

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

In re Matter of
Deployment of 11 GHz, 18 GHz, and 23 GHz
Microwave Bands – Report Pursuant to Section
6412 of the Middle Class Tax Relief and Job
Creation Act of 2012
WT Docket No. 12-156

REPORT TO CONGRESS

Adopted: November 20, 2012

Released: November 20, 2012

By the Chief, Wireless Telecommunications Bureau:

I. INTRODUCTION

1. We issue this Report in accordance with the Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act), which requires the Federal Communications Commission (Commission) to submit to Congress a report on the "rejection rate" for common carrier microwave applications in certain frequency bands. The Commission licenses the operation of microwave stations pursuant to its authority under the Communications Act of 1934, as amended, and has done so for most of its history. Microwave services are licensed on frequencies above 890 MHz. A microwave link is a communications circuit between two points. Most links transmit and receive signals, and thus require a pair of frequencies.

2. Section 6412 of the Spectrum Act directs the Commission to prepare a report on the "rejection rate" for common carrier microwave applications in three frequency bands: 10,700-11,700 MHz (the 11 GHz Band); 17,700-19,700 MHz (the 18 GHz Band); and 21,200-23,600 MHz (the 23 GHz Band). The Spectrum Act specifies that "the term 'rejection rate' means the number and percent of applications (whether made to the Commission or to a third-party coordinator) for common carrier use of spectrum that were not granted because of lack of availability of such spectrum or interference concerns

1 Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012), § 6412. The report must be submitted no later than nine months after enactment of the Spectrum Act. Id.

2 See, e.g., 47 U.S.C. § 301.

3 For background, see Allocation of Frequencies in the Bands Above 890 Mc., Docket No. 11866, Report and Order, 27 FCC 359 (1959).

4 See 47 C.F.R. § 101.3.

5 Id.

6 Id.

7 Spectrum Act, §§ 6412(a), (c). A copy of the full text of Section 6412 of the Spectrum Act is attached as an Appendix to this report.

of existing licensees.”<sup>8</sup> The Spectrum Act also directs the Comptroller General of the United States to prepare a separate report on whether market forces provide adequate incentive for the efficient use of those spectrum bands and ensure that the Federal Government receives maximum revenue for such spectrum through competitive bidding.<sup>9</sup>

3. On June 20, 2012, the Commission’s Wireless Telecommunications Bureau (Bureau) released a Public Notice seeking relevant information from the public.<sup>10</sup> We received comments in response to the Comment Public Notice from firms that offer frequency coordination services, licensees, and prospective applicants in the 11, 18, and 23 GHz bands.<sup>11</sup> This Report, which is based on analysis of the Commission’s own records as well as input from parties that responded to the Comment Public Notice, is intended to fulfill the Commission’s obligations under Section 6412 of the Spectrum Act.

## II. BACKGROUND

4. For the purposes of this Report, the two microwave services of primary interest are the Common Carrier Fixed Point-to-Point Microwave Service<sup>12</sup> and the Private Operational Fixed Point-to-Point Microwave Service.<sup>13</sup> A common carrier is any person engaged as a common carrier for hire in interstate or foreign communication by wire or radio.<sup>14</sup> In contrast, the Private Operational Fixed Point-to-Point Microwave Service is designed for the exclusive use of the licensee or other eligible entities.<sup>15</sup> While these two services were previously licensed on separate frequency bands, they now share the same frequency bands, largely to accommodate incumbent fixed microwave licensees who have been relocated from the 2 GHz band.<sup>16</sup> In 1996, the Commission consolidated its rules for most microwave point-to-point and point-to-multipoint services into a new Part 101 of the Commission’s Rules.<sup>17</sup> Prior to that time, common carrier and private fixed operational microwave services were licensed under separate rule parts.<sup>18</sup>

---

<sup>8</sup> *Id.*, § 6412(d).

<sup>9</sup> *Id.*, § 6412(b).

<sup>10</sup> See Wireless Telecommunications Bureau Seeks Information From The Public For Report To Congress On Microwave Bands, WT Docket No. 12-156, *Public Notice*, 27 FCC Rcd 7062 (WTB 2012) (Comment Public Notice).

<sup>11</sup> See *infra* Part IV.B.2.

<sup>12</sup> See 47 C.F.R. Part 101, Subpart I.

<sup>13</sup> See 47 C.F.R. Part 101, Subpart H.

<sup>14</sup> See 47 U.S.C. § 153(10).

<sup>15</sup> See 47 C.F.R. § 101.3.

<sup>16</sup> See, e.g., Redevelopment of the Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, ET Docket No. 92-9, *Second Report and Order*, 8 FCC Rcd 6495 (1993). While the Spectrum Act seeks information on the rejection rate of common carrier microwave services, this report also includes information relating to private services because they share the frequency bands in question and the frequency coordination process is the same for both services.

<sup>17</sup> Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, WT Docket No. 94-148, *Report and Order*, 11 FCC Rcd 13449 (1996). Two specialized microwave services in particular – the Broadcast Auxiliary Service (BAS) and the Cable TV Relay Service (CARS) – have not been consolidated into Part 101.

<sup>18</sup> *Id.* at 13451 ¶ 2.

5. Common carrier and private fixed microwave stations operate in a number of frequency bands. As illustrated in the following chart, such stations often share frequency bands with other specialized point-to-point services such as Broadcast Auxiliary Service (BAS) and Cable TV Relay Service (CARS):

**Chart 1**

Frequencies Available to TV Broadcast Auxiliary, CARS & Part 101 Fixed Services That Are Not Auctioned and Have 12 MHz or More Maximum Authorized Bandwidth (Bands that are the subject of this Report are identified in **bold**)

Band	Common Carrier Fixed Point-to-Point	Private Operational Fixed Point-to-Point	Local TV Transmission	TV Broadcast Auxiliary	Cable TV Relay	Maximum Authorized Bandwidth
	(Part 101, Subparts C & I)	(Part 101, Subparts C & H)	(Part 101, Subpart J)	(Part 74, Subpart F)	(Part 78)	(§§101.109 & 74.602)
2025-2110 MHz			X	X	X	12 MHz
2450-2500 MHz	X		X	X		Varies
3700-4200 MHz	X	X	X			20 MHz
5925-6425 MHz	X	X	X			60 MHz
6425-6525 MHz		X	X	X	X	25 MHz
6525-6875 MHz	X	X				30 MHz
6875-7125 MHz	X	X		X	X	25 MHz
<b>10.7-11.7 GHz</b>	<b>X</b>	<b>X</b>				<b>80 MHz</b>
12.2-12.7 GHz		X				500 MHz
12.7-13.2 GHz	X	X	X	X	X	25 MHz
<b>17.7-18.58 GHz</b>	<b>X</b>	<b>X</b>		<b>X</b>	<b>X</b>	<b>220 MHz</b>
<b>18.580-18.820 GHz</b>	<b>X</b>	<b>X</b>				<b>20 MHz</b>
<b>18.820-18.920 GHz</b>	<b>X</b>	<b>X</b>				<b>10 MHz</b>
<b>18.920-19.160 GHz</b>	<b>X</b>	<b>X</b>				<b>20 MHz</b>
<b>19.160-19.260 GHz</b>	<b>X</b>	<b>X</b>				<b>10 MHz</b>
<b>19.260-19.700 GHz</b>	<b>X</b>	<b>X</b>		<b>X</b>	<b>X</b>	<b>220 MHz</b>
<b>21.2-23.6 GHz</b>	<b>X</b>	<b>X</b>				<b>50 MHz</b>

6. The Commission's licensing regime for both the Common Carrier Fixed Point-to-Point Microwave Service and the Private Operational Fixed Point-to-Point Microwave Service requires frequency coordination and the filing of an application for each microwave link or path.<sup>19</sup> The application contains detailed information concerning the proposed operation.<sup>20</sup> In order to complete frequency

<sup>19</sup> See 47 C.F.R. §§ 101.21(f), 101.103.

<sup>20</sup> See 47 C.F.R. §§ 101.21(f), 101.103.

coordination, an applicant must provide prior notice to nearby licensees and other applicants for licenses of the proposed applicant's operations, make reasonable efforts to avoid interference and resolve conflicts, and certify to the Commission that the proposed operation has been coordinated.<sup>21</sup> Once the applicant has completed frequency coordination, the applicant must file an application for authorization with the Commission, specifying the latitude and longitude of the transmitter to be used to an accuracy of one second.<sup>22</sup> If a licensee changes frequencies or changes the location of the transmitter by more than five seconds in latitude or longitude or both, the licensee must coordinate the changes and apply to the Commission for a license modification.<sup>23</sup> Thus, if the applicant adds additional transmitters, the Commission's current rules require additional coordination and modification of the license.<sup>24</sup>

7. Most applicants coordinate their proposed operations by using firms that are in the business of providing frequency coordination services. Applicants are allowed to coordinate their own operations, and the Commission does not have a formal relationship with firms that perform frequency coordination services.<sup>25</sup> In comments filed in response to the Public Notice, Comsearch, which has extensive experience providing frequency coordination services for fixed point-to-point microwave systems, explains that requests for frequency coordination can come in many forms, from proposals specifying the precise frequencies, locations and equipment sought, to more generalized requests simply asking for communications links between two locations.<sup>26</sup>

8. In recent proceedings, the Commission has found no factual basis for a determination that the frequency coordination regime "leads to inefficient use of this spectrum or is otherwise no longer in the public interest."<sup>27</sup> To the contrary, the nature of microwave operations allows multiple licensees to share the frequencies in the same geographic area. To take a simple illustration, if one licensee operates a link in an east-west direction, it may be possible for another licensee to operate an intersecting link (for example, in a north-south direction) on the same frequencies without causing harmful interference.<sup>28</sup> The Commission's rules are designed to ensure that microwave spectrum is used efficiently and intensively. The use of frequency coordination can allow extensive reuse of spectrum by multiple licensees in a given area. For example, an analysis by Comsearch shows that in the Los Angeles market, individual channels are reused up to 56 times in the 11 GHz Band, up to 171 times in the 18 GHz Band, and up to 296 times in the 23 GHz Band.<sup>29</sup> Licensees must place their proposed paths in operation within 18 months of

---

<sup>21</sup> See 47 C.F.R. § 101.21(f).

<sup>22</sup> 47 C.F.R. § 101.103(d)(2)(ii).

<sup>23</sup> 47 C.F.R. §§ 1.929(a)(6), 1.929(d)(1)(i), 1.947, 101.103(d)(1).

<sup>24</sup> 47 C.F.R. §§ 1.929(d)(1)(i), 1.947(a).

<sup>25</sup> The Commission does not authorize firms to provide microwave frequency coordination services. In contrast, there are services (e.g., the Private Land Mobile Radio services) where the Commission certifies organizations to recommend frequencies for use by licensees. See 47 C.F.R. § 90.7 (definition of frequency coordinator).

<sup>26</sup> See Comments of Comsearch, WT Docket No. 12-156 (filed July 20, 2012) (Comsearch Comments) at 10.

<sup>27</sup> See Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees, *et al.*, WT Docket No. 10-153, *et al.*, Report and Order, Further Notice of Proposed Rulemaking and Memorandum Opinion and Order, 26 FCC Rcd 11614, 11658-11659 ¶¶ 108-109 (2011).

<sup>28</sup> There are many technical characteristics that can be taken into consideration (such as antenna directivity, effective radiated power, relative position of transmit and receive locations, bandwidth, etc.) that can be adjusted to allow links to co-exist often in very close proximity in high densities.

<sup>29</sup> See Comsearch Comments at 6-7.

license grant or their authorization cancels automatically.<sup>30</sup> The Commission has also established efficiency and loading standards to promote efficient frequency use.<sup>31</sup>

9. In addition to the common carrier and private operational fixed microwave services described above, there are several frequency bands that are licensed by geographic area that can be used for microwave services. Those bands include the 24 GHz Service, licensed in the 24.25 – 24.45 GHz and 25.05 – 25.25 GHz band; the Local Multipoint Distribution Service (LMDS) in the 27.5 – 28.35 GHz, 29.1 – 29.25 GHz, and 31-31.3 GHz bands; and the 39 GHz Service in the 38.6-40 GHz band.<sup>32</sup> Unlike in other Part 101 bands, licensees in these bands have the exclusive right to operate within their service area. Under the licensing regime established by the Commission for these geographically licensed services, if mutually exclusive license applications are filed during the appropriate filing period, the Commission must use competitive bidding to award the licenses.<sup>33</sup> While licensees in the Common Carrier Fixed Point-to-Point Microwave Service and the Private Operational Fixed Point-to-Point Microwave Service must construct their facilities within 18 months of license grant, 24 GHz, LMDS, and 39 GHz licensees, in contrast, must demonstrate substantial service at the end of their 10-year license term.

### III. BANDS COVERED IN THIS REPORT

#### A. 11 GHz Band (10,700 – 11,700 MHz)

10. The 11 GHz band is allocated within the United States on a co-primary basis to the Fixed Service (FS), licensed under Part 101 of the Commission's Rules,<sup>34</sup> and to the Fixed Satellite Service (FSS), licensed under Part 25 of the Commission's Rules.<sup>35</sup> Specifically, in the United States, the 11 GHz band is used by the FS for Local Television Transmission Service (LTTS), Private Operational Fixed Point-to-Point Microwave, and Common Carrier Fixed Point-to-Point Microwave operations. Although the 11 GHz band is allocated internationally for FSS on a primary basis, the use of the FSS downlink band at 11 GHz is limited within the United States to international systems.<sup>36</sup> The Commission has explained that the "domestic allocation was less than the international allocation . . . because we are constrained by the need to protect substantial incumbent [microwave] operations and licensees. . ."<sup>37</sup> In

---

<sup>30</sup> See 47 C.F.R. § 101.63(a), (c).

<sup>31</sup> See 47 C.F.R. § 101.141.

<sup>32</sup> See 47 C.F.R. Part 101, Subparts G, L, and N.

<sup>33</sup> See 47 U.S.C. § 309(j).

<sup>34</sup> 47 C.F.R. Part 101.

<sup>35</sup> 47 C.F.R. Part 25. The 11 GHz band is used for geostationary satellite (GSO) operations, and the 10.7 – 10.95 GHz and 11.2 – 11.45 GHz portion of the spectrum is designated as a "planned band" under Appendix 30B of the International Telecommunications Union (ITU) rules. This means that, for this segment of the band, each country is assigned frequencies at certain orbital locations in the geostationary orbital arc.

<sup>36</sup> See 47 C.F.R. § 2.106 NG104 (stating that "[t]he use of the bands 10.7-11.7 GHz (space to Earth)...by the fixed satellite service in the geostationary-satellite orbit shall be limited to international systems, *i.e.*, other than domestic systems").

<sup>37</sup> See, *e.g.*, Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ku-Band, IB Docket No. 01-96, *Notice of Proposed Rulemaking*, 16 FCC Rcd 9680, 9684 ¶ 10 (2001).

addition to coordinating with other FS facilities, proposed FS operations must coordinate with FSS applicants and licensees.<sup>38</sup>

11. As of November 7, 2012, there were 13,334 active Common Carrier Fixed Point-to-Point Microwave licenses, 8,474 Private Operational Fixed Point-to-Point Microwave licenses, and 4,650 Private Operational Fixed Point-to-Point Microwave-Public Safety Service in the 11 GHz band.<sup>39</sup>

**B. 18 GHz Band (17,700 – 19,700 MHz)**

12. Although Section 6412 of the Spectrum Act seeks information on the rejection rate for FS applications in the 18 GHz Band, portions of that band are currently unavailable for FS use. No applications for new Part 101 stations in the 18.3-19.3 GHz band have been accepted since November 19, 2002, because that band has been re-allotted to the Fixed Satellite Service (FSS).<sup>40</sup> Furthermore, existing FS licensees in the 18.3-19.3 GHz band are subject to relocation by FSS licensees.<sup>41</sup> There is also a requirement to coordinate use in the 17.8-19.7 GHz band with the Federal Government in the Denver, Colorado and Washington, DC areas.<sup>42</sup>

13. The 17.8-18.3 GHz and 19.3-19.7 GHz bands are currently shared by the Private Operational Fixed Point-to-Point Service, the Common Carrier Fixed Point-to-Point Service, Television Broadcast Auxiliary Stations,<sup>43</sup> and the Cable Television Relay Service.<sup>44</sup> The 17.7-18.3 GHz band is designated for one way transmissions by Multichannel Video Programming Distributors.<sup>45</sup>

14. As of November 7, 2012, there were 8,732 active Common Carrier Fixed Point-to-Point Microwave licenses, 9,076 Private Operational Fixed Point-to-Point Microwave licenses, and 2,684 Private Operational Fixed Point-to-Point Microwave-Public Safety Service in the 18 GHz band.

**C. 23 GHz Band (21,200 – 23,600 MHz)**

15. The 23 GHz Band is available to the Private Operational Fixed Point-to-Point Service, the Common Carrier Fixed Point-to-Point Service, and the Local Television Transmission Service.<sup>46</sup> The band is shared equally with the Federal Government, and thus use in that band must be coordinated with the National Telecommunications Information Administration (NTIA) through the Interdepartmental Radio Advisory Committee (IRAC) process.<sup>47</sup>

---

<sup>38</sup> See 47 C.F.R. §§ 25.251, 101.21(f).

<sup>39</sup> A single license may have multiple paths. In turn, each path may have multiple frequencies. Therefore, the number of frequency and path combinations operating in each band is greater than the number of licenses.

<sup>40</sup> See 47 C.F.R. § 101.147(r). For the 18.58-19.3 GHz band, no new FS applications were accepted after June 8, 2000. *Id.* For the 18.3-18.58 GHz band, no new FS applications were accepted after November 19, 2002. *Id.*

<sup>41</sup> See 47 C.F.R. §§ 101.83-101.97.

<sup>42</sup> See 47 C.F.R. § 1.924(e).

<sup>43</sup> See 47 C.F.R. § 74.602(g).

<sup>44</sup> See 47 C.F.R. § 78.18(a)(4).

<sup>45</sup> See 47 C.F.R. § 101.147(r)(6).

<sup>46</sup> See 47 C.F.R. § 101.101.

<sup>47</sup> See 47 C.F.R. § 2.106.

16. As of November 7, 2012, there were 4,492 active Common Carrier Fixed Point-to-Point Microwave licenses, 11,221 Private Operational Fixed Point-to-Point Microwave licenses, and 2,052 Private Operational Fixed Point-to-Point Microwave-Public Safety Service in the 23 GHz band.

#### IV. REJECTION RATE

17. As discussed previously, Section 6412 of the Spectrum Act directs the Commission to report, for the 11, 18 and 23 GHz bands, on “the number and percent of applications (whether made to the Commission or to a third-party coordinator) for common carrier use of spectrum that were not granted because of lack of availability of such spectrum or interference concerns of existing licensees.”<sup>48</sup> Providing information on the rejection rate for applications filed with the Commission is a straightforward process, involving analysis of the Commission’s own records. Providing information on the rejection rate for requests made to frequency coordinators, in contrast, is more complicated, both because it depends on information that is not ordinarily collected by the Commission and because it involves interpreting the terms used by Congress in the Spectrum Act.

##### A. Applications Filed With the Commission

18. For this report, Bureau staff reviewed the FCC records on all applications for new or modified common carrier licenses in the 11 GHz, 18 GHz, and 23 GHz bands that were acted on from May 1, 2010 to November 7, 2012. The Bureau found that a total of 430 applications for new or modified common carrier licenses in the 11 GHz, 18 GHz, and 23 GHz bands were dismissed or denied during that time period. Of those 430 applications, none were dismissed or denied because of interference concerns or because the spectrum in question was unavailable.<sup>49</sup> Therefore, for applications filed with the Commission, the rejection rate as defined in Section 6412 for common carrier applications in the 11 GHz, 18 GHz, and 23 GHz bands from May 1, 2010 to November 7, 2012 was zero.

19. The Bureau is unaware of any reason why this rejection rate would change in the future. It would be highly unusual for the Commission to receive an application that would be subject to dismissal because the spectrum was unavailable or because of interference concerns. Under the Commission’s Part 101 rules, before filing an application for an FS license, applicants must engage in frequency coordination,<sup>50</sup> the purpose of which is to resolve technical issues before the application is filed.<sup>51</sup> Accordingly, only if there were a failure in the coordination process would the Bureau receive an application that raised interference concerns or for which the spectrum in question was unavailable. Even then, the Bureau’s normal process would allow applicants to cure defects in the coordination process or to amend their applications to resolve the technical issue.

---

<sup>48</sup> Spectrum Act, § 6412(d).

<sup>49</sup> Of the 430 applications, 362 were dismissed for failure to pay the requisite application fee, 61 were dismissed for failure to respond to a notice of return pursuant to 47 C.F.R. § 1.934(c), one was dismissed because it was incomplete, one was dismissed because it was a duplicate of another application, and five were dismissed because they proposed to modify a license (or a portion of a license) that had cancelled or expired.

<sup>50</sup> See 47 C.F.R. §§ 101.21(f), 101.103.

<sup>51</sup> See 47 C.F.R. § 101.103(d)(1).

## **B. Requests Filed with Frequency Coordinators**

### **1. Interpreting “Rejection Rate” for Coordination Requests**

20. Section 6412 defines “rejection rate” as referring to applications for common carrier use of spectrum “whether made to the Commission or to a third-party coordinator.”<sup>52</sup> We note that while coordination requests may be made to third party coordinators, applications for microwave licenses may only be made to the Commission. Because the majority of microwave applications are coordinated through third party coordinators, and because any rejections by frequency coordinators would generally not result in the filing of applications with the Commission, we believe that Congress intended that we take into account coordination requests made to third party coordinators in calculating this rejection rate.

21. We also note that it is common for a proposal for microwave operations to change during the frequency coordination process. There are a variety of changes that can be proposed in the frequency coordination process to respond to interference concerns raised by other licensees or applicants. Those changes include: upgrading the proposed antenna (or the antenna of the existing licensee), changing frequencies or frequency bands, reducing power, changing antenna polarization, or establishing an intermediate repeater.<sup>53</sup> In determining whether a frequency coordination request is “rejected” for purposes of this request, we believe the appropriate test is whether an applicant is unable to coordinate a path that satisfies the original communications requirements between the points specified in the coordination request. We view changes to proposed operation to be a normal part of the frequency coordination process. We do not believe that requiring an applicant to modify its proposed operation should be considered a “rejection” of that proposal so long as the applicant’s communication needs can be satisfied.

22. We note that the 11, 18, and 23 GHz bands can each be used for either common carrier service or private use. Indeed, there are over twice as many Private Operational Fixed Point-to-Point Microwave licenses as Common Carrier Fixed Point-to-Point Microwave licenses in these bands.<sup>54</sup> A frequency coordinator typically does not know whether a proposed path will be designated for common carrier or private use,<sup>55</sup> and the frequency coordination process is the same for both types of applicants. Accordingly, although the Spectrum Act defines rejection rate in terms of applications only for common carrier use of spectrum in the relevant bands, we believe it is appropriate to look at coordination requests that may involve applications for private, as well as common carrier, licenses.

### **2. Data on “Rejection Rate” for Coordination Requests**

23. Because the Commission does not have a direct relationship with microwave frequency coordinators, and because a prospective applicant would need a waiver to file an application with the Commission if the coordination is rejected, the Commission does not have information on proposed operations that are rejected in the course of the coordination process. Accordingly, as noted above, in order to obtain information on the rejection rate for coordinated proposals, the Bureau sought relevant information from the public through a Public Notice.<sup>56</sup> For the period from January 1, 2010 to the present, the Bureau asked for information that included: (1) how frequently proposed operations in these

---

<sup>52</sup> Spectrum Act, § 6412(d).

<sup>53</sup> FWCC Comments at 9-10, Comsearch Comments at 10-11, Comments of Clearwire Corporation, WT Docket No. 12-156 (filed July 20, 2012) (Clearwire Comments) at 3-4.

<sup>54</sup> Comsearch Comments at 9.

<sup>55</sup> FWCC Comments at 12.

<sup>56</sup> See Comment Public Notice.

bands could be successfully coordinated, (2) coordination requests in each band that could not be accommodated, and (3) the reasons such requests could not be accommodated.<sup>57</sup>

24. Six parties filed comments in response to the Comment Public Notice:

- The Fixed Wireless Communications Coalition (FWCC), a coalition of companies, associations, and individuals interested in the Fixed Service—*i.e.*, in terrestrial fixed microwave communications.<sup>58</sup>
- Comsearch, a leading provider of spectrum management and wireless engineering products and services to the commercial and federal market.<sup>59</sup>
- Clearwire Corporation (Clearwire), which operates open, Internet-Protocol 4G wireless broadband networks in markets across the United States and Europe.<sup>60</sup> Clearwire uses microwave backhaul for more than 90 percent of its cell sites.<sup>61</sup>
- Sprint Nextel Corporation (Sprint), a wireless carrier that holds over 900 common carrier licenses in the 11 GHz, 18 GHz, and 23 GHz bands and occasionally uses microwave for backhaul of its network traffic.<sup>62</sup>
- The Utilities Telecom Council (UTC), which is the international trade association for the telecommunications and information technology interests of electric, gas and water utilities and other critical infrastructure industries.<sup>63</sup>
- AT&T, Inc. and its subsidiaries, which hold over 1,000 common carrier licenses that include paths in the 11, 18 and 23 GHz bands.<sup>64</sup>

25. Several of these respondents indicated that they do not keep records of “rejected” proposals. For example, Comsearch reports that as a microwave frequency coordinator, it does not keep track of “rejections,” no matter how defined, because it has had no business need to do so.<sup>65</sup> FWCC

---

<sup>57</sup> *Id.*

<sup>58</sup> FWCC Comments at 1 n.1. FWCC’s membership includes manufacturers of microwave equipment, fixed microwave engineering firms, licensees of terrestrial fixed microwave systems and their associations, and communications service providers and their associations. The membership also includes railroads, public utilities, petroleum and pipeline entities, public safety agencies, cable TV providers, backhaul providers, and/or their respective associations, communications carriers, and telecommunications attorneys and engineers. *Id.*

<sup>59</sup> Comsearch Comments at 1. Comsearch has extensive experience providing frequency coordination services for Fixed Service point-to-point microwave systems, point-to-multipoint systems, and satellite earth stations. *Id.*

<sup>60</sup> Clearwire Comments at 1.

<sup>61</sup> Clearwire Comments at 2. Clearwire has almost 13,000 Private Operational Fixed Service licenses which include over 48,000 paths in the 11 GHz, 18 GHz, and 23 GHz bands. *Id.*

<sup>62</sup> Comments of Sprint Nextel Corporation, WT Docket No. 12-156 (filed July 20, 2012) (Sprint Nextel Comments) at 1-2.

<sup>63</sup> Comments of the Utilities Telecom Council, WT Docket No. 12-156 (filed July 20, 2012) (UTC Comments) at 1 n.1. UTC’s members operate microwave communications networks, including many that are licensed in the 11, 18 and 23 GHz bands. *Id.*

<sup>64</sup> Based on Universal Licensing System search on November 13, 2012.

<sup>65</sup> Comsearch Comments at 10.

believes that other frequency coordinators do not track failed coordination attempts.<sup>66</sup> Moreover, respondents uniformly estimated the “rejection rate” to be very low or non-existent. Comsearch estimates, based upon anecdotal examples, that the percentage of links where it has not been able to find a point-to-point microwave solution when requested is less than one percent.<sup>67</sup> UTC cannot recall coordinating an application in those bands that could not be accommodated, whether the application was for private or common carrier operation.<sup>68</sup>

26. Sprint reports that it has never been required to modify its initial request for a microwave link in the 11 GHz, 18 GHz, or 23 GHz bands to seek a license in another frequency band due to the unavailability of channel pairs in the desired spectrum.<sup>69</sup> Clearwire states that it “has never been in a position where it was completely unable to locate the microwave frequencies it needed.”<sup>70</sup> Clearwire reports that on occasion, it has been unable to obtain spectrum in a particular band, but it was able to revise its request to specify another band.<sup>71</sup> AT&T describes rejections as rare.<sup>72</sup>

27. FWCC concludes that “only a very small number of initial frequency requests, however defined, go unsatisfied.”<sup>73</sup> FWCC believes that the skill of frequency coordinators and the many options they have available to resolve interference issues results in an extremely small rejection rate.<sup>74</sup>

### 3. Conclusions on “Rejection Rate” for Coordination Requests

28. It is not possible to calculate a precise rejection rate for coordination requests in the 11 GHz, 18 GHz, and 23 GHz bands because frequency coordinators do not keep records on rejected coordination requests. None of the commenters, including applicants, provided a specific example of a rejected coordination request. Based on the comments filed in response to the Comment Public Notice, the Bureau estimates that the rejection rate for coordination requests is well under one percent. The Bureau finds it particularly significant that Clearwire, which holds the largest total number of FS licenses in the 11 GHz, 18 GHz, and 23 GHz bands, has never had a coordination request rejected. While Clearwire holds private licenses, the process and frequencies are the same for common carrier applicants, and we have no reason to believe that the rate of rejection of applications by common carrier users would significantly differ. Furthermore, Sprint and AT&T, which hold significant numbers of common carrier licenses, report that rejected coordination requests are either nonexistent or rare.

29. We do not see any reason why the rejection rate would materially increase in these bands in the near future. The Commission has noted that there is increasing congestion in the 5925-6425 MHz microwave band.<sup>75</sup> In the 11 GHz, 18 GHz, and 23 GHz bands, greater reuse of the frequencies is

---

<sup>66</sup> FWCC Comments at 11.

<sup>67</sup> Comsearch Comments at 10.

<sup>68</sup> UTC Comments at 1-2.

<sup>69</sup> Sprint Comments at 2.

<sup>70</sup> Clearwire Comments at 3.

<sup>71</sup> *Id.*

<sup>72</sup> Comments of AT&T, Inc., WT Docket No. 12-156 (filed July 20, 2012) at 2.

<sup>73</sup> FWCC Comments at 8.

<sup>74</sup> FWCC Comments at 11.

<sup>75</sup> See Amendment of Part 101 of the Commission’s Rules to Accommodate 30 Megahertz Channels in the 6525-6875 MHz Band, WT Docket No. 09-114, *Report and Order*, 25 FCC Rcd 7760, 7761 ¶ 4 (2010).

possible because the path lengths are shorter. Furthermore, the frequency coordination process has successfully allowed applicants and licensees to work together to resolve potential interference issues.

## V. CONCLUSION

30. With respect to applications filed with the Commission since May 1, 2010 in the Common Carrier Fixed Point-to-Point Microwave Service in the 11 GHz, 18 GHz, and 23 GHz bands, the rejection rate, as defined in the Section 6412 of the Middle Class Tax Relief and Job Creation Act of 2012, P.L. 112-96, is zero. With respect to requests since January 1, 2010, made to frequency coordinators by potential applicants for common carrier operations in those bands, the rejection rate is estimated to be well under one percent.

31. This Report is being issued pursuant to delegated authority in accordance with Sections 0.131(f) and 0.331 of the Commission's Rules, 47 C.F.R. §§ 0.131(f), 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Ruth Milkman  
Chief, Wireless Telecommunications Bureau

## APPENDIX

Text of Section 6412 of the Spectrum Act:

(a) **FCC REPORT ON REJECTION RATE.**—Not later than 9 months after the date of the enactment of this Act, the Commission shall submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the rejection rate for the spectrum described in subsection (c).

(b) **GAO STUDY ON DEPLOYMENT.**—

(1) **IN GENERAL.**—The Comptroller General of the United States shall conduct a study to assess whether the spectrum described in subsection (c) is being deployed in such a manner that, in areas with high demand for common carrier licenses for the use of such spectrum, market forces—

(A) provide adequate incentive for the efficient use of such spectrum; and

(B) ensure that the Federal Government receives maximum revenue for such spectrum through competitive bidding under section 309(j) of the Communications Act of 1934 (47 U.S.C. 309(j)).

(2) **FACTORS FOR CONSIDERATION.**—In conducting the study required by paragraph (1), the Comptroller General shall take into consideration—

(A) spectrum that is adjacent to the spectrum described in subsection (c) and that was assigned through competitive bidding under section 309(j) of the Communications Act of 1934; and

(B) the rejection rate for the spectrum described in subsection (c), current as of the time of the assessment and as projected for the future, in markets in which there is a high demand for common carrier licenses for the use of such spectrum.

(3) **REPORT.**—Not later than 9 months after the date of the enactment of this Act, the Comptroller General shall submit a report on the study required by paragraph (1) to—

(A) the Commission; and

(B) the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(c) **SPECTRUM DESCRIBED.**—The spectrum described in this subsection is the portions of the electromagnetic spectrum between the frequencies from 10,700 megahertz to 11,700 megahertz, from 17,700 megahertz to 19,700 megahertz, and from 21,200 megahertz to 23,600 megahertz.

(d) **REJECTION RATE DEFINED.**—In this section, the term “rejection rate” means the number and percent of applications (whether made to the Commission or to a third-party coordinator) for common carrier use of spectrum that were not granted because of lack of availability of such spectrum or interference concerns of existing licensees.

(e) NO ADDITIONAL FUNDS AUTHORIZED.—Funds necessary to carry out this section shall be derived from funds otherwise authorized to be appropriated.