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

In the Matter of	)	
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 RM-11417
Amendment of Part 101 of the Commission's Rules to Provide for Conditional Authorization on Additional Channels in the 21.8-22.0 GHz and 23.0-23.2 GHz Band	)	
Fixed Wireless Communications Coalition Request for Waiver	)	

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REPORT AND ORDER

Adopted: June 7, 2010 **Released: June 11, 2010**

By the Commission:

I. INTRODUCTION

1. By our actions in this *Report and Order*, we enhance the flexibility and speed with which companies can obtain access to spectrum for use as wireless backhaul. Wireless backhaul is critical to the deployment of wireless broadband and other wireless services.

2. Specifically, in this *Report and Order*, we make two revisions to our Part 101 rules governing terrestrial fixed wireless services in the 6525-6875 MHz band (Upper 6 GHz Band) and 21.8-22.1 GHz and 23.0-23.3 GHz band (23 GHz Band). First, we provide fixed terrestrial wireless licensees with authority to operate channels with wider bandwidths of as much as 30 megahertz in the Upper 6 GHz Band. Second, we allow applicants to operate pursuant to conditional authority on two additional channel pairs in the 23 GHz Band. Allowing wider bandwidth channels in the Upper 6 GHz Band make an additional source of spectrum for high-capacity microwave links more readily available. Expanding conditional authority in the 23 GHz Band will enable licensees to activate microwave links more quickly, including links involved in critical commercial, backhaul, and public safety applications.

II. WIDER BANDWIDTHS IN THE UPPER SIX GIGAHERTZ BAND

A. Background

3. Most of the Part 101 Fixed Service 6 GHz Band is made up of two sub-bands, 5925-6425 MHz (Lower 6 GHz Band) and 6525-6875 MHz (Upper 6 GHz Band).[1] The Commission licenses

[1] *See* 47 C.F.R. § 101.147(i), (l). The 6425-6525 MHz band allows mobile operations and is shared with mobile stations licensed pursuant to Parts 74 and 78 of the Commission's Rules. *See* 47 C.F.R. § 101.147(j).

terrestrial Fixed Services (FS) in both sub-bands, but the technical rules related to the licensing for each sub-band are different. For FS applicants, the most important distinction is the maximum authorized bandwidth: 30 megahertz is the maximum bandwidth allowed in the Lower 6 GHz Band and 10 megahertz is the maximum allowed in the Upper 6 GHz Band.[2] Applicants for licenses in the Lower 6 GHz Band face more competition for available paths, however, for the following reasons. The Commission issues licenses for satellite earth stations on a co-primary basis with FS in the Lower 6 GHz,[3] but does not issue earth station licenses in the Upper 6 GHz Band. Lower 6 GHz channels are also available for television studio-to-transmitter links (STL) in the local television transmission service (LTTS); Upper 6 GHz channels are not.[4] These differences in regulatory frameworks are rooted in historic considerations that have limited relevance today: the Lower 6 GHz Band was originally assigned for common carriers to provide themselves with FS service on bandwidths of 29.65 megahertz, while the Upper 6 GHz Band was historically assigned for private use with narrower channels.[5] The Fixed Wireless Communications Coalition (FWCC)[6] explains that, today, operations on both of those sub-bands support a variety of critical services such as public safety (including police and fire vehicle dispatch), coordination of railroad train movements, control of natural gas and oil pipelines, regulation of electric grids, and backhaul for wireless traffic.[7]

4. The Lower 6 GHz Band is increasingly congested, partly because FS users can obtain wider bandwidths on those frequencies but also because other services are allowed to use the band. As of April 7, 2010, there were 15,936 active FS licenses in the Lower 6 GHz Band.[8] Furthermore, as of March 31, 2010, the Lower 6 GHz Band had 1,641 licensed satellite earth stations.[9] Through the frequency coordination process, and consistent with existing rules, each earth station is routinely cleared to use the entire 5925-6425 MHz band for the entire geosynchronous arc, even if the earth station actually communicates with only one transponder on one satellite on a limited set of channels.[10] Thus, a satellite

[2] 47 C.F.R. § 101.109. The bandwidths for specific frequencies in the bands are specified in 47 C.F.R. §§ 101.147(i) and (l). Links with bandwidths of 0.4, 0.8, 1.6, 1.25, 2.5, 3.75, 5.0, and 10.0 MHz can be authorized in both bands. 47 C.F.R. §§ 101.147(i) and (l).

[3] 47 C.F.R. Part 25.202; 47 C.F.R. § 2.106. Satellite uplink channels at 5925-6425 MHz are paired with space-to-earth channels at 3700-4200 MHz. In combination, the two sets of channels are referred to as the C-band when used for satellite communications. *See* FCC Report to Congress as Required by the Orbit Act, *Ninth Report*, FCC 08-152 (rel. Jun. 18, 2008) at 4 n.19.

[4] 47 C.F.R. § 101.147(a) n.25.

[5] *See* Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, ET Docket No. 92-9, *Third Further Notice of Proposed Rulemaking*, 7 FCC Rcd 6100, 6102 ¶¶ 10-11 (1992).

[6] FWCC states that its membership includes manufacturers of microwave equipment, 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 and private cable providers, backhaul providers, and/or their respective associations, communications carriers, and telecommunications attorneys and engineers. *See* Fixed Wireless Communications Coalition Petition for Rulemaking (filed Feb. 4, 2008) (FWCC 6 GHz Petition) at 1 n.1. FWCC states that its members build, install, and use both licensed and unlicensed point-to-point, point-to-multipoint, and other fixed wireless systems in frequency bands from 900 MHz to 95 GHz. *Id.*

[7] FWCC 6 GHz Petition at 4.

[8] FCC Universal Licensing System (ULS) review conducted on April 7, 2010.

[9] FCC International Bureau Electronic Filing System (MyIBFS) scan conducted April 2010.

[10] *See* Reply Comments of the Fixed Wireless Communications Coalition, RM-11417 (filed Apr. 30, 2008) at 5.

earth station has an extensive preclusive effect on the ability of subsequent applicants to coordinate stations in adjacent areas. By comparison, the typical terrestrial FS station is coordinated for a narrow beamwidth on a single channel or a limited set of channels.[11]

5. The congestion in the Lower 6 GHz Band has led a number of FS applicants to file waiver requests seeking licenses to operate in the Upper 6 GHz Band on bandwidths that are greater than the 10 megahertz that is authorized by rule. As of April 7, 2010, the Commission had issued waivers authorizing 957 FS frequency paths with bandwidths greater than 10 megahertz in the Upper 6 GHz Band, of which 625 were authorized with 30 megahertz bandwidths.[12] These waivers were granted to applicants who demonstrated that there were no channels available in the Lower 6 GHz Band with comparable bandwidth, that other, higher frequency bands were not suitable for the proposed paths, and that there were no other alternatives.[13] While the waiver process has provided an alternative for applicants seeking wider bandwidths in the Upper 6 GHz, some FS operators have argued that it has the disadvantages of delay and additional preparation costs.

6. Pursuant to Section 101.103 of the Commission's Rules,[14] applicants for FS licenses are required to coordinate their proposed stations with incumbent licensees and contemporaneous applicants to ensure that they will not interfere with each other. Once that process is completed, the Commission's rules provide many applicants with conditional authority to begin service immediately, without waiting for final approval from the Commission, with the stipulation that they must take their stations down if the Commission later rejects their applications.[15] Conditional authority is not available, however, to applicants that must request waivers of existing rules.[16]

7. On February 4, 2008, FWCC filed a petition proposing that the Commission change its rules to allow channels with 30 megahertz bandwidths in the Upper 6 GHz Band,[17] a change that would extend the opportunity for fast-track, conditional authorizations to the Upper 6 GHz. Specifically, FWCC proposed that the Commission (1) amend Section 101.109(c) of its Rules to permit coordination and licensing of 30 megahertz channels in the Upper 6 GHz Band, (2) amend Section 101.147(a) of the Commission's rules to state that coordination of a 30 megahertz link in the Upper 6 GHz Band should be attempted only if the link cannot be accommodated in the Lower 6 GHz Band, and (3) amend Section 101.147(l) to specify frequency pairs for 30 megahertz channels, while retaining the present option of using narrowband channels and preserving frequencies that are presently allocated for emergency restoration.[18]

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[11] *See* 47 C.F.R. § 101.109.

[12] FCC Universal Licensing System (ULS) review conducted on April 7, 2010. There were no licenses in the Upper 6 GHz that authorized bandwidths greater than 30 megahertz, and the ULS had no records of any applications seeking bandwidths greater than 30 megahertz. *Id.*

[13] *See, e.g.*, Maryland Public Broadcasting Commission, *Memorandum Opinion and Order*, 21 FCC Rcd 1647, 1650 ¶ 7 (WTB BD 2006).

[14] 47 C.F.R. § 101.103.

[15] 47 C.F.R. § 101.31(b)(1).

[16] 47 C.F.R. § 101.31(b)(1)(iii).

[17] FWCC 6 GHz Petition.

[18] *Id.* at 5. The 6535 MHz/6575 MHz channel pair is reserved for emergency restoration, maintenance bypass, and other temporary fixed purposes. *See* 47 C.F.R. § 101.147(l)(7) n.2.

8. A public notice inviting comment on the FWCC 6 GHz Petition was published on February 28, 2008.[19] The Commission received six comments and three reply comments in response to the *Public Notice*.[20] The comments submitted in response represented the views of an equipment manufacturer,[21] associations representing the fixed microwave community,[22] a frequency coordinator that specializes in spectrum management of terrestrial microwave, satellite, and mobile telecommunications systems,[23] and a telecommunications carrier.[24] AT&T, Inc. (AT&T), Comsearch, Harris Stratex Networks, Inc., Radio Dynamics Corp., and the Utilities Telecom Council supported FWCC's proposal.[25] The American Petroleum Institute (API), a trade association representing the oil and natural gas industry, was the only commenting party opposing the FWCC 6 GHz Petition.[26] API argued that the Upper 6 GHz Band should be preserved for use by private operational fixed microwave licensees, including narrow bandwidth licensees that the Commission has required to vacate both the 1.9 GHz band and, more recently, the 2.1 GHz band.[27] API contended that allowing 30 megahertz licenses in the Upper 6 GHz Band could cause congestion and encourage speculative licensing.[28] API stated that channel assignments for incumbent licensees in the 2.1 GHz band are generally limited to a maximum of 800 kHz, and that, as a consequence, those incumbents will not require 30 megahertz bandwidths when they are relocated.[29] API contended that the availability of 30 megahertz bandwidth channels in the Lower 6 GHz Band is one

[19] Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemaking Filed, *Public Notice*, Report No. 2852 (Feb. 28, 2008) (*Public Notice*).

[20] *See* Statement in Opposition, American Petroleum Institute Telecommunications Committee (API), (filed Mar. 31, 2008) (API Opposition to FWCC Petition); AT&T Inc., Comments (filed Mar. 31, 2008) (AT&T Comments on FWCC Petition); Comsearch, Comments (filed Mar. 28, 2008) (Comsearch Comments on FWCC Petition); Fixed Wireless Communications Coalition, Comments (Mar. 31, 2008) (FWCC Comments on FWCC Petition); Harris Stratex Networks, Inc. (Harris), Comments (filed Mar. 31, 2008) (Harris Comments on FWCC Petition); Radio Dynamics Corp., Comments (filed Mar. 31, 2008) (Radio Dynamics Comments on FWCC Petition); AT&T Inc., Reply Comments (filed Apr. 30, 2008) (AT&T Reply to Comments on FWCC Petition); Fixed Wireless Communications Coalition, Reply Comments (filed Apr. 30, 2008) (FWCC Reply to Comments on FWCC Petition); Reply of the Utilities Telecom Council (UTC) (filed Apr. 30, 2008) (UTC Reply to Comments on FWCC Petition).

[21] *See* Harris Stratex Networks Comments on FWCC Petition.

[22] *See* FWCC Comments and Reply Comments on FWCC Petition and UTC Reply to Comments on FWCC Petition. UTC describes itself as the international trade association for the telecommunications and information technology interests of electric, gas and water utilities and other critical infrastructure industries. UTC Reply to Comments on FWCC Petition at 1.

[23] *See* Comsearch Comments on FWCC Petition.

[24] *See* AT&T Comments and Reply to Comments on FWCC Petition.

[25] *See generally* AT&T Comments on FWCC Petition; Comsearch Comments on FWCC Petition; FWCC Comments on FWCC Petition; Harris Comments on FWCC Petition; Radio Dynamics Corp. Comments on FWCC Petition; AT&T Reply to Comments on FWCC Petition; FWCC Reply to Comments on FWCC Petition; UTC Reply to Comments on FWCC Petition.

[26] *See* Statement in Opposition, American Petroleum Institute (filed Mar. 31, 2008) (API Opposition to FWCC Petition).

[27] API Opposition to FWCC Petition at 3. API notes that the final deadline for incumbent licensees to relocate from the 2.1 GHz band is 2016. *Id.* at 3 n.10.

[28] API Opposition to FWCC Petition at 4.

[29] *Id.* at 3-4.

of the reasons why the Lower 6 GHz Band has become congested, and that making such wide channels available in the upper 6 GHz would lead to similar congestion in the upper 6 GHz.[30] That, in turn, it argued, could frustrate efforts to relocate displaced licensees from the 2.1 GHz band, potentially requiring them to resort to bands that cannot support the long signal paths that are feasible at 6 GHz.[31] AT&T countered this argument with the observation that, under existing rules, new licensees in the 2.1 GHz band will be required to compensate displaced incumbents for the cost of relocations, regardless of whether the incumbent is relocated to a single link in the 6 GHz band or multiple links in a higher band that requires shorter spacing between transmitters and receivers.[32]

9. On June 29, 2009, the Commission released a *Notice of Proposed Rulemaking*[33] in which we proposed and sought comment on modifying the Commission's Part 101 Rules to provide fixed terrestrial wireless licensees with authority to use channels with wider bandwidths of as much as 30 megahertz in the Upper 6 GHz Band.[34] We found that such action could serve the public interest by making more readily available an additional source of spectrum for high-capacity microwave links.[35] We sought comment on API's concerns that allowing 30 megahertz channels in the Upper 6 MHz Band could lead to congestion and speculative licensing.[36] We also sought comment on FWCC's proposal that we require applicants for 30 megahertz channels in the Upper 6 GHz Band to demonstrate that the requisite paths are not available in the Lower 6 GHz Band, as well as a suggestion by Comsearch that we consider requiring a further showing that channels in the 10.7-11.7 GHz band would not be available or sufficiently reliable.[37] Finally, we sought comment on the specific channel plan proposed by FWCC, which envisions 30 megahertz bandwidth paired channels (60 megahertz total for each authorized path) at 6555 and 6725 MHz, 6595 and 6755 MHz, 6625 and 6785 MHz, 6655 MHz and 6815 MHz, and 6685 MHz and 6845 MHz.[38] We further invited comment on alternative band plans, in particular whether additional channel bandwidths besides 30 megahertz are needed.[39]

B. Comments

10. All commenters who addressed the issue support the *NPRM*'s proposal to authorize 30 megahertz channels in the Upper 6 GHz Band.[40] AT&T, Clearwire Corporation (Clearwire), the National

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[30] *Id.* at 4.

[31] *Id.*

[32] Reply Comments of AT&T, Inc. (filed Apr. 30, 2008) at 4-5, *citing* 47 C.F.R. §§ 24.239, 101.75(a).

[33] Amendment of Part 101 of the Commission's Rules to Accommodate 30 Megahertz Channels in the 6525-6875 MHz Band, et al., WT Docket No. 09-114, RM-11417, *Notice of Proposed Rulemaking and Order*, 24 FCC Rcd 9620 (2009) (*NPRM*).

[34] *NPRM*, 24 FCC Rcd at 9627 ¶ 15.

[35] *Id.*

[36] *Id.* at 9627-9628 ¶ 16.

[37] *Id.* at 9628 ¶ 17, *citing* Comsearch Comments on FWCC Petition at 2 n.2.

[38] *Id.* at 9628 ¶ 19; FWCC 6 GHz Petition at Appendix. Section 101.145(l) designates overlapping channel frequencies for several different bandwidths, i.e., the channel positions that we propose for 30 megahertz links would not preclude assignment of the same channel positions, at different locations, to links with different bandwidths.

[39] *NPRM*, 24 FCC Rcd at 9628 at ¶ 19.

[40] Although API filed comments opposing the FWCC 6 GHz Petition, it did not file comments on the *NPRM*.

Spectrum Management Association (NSMA), Tier One Converged Networks, Inc. (Tier One), and Cielo Networks, Inc. (Cielo) believe that allowing 30 megahertz channels in the Upper 6 GHz Band would help meet an increasing demand for high-capacity microwave links.[41] AT&T observes that high-capacity links provide numerous benefits, including improved backhaul link availability and lower cost for carriers, which is passed on to consumers in the form of lower prices.[42] Clearwire states that the proposed change would provide it with more flexibility to launch its broadband wireless service expeditiously in new markets and to expand its existing service area more efficiently in already launched markets.[43] It argues that the Commission's experience in granting many waivers for such links in the Upper 6 GHz Band demonstrates that wider bandwidths in that band will not have adverse consequences.[44] Tier One and Cielo contend that, as the deployment of public and private broadband services grows, there is a clear need for additional channels with bandwidths greater than 10 megahertz.[45] They expect this demand to accelerate substantially in the next several years, driven in significant part by the federal government's new encouragement and financial support for the provision of more pervasive robust broadband access in rural and other areas that are either underserved or lack broadband service altogether.[46] NSMA says that fixed service facilities must often be installed on short notice to meet urgent public safety, infrastructure and business data needs, which are difficult to meet when applicants must obtain waivers before beginning operations.[47]

11. Regarding concerns that allowing 30 megahertz channels in the Upper 6 GHz Band could encourage speculative licensing by applicants seeking more spectrum than they need for their own operational purposes, commenters that address the issue are unanimous in their belief that it will not do so. They cite a variety of existing and proposed rules as grounds for that position. FWCC, AT&T, NSMA, Tier One and Cielo all argue that Section 101.141(a) of the Commission's Rules, which sets a minimum payload capacity and requires stations to load to at least 50 percent of capacity within 30 months, is effective at deterring speculative licensing.[48] FWCC also cites the requirement that Part 101 stations be placed into operation within 18 months after their licenses are issued.[49] FWCC, AT&T and NSMA also support the *NPRM*'s proposal that all applicants for 30 megahertz channels in the Upper 6 GHz be required to show that no 30 megahertz channels are available in the Lower 6 GHz Band over the paths that they are seeking.[50] AT&T argues that frequency coordination has been used for many years to protect the efficient use of fixed microwave spectrum; it contends that the Commission's existing rules

[41] Comments of AT&T, Inc. (filed Aug. 21, 2009) (AT&T Comments) at 2; Comments of Clearwire Corporation (filed Aug. 17, 2009) (Clearwire Comments) at 1, Comments of National Spectrum Managers Association (filed Aug. 21, 2009) (NSMA Comments) at 2, Comments of Tier One Converged Networks, Inc. (filed Jul. 24, 2009) (Tier One Comments) at 1, Comments of Cielo Networks, Inc. (filed Jul. 27, 2009) (Cielo Comments) at 1.

[42] AT&T Comments at 2-3.

[43] Clearwire Comments at 1.

[44] *Id.* at 2.

[45] Tier One Comments at 1, Cielo Comments at 1.

[46] *Id.*

[47] NSMA Comments at 2.

[48] Comments of the Fixed Wireless Communications Coalition (filed Aug. 21, 2009) (FWCC Comments) at 2-3, *citing* 47 C.F.R. § 101.141(a). *See also* AT&T Comments at 2-3, NSMA Comments at 4, Tier One Comments at 1, Cielo Comments at 1.

[49] FWCC Comments at 2. *See* 47 C.F.R. § 101.63(a).

[50] FWCC Comments at 3, NSMA Comments at 3, and AT&T Comments at 4.

and processes can likewise ensure that fixed microwave licensees in the Upper 6 GHz Band are authorized only for the bandwidths necessary to meet their communications needs.[51] Tier One and Cielo argue that the competitive economic pressures faced by the commercial service providers and private users of all Part 101 bands make it highly unlikely that license applications would be filed for frequencies and locations where there is insufficient commercial or private demand to support the expenditures inherent in the licensing process.[52]

12. FWCC and NSMA express qualified support for the Comsearch proposal mentioned in the *NPRM* that applicants be required to demonstrate that available channels in the 11 GHz band could not support the path lengths required by the applicant.[53] Their caveat is that that this kind of showing should not be required of Upper 6 GHz Band users that are already licensed for narrower bandwidths and are seeking to expand the bandwidths served by their existing facilities.[54] Allowing incumbent 6 GHz licensees to expand their bandwidths within that same band rather than requiring them to move to the 11 GHz band would enable them to re-use existing facilities, such as transmission equipment and antennas, that otherwise would have to be replaced at significant expense.[55]

13. With respect to the possible impact on the relocation of microwave links from the 2 GHz band, NSMA states that there are several bands to which such systems can be relocated, including the 6, 10, 18, and 38 GHz bands.[56] NSMA believes that these bands can support performance similar to that of the 2 GHz bands with proper system design, depending primarily on path length and design objectives.[57]

14. AT&T and NSMA support the band plan proposed by FWCC and by the Commission in the *NPRM*.[58] NSMA states that a standardized channel plan is a more sensible approach than continuing to review waiver requests for 30 megahertz channels in the Upper 6 GHz Band.[59] AT&T notes that there are minor textual errors in the rules appendix of the *NPRM*.[60] Specifically, the appendix incorrectly shows the third channel pair in proposed Rule 101.147(l)(8) as being 6525 and 6785 MHz rather than 6625 and 6785 MHz.[61] Additionally, the appendix incorrectly shows the boundaries of the band in proposed Rule 101.147(a)(33) as being 6525-6825 MHz rather than 6525-6875 MHz.[62] FWCC also asks that those corrections be made.[63]

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[51] AT&T Comments at 4.

[52] Tier One Comments at 1, Cielo Comments at 1.

[53] FWCC Comments at 3, NSMA Comments at 3.

[54] FWCC Comments at 3, NSMA Comments at 3-4.

[55] *Id.*

[56] NSMA Comments at 4-5.

[57] *Id.* at 5.

[58] AT&T Comments at 3, NSMA Comments at 4.

[59] NSMA Comments at 4.

[60] AT&T Comments at 3 n.7.

[61] *Id.*

[62] *Id.*

[63] Reply Comments of the Fixed Wireless Communications Coalition (filed Sep. 8, 2009) (FWCC Reply Comments) at 2.

15. In response to the question in the *NPRM* asking whether channels with bandwidths wider than 30 megahertz should be authorized,[64] Tier One and Cielo urge the Commission to authorize a limited number of additional channels with bandwidths of 40 megahertz or higher in order to support what they say is strongly growing demand for long distance microwave links with capacities of 200 megabits per second (Mbps) or higher, driven in part by rising federal subsidies for broadband service to rural areas.[65] They believe that demand for such long distance, high capacity links is substantial and will grow significantly.[66] They acknowledge that, even with the wider bandwidths that they propose, achieving such transmission rates will require operators to combine channel pairs and resort to duplex transmission.[67] They say that microwave links are necessary not only to serve places where optical fiber would be prohibitively expensive but also to provide service quickly during the extensive permitting and construction times that are often required for fiber.[68] FWCC opposes authorizing links of 40 megahertz bandwidth in the Upper 6 GHz Band.[69] It expresses concern that because 40 megahertz links are not available in the Lower 6 GHz Band, authorizing such links in the Upper 6 GHz Band could cause excessive congestion.[70]

C. Discussion

16. We conclude that the public interest would be served by authorizing 30 megahertz bandwidth channels in the Upper 6 GHz Band. Comments filed in response to the *NPRM* unanimously support authorizing 30 megahertz channels in the Upper 6 GHz band. We find such action could serve the public interest by making an additional source of spectrum for high-capacity microwave links more readily available. As FWCC states, such links support a variety of important commercial, public safety, and consumer uses, including backhaul for broadband systems. Furthermore, the high number of waiver requests seeking licenses for 30 megahertz channels (625 authorized paths as of April 7, 2010) is evidence of a notable demand for 30 megahertz channels in this band.[71] We believe that allowing such channels without requiring applicants to seek a waiver would expedite the provision of service by allowing them to take advantage of conditional authority.

17. All of the commenters agree that our existing rules and policies are sufficient to prevent congestion and speculative licensing. There is no indication in the record that the many waiver requests that the Bureau has already granted for 30 megahertz channels in the Upper 6 GHz Band have caused problems for relocating licensees. Nor does the record suggest that the Upper 6 GHz Band has any special characteristics that would cause it to be particularly susceptible to speculative licensing. That is not surprising in light of the fact that thirty megahertz channels throughout the 6 GHz band are already required to have a minimum payload capacity of 134.1 Mbits/s and must load at least 50 percent of that

[64] *See NPRM*, 24 FCC Rcd at 9628 ¶ 19.

[65] Tier One Comments at 1, Cielo Comments at 1.

[66] *Id.*

[67] *Id.*

[68] *Id.*

[69] *See Ex Parte*, Fixed Wireless Communications Coalition (Oct. 26, 2009).

[70] *Id.*

[71] As mentioned earlier, the Commission has granted 957 waivers to allow FS frequency paths greater than 10 megahertz in the Upper 6 GHz Band, 625 of them have been for 30 megahertz channels.

capacity within 30 months after they are licensed.[72] Our rules also require FS links in the 6 GHz band to have a minimum path length of 17 kilometers (km).[73]

18. As an added safeguard against congestion, we also adopt the *NPRM*'s proposal that applicants for 30 megahertz channels on new facilities in the Upper 6 GHz Band be required to demonstrate that 30 megahertz channels in the Lower 6 GHz Band are unavailable. This condition is supported by FWCC, NSMA, and AT&T. We decline, however, to require a showing that available channels in the 11 GHz band could not support the path lengths required by the applicant. As FWCC and NSMA point out, this requirement could be a burden for applicants that are already licensed to operate on the same paths in the 6 GHz band. While we could apply the condition but exempt applicants with existing 6 GHz transmission equipment from such a requirement, we have not instituted such a requirement in the Lower 6 GHz Band, and no commenter has made a showing that such a requirement is necessary. We believe that the existing and other newly adopted requirements provide adequate assurance that wide-bandwidth spectrum in the Upper 6 GHz Band will be used efficiently.

19. We decline to adopt the Tier One/Cielo proposal that we also begin issuing licenses for bandwidths of 40 megahertz or more in the Upper 6 GHz Band. While, as noted above, we have received many waiver requests for 30 megahertz channels, we have not received any requests for waivers authorizing such bandwidths in the Upper 6 GHz Band. Furthermore, no commenter proposed a band plan that would accommodate 40 megahertz or wider channels. Finally, for shorter paths, we note that 40 and 50 megahertz channels are available in the 18 and 23 GHz bands.[74] We may revisit this conclusion in the future if a more concrete showing of need for wider channels in the 6 GHz Band is made.

20. We do not believe that new rules authorizing 30 megahertz channels in the Upper 6 GHz Band will have an adverse impact on the relocation of incumbent licensees that are being displaced from the 2 GHz band. As NSMA states, the 6, 10, 18 and 38 GHz bands can all accommodate new FS facilities.[75] To the extent that licensees displaced from lower bands must establish additional links to complete the same paths at higher frequencies, AT&T is correct in its observation that any added costs will fall upon the providers of emerging technologies that are newly licensed to the reallocated bands, not upon the displaced incumbents.[76]

21. To implement these new rules, we also adopt the specific channel plan proposed in the *NPRM*, with the corrections noted by AT&T and FWCC,[77] *i.e.*, 30 megahertz bandwidth paired channels (for 60 megahertz total for each authorized path) at 6555 and 6725 MHz, 6595 and 6755 MHz, 6625 and 6785 MHz, 6655 MHz and 6815 MHz, and 6685 MHz and 6845 MHz. AT&T and NSMA support this proposal, and no other commenters propose any alternative channelization scheme.[78]

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[72] 47 C.F.R. § 101.141(a)(3).

[73] 47 C.F.R. § 101.143(a).

[74] *See* 47 C.F.R. § 101.147(r)(10), (11), (s)(7).

[75] *See* NSMA Comments at 4-5.

[76] *See* AT&T Reply to Comments on FWCC Petition at 4-5, *citing* 47 C.F.R. §§ 24.239, 101.75(a).

[77] *See* AT&T Comments at 3, FWCC Reply Comments at 2.

[78] AT&T Comments at 3, NSMA Comments at 4.

III. CONDITIONAL AUTHORITY FOR OPERATION IN THE 23 GIGAHERTZ BAND

A. Background

22. The Commission's rules provide for conditional authorization of fixed microwave links, allowing the license applicant to begin operating a link as soon as the application is filed, if the link has been frequency coordinated and certain other conditions are met.[79] The frequencies in the 23 GHz band are shared by federal and non-federal users.[80] For this reason, conditional authority in the band is limited to frequencies for which the Commission has an agreement with the National Telecommunications and Information Administration (NTIA) to permit conditional authorization.[81] Thus, in the 23 GHz band, conditional authority is currently limited to four channel pairs – 21.825/23.025 GHz, 21.875/23.075 GHz, 21.925/23.125 GHz, and 21.975/23.175 GHz – for non-federal applicants proposing to limit their equivalent isotropically radiated power (EIRP) to 55 dBm.[82]

23. On November 7, 2007, FWCC submitted a petition for rulemaking requesting that the Commission allow conditional licensing for non-federal use, with NTIA's consent, on two additional channel pairs in the 23 GHz band – the 22.025/23.225 GHz and 22.075/23.275 GHz channel pairs – for applicants proposing to limit their EIRP to 55 dBm.[83] In the *NPRM*, we sought comment on whether to allow conditional authority on the 22.025/23.225 GHz and 22.075/23.275 GHz channel pairs for applicants proposing to limit their EIRP to 55 dBm.[84] We stated that we had coordinated our proposal with NTIA and that our decision to seek comment on it was predicated on NTIA's lack of opposition.[85] We noted further that the Commission has previously recognized that permitting conditional operation pending the approval of an application provides greater flexibility to Part 101 licensees and enables them to operate more efficiently.[86]

B. Comments

24. Parties who commented on this issue unanimously support the *NPRM*'s proposal to allow conditional authority on additional channel pairs in the 23 GHz band. They note that the 23 GHz band

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[79] 47 C.F.R. § 101.31(b)(1). The applicant agrees to cease operation immediately if the application is dismissed or denied. 47 C.F.R. § 101.31(b)(2).

[80] *See* 47 C.F.R. § 2.106 (United States Table of Frequency Allocations).

[81] *See* Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, WT Docket No. 00-19, *Report and Order*, 17 FCC Rcd 15040, 15066 ¶ 54 (2002) (*Part 101 R&O*).

[82] *See* 47 C.F.R. § 101.31(b)(1)(vii).

[83] Fixed Wireless Communications Coalition Petition for Rulemaking (filed Nov. 7, 2007) (FWCC 23 GHz Petition) at 1.

[84] *NPRM*, 24 FCC Rcd at 9628-9629 ¶¶ 20-22. For procedural reasons we instituted that section of the *NPRM* on our own motion, while taking cognizance of the FWCC 23 GHz Petition. *See* 47 C.F.R. § 1.411 (no requirement that Commission follow procedures applicable to rulemaking commenced on the basis of a petition for rulemaking if the Commission commences a proceeding on its own motion). We also waived Section 1.403 to the extent, if any, that it required us to put the FWCC 23 GHz Petition on public notice. *NPRM*, 24 FCC Rcd at 9629 n.68. We noted that FWCC had stated that it would not object to such treatment. *Id.*, *citing* FWCC 23 GHz Petition at 6.

[85] *NPRM*, 24 FCC Rcd at 9629 ¶ 22.

[86] *Id.*, *citing* 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, 13461-13462 ¶¶ 26-27 (1996).

can be used for such important applications as wireless backhaul, public safety communications, utilities communications, and public enterprise applications (such as education networks).[87] AT&T and Motorola contend that the lack of opportunity to begin operations under conditional authority causes significant delays in the provision of fixed services to customers.[88] Tier One and Cielo agree that allowing conditional authority on additional channel pairs will serve the public interest by facilitating the more expeditious deployment of short distance links.[89] Motorola notes that the 23 GHz band channels on which conditional authority is currently allowed are much more heavily utilized than other channels in that band.[90] FWCC argues that there is "no conceivable downside" to extending conditional authority to additional channel pairs.[91] Clearwire says that the established frequency coordination process provides adequate protection against adverse interference.[92]

C. Discussion

25. We adopt our proposal to allow conditional authority on two additional channel pairs in the 23 GHz band – the 22.025/23.225 GHz and 22.075/23.275 GHz channel pairs – for applicants proposing to limit their effective isotropically radiated power (EIRP) to 55 dBm. All of the commenting parties agree that increasing the availability of conditional licensing under those terms will provide significant benefits, by enabling applicants to activate short links more quickly. The only parties that are in any position to be injured are the federal agencies that are represented by NTIA. NTIA has consulted with them through its Interdepartment Radio Advisory Committee and has concluded that they will suffer no adverse impact by allowing conditional authority on two additional channel pairs in the 23 GHz band, provided that such applicants limit their EIRP to 55 dBm, as FWCC proposes. Those agencies are informed by their experience with conditional authority on the four channels pairs where it is already allowed in the 23 GHz band, and where the same EIRP limit applies.[93] For those reasons, we adopt the proposed rule.[94]

IV. PROCEDURAL MATTERS

A. Regulatory Flexibility Act Analysis

26. A Final Regulatory Flexibility Analysis (FRFA) with respect to the *Report and Order*, pursuant to the Regulatory Flexibility Act (RFA),[95] is contained in Appendix B. The Commission's

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[87] AT&T Comments at 4-5, Comments of Motorola, Inc. (filed Aug. 21, 2009) (Motorola Comments) at 2, NSMA Comments at 5-6, Tier One Comments at 1, Cielo Comments at 1.

[88] AT&T Comments at 4, Motorola Comments at 2.

[89] Tier One Comments at 1, Cielo Comments at 1.

[90] Motorola Comments at 2 n.6, *citing* Fixed Wireless Communications Coalition, *Ex Parte* Communication, RM-11417 (filed Mar. 13, 2009) at slide 6 (23 GHz band channel pairs with conditional authority have over 7,000 licenses, while no other 23 GHz band channel pair has 2,000 licenses).

[91] FWCC Comments at 3.

[92] Clearwire Comments at 2-3.

[93] *See* 47 C.F.R. § 101.31(b)(1)(vii).

[94] In addition to the rule changes proposed in the *NPRM*, we also amend Section 101.147(s) of the Commission's Rules to clarify that those frequencies may be assigned to low power systems that would be eligible for conditional authority.

[95] *See* 5 U.S.C. § 604.

Consumer Information Bureau, Reference Information Center, will send a copy of this *Report and Order*, including the FRFA, to the Chief Counsel of the Small Business Administration in accordance with the RFA.

B. Paperwork Reduction Analysis

27. This document does not contain proposed information collection requirements subject to the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, therefore, it does not contain any proposed information collection burden "for small business concerns with fewer than 25 employees," pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. § 3506(c)(4).

C. Further Information

28. For further information concerning this *Report and Order*, contact Charles Oliver or Stephen Buenzow of the Wireless Telecommunications Bureau, Broadband Division at (202) 418-2487 (voice), (202) 418-7233 (TTY).

V. ORDERING CLAUSES

29. Accordingly, IT IS ORDERED, pursuant to Sections pursuant to Sections 1, 2, 4(i), 7, 10, 201, 214, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332 and 333 of the Communications Act of 1934, 47 U.S.C. §§ 151, 152, 154(i), 157, 160, 201, 214, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, 333, that this *Report and Order* is hereby ADOPTED.

30. IT IS FURTHER ORDERED that Part 101 of the Commission's Rules IS AMENDED as set forth in Appendix A, and that these rules shall be effective 30 days after publication in the Federal Register.

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

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Final Rules

Part 101 of Title 47 of the Code of Federal Regulations is amended as follows:

I. PART 101 – FIXED MICROWAVE SERVICES

1. The authority citation for Part 101 continues to read as follows: AUTHORITY: 47 U.S.C. 154, 303.

2. Amend § 101.31(b)(1)(vii) to read as follows:

§ 101.31 Temporary and conditional authorizations.

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(b) ***

(1) ***

(vii) With respect to the 21.8-22.1 GHz and 23.0-23.3 GHz band, the filed application(s) does not propose to operate on a frequency pair centered on other than 21.825/23.025 GHz, 21.875/23.075 GHz, 21.925/23.125 GHz, 21.975/23.175 GHz, 22.025/23.225 GHz or 22.075/23.275 GHz and does not propose to operate with an E.I.R.P. greater than 55 dBm. The center frequencies are shifted from the center frequencies listed above for certain bandwidths as follows: add 0.005 GHz for 20 MHz bandwidth channels, add 0.010 GHz for 30 megahertz bandwidth channels, and subtract 0.005 GHz for 40 MHz bandwidth channels. *See* specific channel listings in §101.147(s).

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3. Amend § 101.109(c) by revising the table to read as follows:

§ 101.109 Bandwidth.

*****

(c) ***

*****

6,525 to 6,875 ..... 30 MHz[1]

*****

3. Amend § 101.147 by revising the table in paragraph (a), adding a new note (33) in paragraph (a), adding a new paragraph (l)(8), and by revising the table in paragraph (s) to read as follows:

§ 101.147 Frequency Assignments

*****

(a) ***

*****

6,525-6,875 MHz (14) (33)

*****

(33) The coordination of a new 30 megahertz link in the 6,525-6,875 MHz band should be attempted only if it cannot be accommodated in the 5,925-6,425 MHz band.

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(l) ***

(8) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6555.....	6725
6595.....	6755
6625.....	6785
6655.....	6815
6685.....	6845

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(s) ***

Transmit (receive) (MHz) Receive (transmit) (MHz)

*** ***

22025[2]..... 23225[2]

*** ***

22075[2]..... 23275[2]

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APPENDIX B

Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA),[96] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rulemaking* (*NPRM*) in WT Docket 09-114.[97] The Commission sought written public comment on the proposals in the *NPRM*, including comment on the IRFA.[98] We received no comments specifically directed toward the IRFA. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA. In addition, the *Report and Order* and FRFA (or summaries thereof) will be published in the Federal Register.[99]

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

In this *Report and Order*, we adopt two categories of changes to our Part 101 rules involving fixed microwave stations. First, we amend our Part 101 rules to permit coordination and licensing of 30 megahertz channels in the 6525-6875 MHz band (Upper 6 GHz Band) if the link cannot be accommodated in the 5925-6425 MHz band (Lower 6 GHz Band). Second, we allow conditional licensing on two additional channel pairs for non-federal use in the 23 GHz band, for applicants proposing to limit their effective isotropically radiated power (E.I.R.P.) to 55 dBm.

With respect to the first change, the Lower 6 GHz Band is increasingly congested, partly because FS users can obtain wider bandwidths but also because other services are allowed to use the band. As of April 7, 2010, there were 15,936 active FS licenses in the Lower 6 GHz Band.[100] Furthermore, as of March 31, 2010, the Lower 6 GHz Band had 1,641 licensed satellite earth stations.[101] Through the frequency coordination process, and consistent with existing rules, each earth station is routinely cleared to use the entire 5925-6425 MHz band for the entire geosynchronous arc, even if the earth station actually communicates with only one transponder on one satellite on a limited set of channels.[102] Thus, a satellite earth station has an extensive preclusive effect on the ability of subsequent applicants to coordinate stations in adjacent areas. By comparison, the typical terrestrial FS station is coordinated for a narrow beamwidth on a single channel or a limited set of channel.[103]

The congestion in the Lower 6 GHz Band has led a number of FS applicants to file waiver requests seeking licenses to operate in the Upper 6 GHz Band on bandwidths that are greater than the 10 megahertz that is authorized by rule. As of April 7, 2010, the Commission had issued waivers authorizing 957 FS frequency paths with bandwidths greater than 10 megahertz in the Upper 6 GHz

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[96] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[97] *NPRM*, 24 FCC Rcd at 9635-9640 Appendix B.

[98] *Id.* at 9631 ¶ 31.

[99] *See* 5 U.S.C. § 603(a).

[100] FCC Universal Licensing System (ULS) review conducted on April 7, 2010.

[101] FCC International Bureau Electronic Filing System (MyIBFS) scan conducted April 2010.

[102] *See* Reply Comments of the Fixed Wireless Communications Coalition, RM-11417 (filed Apr. 30, 2008) at 5.

[103] *See* 47 C.F.R. § 101.109.

Band, of which 625 were authorized with 30 megahertz bandwidths.[104] These waivers were granted to applicants who demonstrated that there were no channels available in the Lower 6 GHz Band with comparable bandwidth, that other, higher frequency bands were not suitable for the proposed paths, and that there were no other alternatives.[105] While the waiver process has provided an alternative for applicants seeking wider bandwidths in the Upper 6 GHz, some FS operators have argued that the waiver process has the disadvantages of delay and additional preparation costs.

Allowing channels with bandwidths of as much as 30 megahertz in the Upper 6 GHz Band by rule could meet a variety of needs. Such action could serve the public interest by making more readily available an additional source of spectrum for high-capacity microwave links, which are used for a variety of important commercial, public safety, and consumer uses, including backhaul for broadband systems. Furthermore, the high number of waiver requests seeking licenses for channels greater than 10 megahertz in the Upper 6 GHz Band is evidence of a notable demand for wider channels in that band. On the other hand, the American Petroleum Institute (API) had previously expressed concern that allowing 30 megahertz licenses in the Upper 6 GHz Band could cause congestion, encourage speculative licensing, and make it more difficult for licensees to relocate out of the 2 GHz Band that has been reallocated for advanced technologies.[106] We conclude that the rules we have adopted can provide the benefits of wider channels while avoiding the potential problems noted by API. Specifically, we conclude that our existing minimum payload capacity and construction rules, as well as a requirement that 30 megahertz channels be requested in the Upper 6 GHz Band only if such channels are unavailable in the Lower 6 GHz Band, will prevent congestion and speculative licensing.

With respect to the adopted rules concerning the 23 GHz Band, the Commission's rules provide that, if certain conditions are met, applicants for FS licenses under Part 101 may operate their proposed stations more quickly pursuant to conditional authority, although they do so at their own risk during the pendency of their applications.[107] Before exercising conditional authority, the applicant must successfully complete frequency coordination to ensure that the proposed facilities will not cause interference to other authorized facilities.[108] Conditional authority ceases immediately if an application is returned as unacceptable for filing.[109] The Commission's rules also provide that "conditional authority may be modified or cancelled by the Commission at any time without hearing if, in the Commission's discretion, the need for such action arises."[110]

Wireless telecommunications in the fixed service bands support a variety of critical services such as public safety (including police and fire vehicle dispatch), coordination of railroad train movements, control of natural gas and oil pipelines, electric grid regulation, and backhaul for wireless traffic. Conditional authority allows an applicant to provide those types of services more expeditiously, without

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[104] FCC Universal Licensing System (ULS) review conducted on April 7, 2010. There were no licenses in the Upper 6 GHz that authorized bandwidths greater than 30 megahertz, and the ULS had no records of any applications seeking bandwidths greater than 30 megahertz. *Id.*

[105] *See, e.g.*, Maryland Public Broadcasting Commission, *Memorandum Opinion and Order*, 21 FCC Rcd 1647, 1650 ¶ 7 (WTB BD 2006).

[106] API Opposition at 3-4.

[107] 47 C.F.R. § 101.31(b)(1).

[108] *See* 47 C.F.R. 101.31(b)(1)(i).

[109] *See* 47 C.F.R. 101.31(b)(2).

[110] *See* 47 C.F.R. § 101.31(b)(3).

having to wait for the Commission to act on its application. Because the 23 GHz Band is shared by federal and non-federal users, conditional authority in that band is limited to frequencies for which the Commission has an agreement with NTIA to permit conditional authorization.[111] NTIA has not stated any objection to allowing conditional licensing on the additional two channel pairs. We therefore amend our rules to add the 22.025/23.225 GHz and 22.075/23.275 GHz channel pairs to the list of frequencies on which we allow conditional authority. Such action will allow all licensees to provide service more rapidly (subject to the normal limitations on conditional authority noted above) while protecting existing licensees.

B. Legal Basis

The proposed action is authorized pursuant to sections 1, 2, 4(i), 7, 10, 201, 214, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332 and 333 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 157, 160, 201, 214, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules and policies, if adopted.[112] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[113] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[114] 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.[115]

Our proposed action, if implemented, may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards.[116] First, nationwide, there are a total of approximately 27.2 million small businesses, according to the SBA.[117] In addition, a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[118] Nationwide, as

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[111] *See* Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, WT Docket No. 00-19, *Report and Order*, 17 FCC Rcd 15040, 15066 ¶ 54 (2002) (*Part 101 R&O*).

[112] 5 U.S.C. § 603(b)(3).

[113] 5 U.S.C. § 601(6).

[114] 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."

[115] 15 U.S.C. § 632.

[116] *See* 5 U.S.C. §§ 601(3)–(6).

[117] *See* SBA, Office of Advocacy, "Frequently Asked Questions," http://web.sba.gov/faqs (last visited Oct. 21, 2009).

[118] 5 U.S.C. § 601(4).

of 2002, there were approximately 1.6 million small organizations.[119] Finally, 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."[120] Census Bureau data for 2002 indicate that there were 87,525 local governmental jurisdictions in the United States.[121] We estimate that, of this total, 84,377 entities were "small governmental jurisdictions."[122] Thus, we estimate that most governmental jurisdictions are small.

Wireless Telecommunications Carriers (except satellite). Microwave services include common carrier,[123] private-operational fixed,[124] and broadcast auxiliary radio services.[125] At present, there are approximately 31,428 common carrier fixed licensees and 79,732 private and public safety operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. The Commission has not yet defined a small business with respect to microwave services. For purposes of the FRFA, we will use the SBA definition that applies to Wireless Telecommunications Carriers (except satellite) – *i.e.*, an entity with no more than 1,500 persons.[126] Since 2007, the Census Bureau has placed wireless firms within this new, broad, economic census category.[127] Prior to that time, such firms were within the now-superseded categories of "Paging" and "Cellular and Other Wireless Telecommunications."[128] Under the present and prior category definitions, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees.[129] For the category of Wireless Telecommunications Carriers (except Satellite),

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[119] INDEPENDENT SECTOR, THE NEW NONPROFIT ALMANAC & DESK REFERENCE (2002).

[120] 5 U.S.C. § 601(5).

[121] U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2006, Section 8, page 272, tbl. 415.

[122] We assume 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, tbl. 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.*

[123] 47 C.F.R. Part 101 *et seq.* (formerly, part 21 of the Commission's Rules) for common carrier fixed microwave services (except MDS).

[124] Persons eligible under Parts 80 and 90 of the Commission's rules can use Private-Operational Fixed Microwave services. *See* 47 C.F.R. 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.

[125] Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's Rules. *See* 47 C.F.R. Part 74 *et seq.* 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 TV pickups, which relay signals from a remote location back to the studio.

[126] 13 C.F.R. § 121.201, NAICS code 517210.

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

[128] 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.

[129] 13 C.F.R. § 121.201, NAICS code 517210 (2007 NAICS). The now-superseded, pre-2007 C.F.R. citations were 13 C.F.R. § 121.201, NAICS codes 517211 and 517212 (referring to the 2002 NAICS).

preliminary data for 2007 show that there were 11,927 firms operating that year.[130] While the Census Bureau has not released data on such establishments broken down by number of employees, we note that the Census Bureau lists total employment for all firms in that sector at 281,262.[131] Since all firms with fewer than 1,500 employees are considered small, given the total employment in the sector, we estimate that the vast majority of wireless firms are small. We estimate that virtually all of the Fixed Microwave licensees (excluding broadcast auxiliary licensees) would qualify as small entities under the SBA definition.

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

This *Report and Order* imposes no new reporting or recordkeeping requirements.

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

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.[132]

As noted above, this *Report and Order* adopts rules to provide applicants with improved access to spectrum that is presently restricted with respect to bandwidth or that requires completion of frequency coordination with NTIA before the applicant can begin operations on a conditional basis. As noted above, the vast majority of microwave licensees under Part 101 of the Commission's Rules are considered small businesses. Under our rules, the opportunities to apply for 30 megahertz channels in the Upper 6 GHz Band and to take advantage of conditional authority for the 22.025/23.225 GHz and 22.075/23.275 GHz channel pairs will be equally available to all applicants, including small businesses.[133] Thus, this action will provide additional options to all licensees, including small entity licensees. Such action will serve the public interest by facilitating the efficient use of the 6 GHz and 23 GHz bands. The rules could therefore open up economic opportunities to a variety of spectrum users, including small businesses.

The alternative approach would be to maintain the existing rules. If the rules were not changed to provide for 30 megahertz channels in the Upper 6 GHz Band, applicants who wished to obtain such channels would have to take additional time and money to prepare a request for waiver of the Commission's Rules. Such additional time and expense may be particularly disadvantageous to small businesses. Furthermore, because a waiver request would be required, applicants cannot commence operation until the Commission grants their waiver request and application. The resulting delay can make it more difficult for applicants to meet their communications needs or the needs of their customers. With

[130] U.S. Census Bureau, 2007 Economic Census, Sector 51, EC0751I1 Information: Industry Series: Preliminary Summary Statistics for the United States: 2007, NAICS code 517210 (issued Oct. 20, 2009); http://factfinder.census.gov/servlet/IBQTable?-fds_name=EC0700A1&-_clearIBQ=Y&-ds_name=EC0751I1&-NAICS2007=51721.

[131] *Id.*

[132] 5 U.S.C. § 603(c).

[133] *See* Appendix A.

respect to the 23 GHz Band, the alternative approach would be to deny conditional authority on the two additional channel pairs and require applicants to wait until the Commission grants their application before they can commence service. Again, the resulting delay can make it more difficult for applicants to meet their communications needs or the needs of their customers.

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

None.

APPENDIX C

List of Commenters to *6/23 GHz NPRM*

Commenters
AT&T, Inc.
Cielo Networks, Inc.
Clearwire Corporation
Fixed Wireless Communications Coalition
Motorola, Inc.
National Spectrum Management Association
Tier One Converged Networks, Inc.

Reply Comments
Fixed Wireless Communications Coalition

Ex Parte
Fixed Wireless Communications Coalition