 channels the number of channels that a UPCS device must define and monitor to use the least-interfered channel access method. This item does not contain any new reporting or recording keeping requirements.

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

21. 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.<sup>28</sup>

22. The Commission's principal objective in this proceeding was to increase the efficiency and utilization of the UPCS band. By eliminating the signal threshold that a UPCS device must monitor under the least-interfered channel access method, we allow UPCS devices to access additional usable combined time and spectrum windows in the 1920-1930 MHz band that are restricted from use under the current rules. The Commission's decision to reduce from 40 to 20 channels the number of channels a UPCS device must define and monitor to use the least-interfered channel access method will enable UPCS devices that can provide advanced cordless technologies and higher data rates to use the least-interfered channel access method and access additional usable time and spectrum windows, if available. Together, these changes will

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<sup>28</sup> 5 U.S.C. 603(e).



increase the utilization and efficiency of the UPCS band and promote the introduction of innovative products and services using Internet protocol connectivity to combine access to broadband and telephony applications in a new generation of cordless devices. Elimination of the least-interfered channel monitoring threshold will also allow manufacturers to design their devices based on density of devices, rather than range, depending on the needs of users, thereby allowing more UPCS devices to operate within close proximity to one another, which will reduce the infrastructure costs for a UPCS system. Finally, the Commission's decision to eliminate rather than just increase the least-interfered channel monitoring threshold will provide manufacturers with the flexibility to produce UPCS systems that can operate with the maximum possible traffic capacity, which will maximize the utilization of the UPCS band.

23. **Report to Congress:** The Commission will send a copy of the Report and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.<sup>29</sup> In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA.

#### **Paperwork Reduction Analysis**

24. This document does not contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13.

#### **Congressional Review Act**

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

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<sup>29</sup> See 5 U.S.C. 801(a)(1)(A).

## **ORDERING CLAUSES**

26. Pursuant to Sections 4(i), 302, 303(e), 303(f), and 307 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 302a, 303(e), 303(f), and 307, that this Report and Order in ET Docket No. 10-97 is hereby ADOPTED, and Part 15 of the Commission's rules IS AMENDED as set forth in Final Rules effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

27. The Chief, Office of Engineering and Technology (OET), is DELEGATED AUTHORITY to approve for use new versions of the ANSI C63.17 standard for methods of measurement of UPCS devices to the extent that the changes do not raise major compliance issues.

28. The Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report 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, Incorporation by reference, Radio, Reporting and recordkeeping.  
FEDERAL COMMUNICATIONS COMMISSION.

Sheryl D. Todd,  
Deputy Secretary.

## Final Rules

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR part 15 to read 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, and 544a.

2. Section 15.31 is amended by revising paragraph (a)(2) to read as follows:

#### **§ 15.31 Measurement standards.**

(a) \* \* \*

(2) Unlicensed Personal Communication Service (UPCS) devices are to be measured for compliance using ANSI C63.17-2006 (incorporated by reference, see § 15.38).

\* \* \* \* \*

3. Section 15.38 is revised to read as follows:

#### **§ 15.38 Incorporation by reference.**

(a) The materials listed in this section are incorporated by reference in this part. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of the approval, and notice of any change in these materials will be published in the Federal Register. The materials are available for purchase at the corresponding addresses as noted, and all are available for inspection at the Federal Communications Commission, 445 12th St., SW., Reference Information Center, Room CY–A257, Washington, DC 20554, (202) 418–0270, and at the National Archives and Records Administration (NARA). For information on the

availability of this material at NARA, call (202) 741–6030, or go to:

*[http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html)*

(b) The following documents are available from the following address: American National Standards Institute (ANSI), 25 West 43rd Street, 4th Floor, New York, NY 10036, (212) 642–4900, or at <http://webstore.ansi.org/ansidocstore/default.asp>;

(1) ANSI C63.4–2003: “Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz,” 2003, IBR approved for §15.31, except for sections 4.1, 5.2, 5.7, 9 and 14.

(2) ANSI C63.17–2006: “Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices”, approved June 28 2006, IBR approved for §15.31.

(3) Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, “Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement,” 1997, IBR approved for §15.109.

(c) The following documents are available from the following address: Cable Television Laboratories, Inc., 858 Coal Creek Circle, Louisville, Colorado, 80027,  
*<http://www.cablelabs.com/opencable/udcp>*, (303) 661–9100;

(1) M–UDCP–PICS–I04–080225, “Uni-Directional Cable Product Supporting M–Card: Multiple Profiles; Conformance Checklist: PICS,” February 25, 2008, IBR approved for §15.123(c).

(2) TP-ATP-M-UDCP-I05-20080304, “Uni-Directional Digital Cable Products Supporting M-Card; M-UDCP Device Acceptance Test Plan,” March 4, 2008, IBR approved for §15.123(c).

(d) The following documents are available from the following address: Consumer Electronics Association, 1919 S. Eads St., Arlington; VA 22202, <http://www.ce.org/Standards/Standard-Listings.aspx>, (703) 907-7634.

(1) CEA-542-B: “CEA Standard: Cable Television Channel Identification Plan,” July 2003, IBR approved for §15.118.

(2) CEA-766-A: “U.S. and Canadian Region Rating Tables (RRT) and Content Advisory Descriptors for Transport of Content Advisory Information using ATSC A/65-A Program and System Information Protocol (PSIP),” April 2001, IBR approved for §15.120.

(3) Uni-Dir-PICS-I01-030903: “Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma,” September 3, 2003, IBR approved for §15.123(c).

(4) Uni-Dir-ATP-I02-040225: “Uni-Directional Receiving Device, Acceptance Test Plan,” February 25, 2004, IBR approved for §15.123(c).

(e) The following documents are available from the following address: Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112, (800) 854-7179, or at <http://global.ihs.com>;

(1) EIA-608: “Recommended Practice for Line 21 Data Service,” 1994, IBR approved for §15.120.

(2) EIA-744: “Transport of Content Advisory Information Using Extended Data Service (XDS),” 1997, IBR approved for §15.120.

(f) The following documents are available from the following addresses: Society of Cable Telecommunications Engineers (SCTE) c/o Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112 or the American National Standards Institute, 25 West 43rd Street, Fourth floor, New York, NY 10036 or at <http://www.scte.org/standards/index.cfm>;

(1) SCTE 28 2003 (formerly DVS 295): “Host-POD Interface Standard,” 2003, IBR approved for §15.123.

(2) SCTE 40 2003 (formerly DVS 313): “Digital Cable Network Interface Standard,” 2003, IBR approved for §15.123.

(3) SCTE 41 2003 (formerly DVS 301): “POD Copy Protection System,” 2003, IBR approved for §15.123.

(4) ANSI/SCTE 54 2003 (formerly DVS 241): “Digital Video Service Multiplex and Transport System Standard for Cable Television,” 2003, IBR approved for §15.123.

(5) ANSI/SCTE 65 2002 (formerly DVS 234): “Service Information Delivered Out-of-Band for Digital Cable Television,” 2002, IBR approved for §15.123.

### **§ 15.303 [Amended]**

4. Section 15.303 is amended by removing paragraphs (b), (e), (i), and removing the paragraph designations from the remaining paragraphs.

### **§ 15.307 [Amended]**

5. Section 15.307 is amended by removing paragraphs (a) and (c) through (h), and removing the paragraph designation from paragraph (b).

**§ 15.311 [Removed]**

6. Section 15.311 is removed from subpart D.

7. Section 15.319 is amended by revising paragraph (b) to read as follows:

**§ 15.319 General technical requirements.**

\* \* \* \* \*

(b) All transmissions must use only digital modulation techniques. Both asynchronous and isochronous operations are permitted within the 1920-1930 MHz band.

\* \* \* \* \*

8. Section 15.323 is amended by revising the section heading, and paragraphs (a), (c)(5), (d), and (e) to read as follows:

**§ 15.323 Specific requirements for devices operating in the 1920-1930 MHz band.**

(a) Operation shall be contained within the 1920-1930 MHz band. The emission bandwidth shall be less than 2.5 MHz. The power level shall be as specified in §15.319(c), but in no event shall the emission bandwidth be less than 50 kHz.

\* \* \* \* \*

(c) \* \* \*

(5) If access to spectrum is not available as determined by the above, and a minimum of 20 duplex system access channels are defined for the system, the time and spectrum windows with the lowest power level may be accessed. A device utilizing the provisions of this paragraph must have monitored all access channels defined for its system within the last 10 seconds and must verify, within the 20 milliseconds (40 milliseconds for devices designed to use a 20 milliseconds frame period) immediately preceding actual channel access that the detected power of the

selected time and spectrum windows is no higher than the previously detected value. The power measurement resolution for this comparison must be accurate to within 6 dB. No device or group of co-operating devices located within 1 meter of each other shall during any frame period occupy more than 6 MHz of aggregate bandwidth, or alternatively, more than one third of the time and spectrum windows defined by the system.

\* \* \* \* \*

(d) Emissions outside the band shall be attenuated below a reference power of 112 milliwatts as follows: 30 dB between the band and 1.25 MHz above or below the band; 50 dB between 1.25 and 2.5 MHz above or below the band; and 60 dB at 2.5 MHz or greater above or below the band. Emissions inside the band must comply with the following emission mask: In the bands between 1B and 2B measured from the center of the emission bandwidth the total power emitted by the device shall be at least 30 dB below the transmit power permitted for that device; in the bands between 2B and 3B measured from the center of the emission bandwidth the total power emitted by an intentional radiator shall be at least 50 dB below the transmit power permitted for that radiator; in the bands between 3B and the band edge the total power emitted by an intentional radiator in the measurement bandwidth shall be at least 60 dB below the transmit power permitted for that radiator. B” is defined as the emission bandwidth of the device in hertz. Compliance with the emission limits is based on the use of measurement instrumentation employing peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

(e) The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in this band shall be 20 milliseconds or 10 milliseconds/X where X is a positive whole number. Each device that implements time division for the purposes of maintaining a duplex connection on a



given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per million (ppm). Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm. The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

\* \* \* \* \*

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