

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

In the Matter of
AURA Network Systems OpCo, LLC and A2G
Communications, LLC Request for Waiver
WT Docket No. 20-185

ORDER

Adopted: January 14, 2021

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By the Mobility Division, Wireless Telecommunications Bureau:

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I. INTRODUCTION

1. This Order grants a request for waiver jointly filed by AURA Network Systems OpCo, LLC (AURA) and A2G Communications, LLC (A2G) (collectively, Petitioners), seeking waiver of three of the Commission’s rules governing the general aviation air-ground radiotelephone service. Petitioners request waiver relief to allow them to provide additional, non-general aviation air-ground radiotelephone services, such as service to unmanned aircraft systems (UAS), over their existing network. We grant Petitioners’ Waiver Request to the extent described herein, and we waive additional rules on our own motion to enable Petitioners to provide these additional service offerings. The relief granted is subject to Petitioners’ meeting certain specified conditions, including a requirement that they file a petition for rulemaking seeking rule changes for more flexible use of this band.

1 See Request of AURA Network Systems OpCo, LLC and A2G Communications, LLC for Waiver, WT Docket No. 20-185 (filed June 12, 2020) (Waiver Request). The Waiver Request addresses 57 existing licenses, plus applications for three new licenses. See Waiver Request at Appx. A. We note, however, that 7 licenses listed at Appendix A of the Waiver Request (KGC405, KQD611, KRM991, KUD227, KWT909, KWT939, and WQPQ209) have been canceled or terminated since Petitioners filed the Waiver Request and therefore are not addressed in this Order. We further note that one of the applications for a new license listed in Appendix A of the Waiver Request, ULS File No. 0008842417, has since been withdrawn, and we therefore do not address it herein. The licenses and pending applications subject to the relief granted herein are listed at Appendix A of this Order.

2 Petitioners seek waiver of sections 22.805, 22.809, and 22.813. 47 CFR §§ 22.805, 22.809, 22.813.

3 Specifically, sections 2.106 NG32, 22.107, and 22.817. 47 CFR §§ 2.106 NG32, 22.107, 22.817.

II. BACKGROUND

2. The Commission has allocated 12 communication channel pairs in the 454.700-454.975 MHz and 459.700-459.975 MHz bands for general aviation air-ground use (450 MHz band). The twelve 20 kilohertz-wide communication channel pairs, along with a signaling channel pair, provide 520 kilohertz of spectrum for such use.⁴ The Commission's Universal Licensing System (ULS) database shows that, as of January 14, 2021, there were 50 active general aviation air-ground licenses/call signs, all of which are held or controlled by Petitioners. A2G is the licensee of 49 general aviation air-ground licenses, all of which are leased to AURA, and one additional license is held by an officer of AURA.⁵ Petitioners are therefore the only incumbent licensees, and AURA is the only operator in the 450 MHz general aviation air-ground band.

3. In 2010, the Mobility Division (Division) of the Wireless Telecommunications Bureau (Bureau) granted a waiver of various part 22 rules to Petitioners' predecessor entities, which enabled them to upgrade their Air-Ground Radiotelephone Automated Service (AGRAS)-based facilities and to fill in their existing networks.⁶ Specifically, the Division waived: (1) the distance separation requirement for ground transmitters operating on the same channel; (2) a limitation of six channel pair assignments within a 320 kilometer (199 mile) radius; (3) the construction requirement; and (4) a channel assignment policy limiting assignment of one channel in an area to a given carrier per application cycle, up to a maximum of 6 channels per carrier within the same area.⁷ The Division found that, because Petitioners' predecessor entities held nearly all the active licenses in the band at the time, and in light of the outdated and declining state of AGRAS-based service offerings, the unavailability of equipment, and the policies underlying the rules at issue, the public interest, convenience, and necessity would be served by granting limited waiver relief in order to enable modernization of networks and more efficient use of the general aviation air-ground spectrum.⁸

4. Since the *2010 Order*, Petitioners have constructed a nationwide network providing general aviation air-to-ground services from 52 sites across the United States and its territories. As the Division recognized previously, the distance separation and channel assignment policies contained in the Commission's rules for this band effectively prohibit any other parties from receiving a license, which, in

⁴ See 47 CFR § 22.805. While licensees are authorized for a 20 kilohertz bandwidth, the total channel spacing for each channel is 25 kilohertz, thirteen of which comprise the 650 kilohertz of spectrum from 459.700-459.975 MHz. The thirteenth "signaling channel pair"—454.675 MHz (ground) and 459.675 MHz (airborne mobile)—is assigned to every licensee's ground station. See *id.* § 22.805(a) (noting that the signaling channel is "to be used only for automatically alerting airborne mobile stations of incoming calls.").

⁵ See Waiver Request, Appx. A.

⁶ See *Joint Request by Stratophone, LLC and SkyTel Spectrum, LLC for Waiver of Certain Air-to-Ground Radiotelephone Service Licensing Rules for General Aviation*, WT Docket No. 09-44, Order, 25 FCC Rcd 8581 (WTB MD 2010) (*2010 Order*). Stratophone, LLC and SkyTel Spectrum, LLC are the predecessor entities of A2G. Air-ground Radiotelephone Automated Service, or AGRAS, is a technology standard.

⁷ *2010 Order*, 25 FCC Rcd at 8587, para. 13 (waiving 47 CFR §§ 22.813(a), 22.813(b), 22.815, 22.817).

⁸ *Id.* In 2016, the Division provided additional time for Petitioners' predecessors to comply with the *2010 Order* and made certain other modifications to the waiver relief to account for changes in circumstances stemming from the completion of U.S.-Canada border agreement negotiations. See Letter from Roger S. Noel, Chief, Mobility Division, Wireless Telecommunications Bureau, to Albert Gencarella, President, Stratophone, LLC, and Michael R. Carper, Senior Vice President Corporate Development, SkyTel Spectrum, LLC, ULS File No. 0004552869 (WTB MD July 27, 2016). Specifically, an August 2013 Statement of Intent signed by the United States and Canada established a Sharing Zone in which each country has 6 of the 12 communications channels designated for its primary use. Because licensees are restricted to the six channels assigned for their respective county's primary use, Petitioners' predecessors were granted additional time to move certain licenses to U.S.-primary channels.

turn, gives Petitioners exclusive use of the band nationwide.⁹ Petitioners now seek waiver of certain part 22 rules to enable AURA to better manage its existing network and to provide additional services, such as service to public safety, commercial, and large UAS for beyond visual line of sight and other expanded operations.¹⁰ Petitioners argue that the 450 MHz general aviation air-ground band's propagation characteristics, bandwidth, and lack of other incumbents "make it perfectly suited for command and control and non-payload" communications.¹¹

5. Petitioners seek waiver of section 22.805 of the Commission's rules to enable AURA to provide additional services beyond traditional general aviation air-ground radiotelephone services. Section 22.805 provides that the channel pairs in the 450 MHz band are allocated "for the provision of radiotelephone service to airborne mobile subscribers in general aviation aircraft."¹² Petitioners seek waiver of two elements of this rule: (1) the requirement that the licensee provide "radiotelephone service," which is defined as the transmission of sound from one place to another by means of radio;¹³ and (2) the requirement that operators transmit communications to "airborne mobile subscribers in general aviation aircraft."¹⁴ Petitioners seek waiver of both of these elements so that they also may provide data services to a broader range of aviation subscribers, not just airborne general aviation subscribers. Petitioners argue that such relief "would allow AURA to offer service expeditiously to the broadest base of aviation subscribers possible," including UAS operators, Urban Air Mobility operators, High-Altitude Long Endurance operators, and public aircraft operators.¹⁵

6. Petitioners further seek waiver of section 22.809's minimum transmitting power requirements in order to support operation of its new services. Section 22.809 establishes a 50-watt minimum effective radiated power requirement for ground station transmitters and a 4-watt minimum transmitter power output requirement for airborne mobile transmitters.¹⁶ Petitioners state that advancements in technology "have rendered these minimum power requirements unnecessary," and that modern digital technologies feature dynamic power controls that provide required quality of service at lower power levels.¹⁷ Petitioners argue that strict application of section 22.809 would therefore limit "the number of subscribers that can be served by the system and would prevent the network from achieving the full benefits of the digital technology" that they have installed on their new nationwide network.

7. Finally, Petitioners seek waiver of section 22.813's co-channel distance separation and dispersion requirements so that they can relocate certain existing sites and add new sites for the operation of their non-general aviation air-ground services.¹⁸ Section 22.813(a) prohibits the Commission from granting applications for proposed ground transmitter locations unless the ground transmitter location is "at least 800 kilometers (497 miles) from the antenna location of the nearest co-channel ground transmitter in the United States."¹⁹ Section 22.813(b) states that the Commission "may grant an application requesting assignment of a communication channel pair . . . if there are no more than five

⁹ 2010 Order, 25 FCC Rcd at 8588, para. 16.

¹⁰ Waiver Request at 3-4.

¹¹ *Id.* at 3.

¹² 47 CFR § 22.805.

¹³ *See id.* §§ 22.99 (definition of "radiotelephone service"); 22.805; *see also* Waiver Request at 11-14.

¹⁴ 47 CFR § 22.805; Waiver Request at 11, 14-16.

¹⁵ Waiver Request at 12.

¹⁶ 47 CFR § 22.809.

¹⁷ Waiver Request at 21-22.

¹⁸ *Id.* at 18-21.

¹⁹ 47 CFR § 22.813(a).

different communication channel pairs already assigned to ground transmitters . . . within a 320 kilometer (199 mile) radius of the proposed antenna location.”²⁰ Consistent with the previous waiver granted in the *2010 Order*, Petitioners seek waiver of section 22.813’s provisions “to enable efficient ongoing development and operation of the new network on a prospective basis.”²¹

8. On June 24, 2020, the Bureau released a public notice seeking comment on Petitioners’ Waiver Request.²² The Bureau received seventeen comments and four reply comments, all but one of which supported grant of the Waiver Request. A variety of aviation entities, such as the Aerospace Industry Association (AIA), Commercial Drone Alliance, and Metro Aviation, Inc. (Metro Aviation), argue that the Waiver Request would allow AURA to “provide an enhanced air/ground communications network for emerging and future aviation technologies.”²³ Other commenters, including the National Public Safety Telecommunications Council (NPSTC), DRONERESPONDERS Public Safety Alliance, and Crown Castle International Corp. (Crown Castle) support Petitioners’ planned use of the 450 MHz band channels for operation of UAS command and control, which they claim will be a particularly useful tool for the public safety sector.²⁴ Boeing, the only party not supporting grant of the Waiver Request, agrees that the Petitioners’ proposal offers a promising solution to meet UAS spectrum needs, but argues against proceeding by waiver, suggesting instead that the Commission should address Petitioners’ requests via a rulemaking addressing the 450 MHz band as a whole.²⁵

III. DISCUSSION

9. Section 1.925(b)(3) of the Commission’s rules states that the Commission may grant a waiver when either (i) “[t]he underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and . . . grant of the requested waiver would be in the public interest,” or (ii) “[i]n view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.”²⁶ Further, section 1.3 allows the Commission, on its own motion, to waive rules for good cause shown.²⁷

10. We find that it would serve the public interest, convenience, and necessity to grant limited waiver relief, as described below. In the *2010 Order*, the Division recognized the Commission’s statutory mandate to “generally encourage the larger and more effective use of radio in the public interest,”²⁸ and specifically to “encourage the provision of new technologies and services to the public.”²⁹ We found that the modernized competitive system envisioned by Petitioners’ predecessors could “stimulate the growth of additional products and services,” a result falling squarely within the spirit of our

²⁰ *Id.* § 22.813(b).

²¹ Waiver Request at 19; *see also 2010 Order*, 25 FCC Rcd at 8590-92, paras. 22-26.

²² *Wireless Telecommunications Bureau Seeks Comment on Request for Waiver of 450 MHz General Aviation Air-Ground Radiotelephone Service Rules to Permit Service to Unmanned Aircraft Systems*, WT Docket No. 20-185, Public Notice, 35 FCC Rcd 6469 (WTB 2020). Comments were due July 24, 2020 and reply comments were due August 10, 2020.

²³ AIA Comments at 1; *see also* Commercial Drone Alliance Comments at 1-2; Metro Aviation Comments at 1-2.

²⁴ *See* NPSTC Comments at 3-4; DRONERESPONDERS Public Safety Alliance Comments at 3; Crown Castle Comments at 1.

²⁵ Boeing Comments at 1-3.

²⁶ 47 CFR § 1.925(b)(3).

²⁷ *Id.* § 1.3.

²⁸ *2010 Order*, 25 FCC Rcd at 8587, para. 14 (citing 47 U.S.C. § 303(g)).

²⁹ *Id.* (citing 47 U.S.C. § 157(a)).

statutory mandate.³⁰ Petitioners now seek limited waiver relief to provide additional products and services that is in line with our prior action, and that further our goals of encouraging the provision of new technologies and services.

11. Furthermore, as we did in the *2010 Order*, we find that the underlying purpose of the part 22 rules that are subject to the waiver request would not be served by their strict application in the instant case.³¹ When the Commission adopted the additional channel policy and technical channel assignment criteria for the general aviation air-ground service, it provided the following underlying purposes for the rules:

(1) to *maintain a nationwide in-route coverage*, by prohibiting the future assignment of more than half of the channels in any general geographic area; (2) to *limit co-channel interference* for aircraft flying at low and moderate altitudes, by maintain spacing between co-channel ground stations; (3) to *establish and preserve competition among air-ground carriers*, by allowing the possibility of multiple providers at any location and by preventing any one carrier from obtaining exclusive use of more than half of the channels in any general geographic area; and (4) within the constraints of the first three goals, to *allow flexibility* in ground station locations to *meet demand for general aviation air-ground radiotelephone service*, by eliminating the allotment table and requirement for rule making proceedings to amend it.³²

12. Here, AURA currently is operating a nationwide general aviation air-ground service, and its nationwide network effectively gives Petitioners exclusive use of the band. As Petitioners point out, in the last ten years, other parties have not shown interest in operating in the band and have overwhelmingly supported Petitioners' steps to grow and modernize their existing network.³³ As the only licensee and operator in the band, Petitioners have established their ability to meet market demand for general aviation air-ground service over the existing nationwide network, and now they seek a waiver in order to provide additional services to meet the increasing demand for more modern data services to manned and unmanned aircraft.³⁴ Petitioners argue that grant of limited waiver relief would provide the flexibility necessary to satisfy this market demand and expand services to aviation subscribers. We are persuaded that, absent such relief, the aviation industry will be deprived of the opportunity to "offer services that keep pace with technological innovation,"³⁵ and use of the general aviation air-ground spectrum will not be optimized to the greatest extent possible.

³⁰ *2010 Order*, 25 FCC Rcd at 8587, para. 14.

³¹ *See id.* at 8587, para. 13.

³² *Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services*, CC Docket Nos. 92-115, 94-46, and 94-201, Report and Order, 9 FCC Rcd 6513,6569 (1994) (emphasis added).

³³ *See* Waiver Request at n.24 (noting that only two parties filed in response to the 2010 waiver request by Petitioners' predecessors, both of whom supported the relief, and that since then, the only entities other than Petitioners that held licenses in the band had elected not to renew their licenses).

³⁴ *See id.* at 3-7; *see also 2010 Order*, 25 FCC Rcd at 8591-92, para. 26 (finding that waiver of part 22's channel assignment policies would provide Petitioners' predecessor entities with the flexibility necessary to manage their network to respond to dynamic market demands nationwide).

³⁵ Waiver Request at 15.

13. We find that limited waiver relief in this case is consistent with court decisions³⁶ and Commission precedent, particularly with respect to part 22 licenses.³⁷ For example, since 1983 the Commission has allowed part 22 licensees to provide other communications services incidental to the primary public mobile service, based on the belief that such ancillary services “meet a public demand and can be fashioned so as to make more efficient use of spectrum without interfering with the growth or availability” of the primary service.³⁸ The original part 22 rules permitting incidental services were subject to certain conditions designed to ensure that the provision of such service did not compromise the quality of the primary public mobile service or increase costs to subscribers.³⁹ Here, Petitioners propose to continue using their existing nationwide network to provide the general aviation air-ground service originally envisioned by the part 22 rules, but seek waiver relief in order to provide additional, ancillary services, including services to UAS, to meet the needs of a broader base of aviation subscribers. We find that such use is consistent with the Commission’s long-standing precedent permitting innovative and efficient use of spectrum for supplemental service so long as such use does not compromise the provision of the primary public mobile service.⁴⁰

³⁶ See, e.g., *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969) (holding that the FCC may exercise its discretion to waive a rule where particular facts would make strict compliance inconsistent with the public interest), appeal after remand, 459 F.2d 1203 (D.C. Cir. 1972), cert. denied, 409 U.S. 1027 (1972); *Ne. Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990) (holding that a waiver of the Commission’s rules may be granted in instances where the particular facts make strict compliance inconsistent with the public interest if applied to the petitioner and when the relief requested would not undermine the policy objective of the rule in question).

³⁷ See, e.g., *Amendment of Part 22 of the Commission’s Rules to Benefit the Consumers of Air-Ground Telecommunications Services, et al.*, WT Docket No. 03-103 et al., Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 4403, 4407, paras. 2-3 (2005) (adopting rules for air-ground radiotelephone services in the 800 MHz band designed to provide greater flexibility for licensees “to respond to evolving market demands” through deployment of both current and future technologies); *Application of AC Bidco, LLC, Gogo Inc., and LiveTV, LLC for Consent to Assign Commercial Aviation Air-Ground Radiotelephone (800 MHz band) License, Call Sign WQFX729*, WT Docket No. 18-122, Memorandum Opinion and Order, 28 FCC Rcd 3362, para. 2 (WTB 2013) (granting waiver of certain spectrum aggregation, emission limitations, and frequency stability rules applicable to 800 MHz air-ground radiotelephone service licensees, finding that such waiver would not undermine the purpose of the rules and would result in a “a more productive use” and expand the public’s access to additional services); *Request of PTC-220, LLC for Waivers of Certain 220 MHz Rules*, WT Docket No. 08-256, Memorandum Opinion and Order, 24 FCC Rcd 8537, 8542, para. 12 (WTB 2009) (granting waiver, noting the licensee’s plan for a “comprehensive deployment of a nationwide, fully integrated” system); *Hawaiian Wireless Partners*, Order, 11 FCC Rcd 21192, 21197, para. 12 (WTB 1996) (finding waiver warranted as it would enable HWP to implement digital SMR service, including construction of 33 new sites, and because “the HWP plan does not prejudice any other existing or potential SMR licensees”).

³⁸ *Revision and Update of Part 22 of the Public Mobile Radio Service Rules*, CC Docket No. 80-57, Report and Order, 95 F.C.C.2d 769, 816, para. 167 (1983).

³⁹ While the Commission eliminated this rule in 2000, finding such conditions were no longer necessary, it emphasized that such elimination “in no way diminishes or otherwise alters the right of Part 22 licensees to provide incidental services” *Year 2000 Biennial Regulatory Review - Amendment of Part 22 of the Commission’s Rules to Modify or Eliminate Outdated Rules Affecting the Cellular Radiotelephone Service and other Commercial Mobile Radio Services*, WT Docket No. 01-108, Report and Order, 17 FCC Rcd 18401, 18435, para. 68 (2002); see also *Amendment of the Commission’s Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, WT Docket No. 96-6, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 8965 (1996) (*CMRS Flex Order*); *Amendment of the Commission’s Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Service*, WT Docket No. 96-6, Second Report and Order and Order on Reconsideration, 15 FCC Rcd 14680 (2000) (*Second CMRS Flex Order*).

⁴⁰ Enterprise Wireless Alliance (EWA) Comments at 1-2 (noting that the Waiver Request is “consistent with the Commission’s commitment to accelerate the process whereby innovation and investment in more advanced technology can be brought to market and spectrum can be deployed for its highest and best use”); Federated

(continued....)

A. Waivers of rules requiring provision of general aviation air-ground service.

14. We grant Petitioners a limited waiver of certain of the Commission's rules requiring provision of general aviation air-ground radiotelephone service. Specifically, we grant Petitioners' request for waiver of sections 22.805 and 22.809 in order to provide additional, data-based services to non-airborne subscribers on both manned and unmanned aircrafts. Consistent with this relief, we also waive, on our own motion, relevant portions of sections 2.106, 22.99, and 22.107 of the Commission's rules.

15. Section 2.106, non-Federal Government footnote 32 provides that frequencies in the 450 MHz band may be assigned to domestic public land and mobile stations to provide two-way air-ground public radio telephone service.⁴¹ Section 22.805 dictates that the channels in the 450 MHz band are allocated "for the provision of radiotelephone service to airborne mobile subscribers in general aviation aircraft,"⁴² and section 22.99 defines "radiotelephone service" as the "transmission of sound" by radio.⁴³ The general application requirements contained in section 22.107(d) require all applicants to "propose operation of a facility in compliance with all rules governing the Public Mobile Service." Under section 22.815, 450 MHz band licensees have one year to construct ground stations, which section 22.99 defines as "a stationary transmitter that provides service to airborne mobile subscribers."⁴⁴ Finally, consistent with the general operating parameters of general aviation air-ground radiotelephone service, section 22.809 establishes a 50-watt minimum effective radiated power requirement for ground station transmitters and a 4-watt minimum transmitter power output requirement for airborne mobile transmitters.⁴⁵

16. We waive these rules for the limited purpose of allowing Petitioners to deploy additional ground stations, within their existing 450 MHz nationwide footprint,⁴⁶ on which they intend to provide data services to non-airborne aviation subscribers, including unmanned aircraft operators. Similar to Commission precedent that allowed licensees in the Commercial Mobile Radio Service to provide ancillary services, we find that the public interest will be served by allowing Petitioners to provide an additional service to a broader base of aviation subscribers, while also maintaining its existing primary general aviation air-ground service. The record overwhelmingly supports Petitioners' proposed supplemental use of the band for expanded operations such as UAS and other beyond visual line of sight uses, noting that such services offer extensive public interest benefits, including wide-ranging medical, public safety, and environmental applications.⁴⁷ Commenters argue that the 450 MHz band has

Wireless Comments at 1 (arguing that grant of waiver would remove "obsolete or unnecessary restrictions, while enabling the application of recent technological advances that permit more intensive use of the 450 MHz AGRAS band"); AiRXOS Inc. (AiRXOS) Reply at 2 ("The FCC can support this rapidly evolving, innovative industry by implementing forward-thinking spectrum policy that frees up spectrum for UAS use," including for command and control links).

⁴¹ 47 CFR § 2.106, NG32.

⁴² *Id.* § 22.805.

⁴³ *Id.* § 22.99.

⁴⁴ *Id.* §§ 22.99, 22.815.

⁴⁵ *Id.* § 22.809.

⁴⁶ We use "nationwide footprint" throughout this Order to describe Petitioners' existing ground station deployment, which, by virtue of the part 22 channel assignment and transmitter separation policies, effectively prevents any other parties from operating in this band.

⁴⁷ See Choctaw Nation of Oklahoma Comments at 1-2; Commercial Drone Alliance Comments at 1; Edison Electric Institute (Edison) Comments at 1; EWA Comments at 2-3; General Atomics Aeronautical Systems, Inc. Comments at 1; MetroAviation Comments at 1; Northern Plains UAS Test Site Comments at 1; NPSTC Comments at 3;

(continued....)

propagation characteristics and sufficient bandwidth that make it well-suited for command and control non-payload communications with aviation subscribers at low altitudes.⁴⁸ While Boeing argues that waiver is not appropriate given the potential impacts on aviation safety that might result from UAS command and control operations in the band,⁴⁹ we note that the Federal Aviation Administration (FAA) is the agency responsible for ensuring the safe operation of manned and unmanned aircraft in the national airspace, and AURA will have to receive the requisite FAA authorizations before commencing its planned UAS service.⁵⁰ Furthermore, because Petitioners are the only licensee and operator in the band and can manage the new non-traditional service ground stations in a manner that ensures they do not cause interference to the existing general aviation air-ground service, we find that waiver is unlikely to result in harms to others.⁵¹

17. Accordingly, we will allow Petitioners to file modification applications on existing 450 MHz band licenses to add new ground transmitters to operate on authorized channels and provide additional, non-traditional general aviation air-ground services, including data services to non-airborne aviation subscribers operating unmanned aircraft. We will waive the relevant portions of sections 2.106, 22.99, 22.107(d), and 22.805, so that Petitioners may file such modification applications to operate additional ground stations to provide such supplemental service. Solely with respect to ground stations and mobile transmitters authorized and deployed for the purpose of providing UAS services, we will waive the section 22.809 minimum power requirements so that they may operate at lower power levels, consistent with the demands of AURA's new supplemental service. Finally, while any new ground stations authorized pursuant to this waiver will remain subject to the section 22.817 construction requirement, we waive the section 22.99 definition of "ground station" so that Petitioners may demonstrate compliance with the construction requirement with provision of service to either airborne or non-airborne aviation subscribers.

B. Waiver of channel policies.

18. We grant Petitioners' request for waiver of the part 22 channel assignment policies for licenses in the 450 MHz band. Specifically, we grant Petitioners' request for waiver of the technical channel pair assignment criteria in section 22.813 of the Commission's rules for the limited purpose of allowing Petitioners to modify certain licenses to engage in ongoing site and channel management of their existing nationwide network and to add additional sites to existing channel authorizations for Petitioners'

Phoenix Air Unmanned, LLC. (PAU) Comments at 1; AiRXOS Reply at 2; Utilities Technology Council (UTC) Reply at 1; Xcel Energy Services Inc. (Xcel Energy) Reply at 2-4.

⁴⁸ See Choctaw Nation of Oklahoma Comments at 2; AeroVironment, Inc. Comments at 1-2; Edison Comments at 4; MetroAviation Comments at 1-2; Northern Plains UAS Test Site Comments at 1; NPSTC Comments at 3-4; Northeast UAS Airspace Integration Research Comments at 1; PAU Comments at 1; Xcel Energy Reply at 5-6.

⁴⁹ Boeing Comments at 5. Specifically, Boeing argues that the Petitioners have not provided safety data that demonstrates the safety and regularity of the proposed operations.

⁵⁰ See NPSTC Comments at 2-3 (stating that it has analyzed the potential for harmful interference between the 450 MHz AGRAS band and the adjacent public safety channels in the 450-470 MHz band and found that potential for the proposed UAS operations to negatively impact public safety is unlikely); DRONERESPONDERS Public Safety Alliance Comments at 2 (asserting that UAS use of the 450 MHz band is not adverse to public safety); MetroAviation Comments at 2 ("Metro has committed aircraft and resources to conduct the necessary air to ground testing of the 450 MHz Radiotelephone System."); University of Maryland UAS Test Site Comments at 1 (noting that Petitioners' Waiver Request and supporting documentation demonstrates a viable solution to UAS needs "with no inherent or incidental risk or downside."); Xcel Energy Reply at 7 (arguing that Boeing's safety concerns are "vague" and "undefined" and pointing out that action on the Waiver Request "would not in any way affect FAA oversight or regulatory control over UAS operations, including issues related to safety and the integration of UAS into the national airspace").

⁵¹ UTC Reply at 1-2.

proposed new supplemental service deployment. Consistent with this relief, we also waive, on our own motion, certain provisions contained in section 22.817's additional channel policies.

19. Petitioners request waiver of section 22.813's provisions for three purposes. First, Petitioners request that we extend the *2010 Order*'s waiver of 22.813 on a prospective basis to all of their existing licenses in order to enable efficient construction, management, and operation of their existing nationwide network.⁵² Waiver would enable Petitioners to respond to dynamic network needs by relocating existing ground stations and seeking additional authorization at locations where they do not already hold all available channels. Second, Petitioners seek waiver of section 22.813(a)'s co-channel distance separation requirements to enable them to deploy their proposed supplemental service by adding ground stations that will operate on existing authorized channels.⁵³ While Petitioners did not seek waiver of section 22.817(f)'s limit of six channel assignments per carrier in a given 350 kilometer area, waiver of those provisions would also be necessary at any locations where Petitioners seek to add new channels exceeding the maximum of six channels at a given ground station location.

20. Consistent with the relief we granted to Petitioners' predecessor entities in the *2010 Order* to enable more efficient and intensive use of the 450 MHz band spectrum, we find that waiver of sections 22.813 and 22.817(f), to the extent described herein, is warranted to support Petitioners' ongoing management of their existing nationwide network and enable deployment of additional ground stations to provide supplemental services.⁵⁴ As noted, the technical channel assignment criteria set forth in section 22.813 are intended to ensure "substantial service volumes over areas" with high demand, while also maintaining "continuous nationwide in-route coverage" to general aviation air-ground subscribers.⁵⁵ Section 22.817's additional channel policies are designed to foster competition among multiple carriers in the band. We find that neither of these goals will be undermined by grant of waiver in this case.

21. First, waiver of sections 22.813 and 22.817(f) to enable Petitioners to relocate certain existing general aviation air-ground stations and to seek additional channel authorizations at new locations in order to optimize re-use of the spectrum is precisely the type of dynamic, efficient spectrum management we envisioned when we originally granted waiver to Petitioners' predecessor entities in the *2010 Order*. In fact, we found that the ability to "effectively manage and operate" their network was a primary public interest benefit supporting waiver of section 22.813, and we therefore conditioned relief on Petitioners' predecessor entities' commitment to "shift use of channels as demand shifts" and ensure the network is "managed in such a way that the system can meet demand nationwide on general aviation aircraft."⁵⁶ Strict application of section 22.813 here would not serve the public interest, as it would directly undermine Petitioners' ability to engage in the dynamic network management upon which we conditioned our previous relief, and waiver of section 22.813 is therefore warranted.

22. Furthermore, Petitioners point out that the site relocations contained in recently granted modification applications reflect the typical "network design changes in all large-scale wireless network deployments," and demonstrate the flexibility required for Petitioners to respond efficiently and expeditiously to network demands. Petitioners argue that waiver of the part 22 channel assignment policies on a prospective, rather than ad hoc, basis would enable them to respond to such demands with the necessary speed and efficiency. We agree. Importantly, as was the case at the time of the *2010 Order*, Petitioners have licenses that effectively constitute exclusive nationwide use of the 450 MHz band. As the only operator in the band, AURA can manage its network in a manner that avoids the potential co-channel interference that section 22.813(a) is designed to prevent. The regional gaps in service that

⁵² Waiver Request at 18-21.

⁵³ *Id.* at 19.

⁵⁴ See *2010 Order*, 25 FCC Rcd at 8587-92, paras. 15-18, 22-26.

⁵⁵ 47 CFR § 22.813.

⁵⁶ *2010 Order*, 25 FCC Rcd at 8591, para. 26.

section 22.813(b)'s dispersion requirement is designed to prevent have already been addressed by Petitioners' established operation of a nationwide general aviation air-ground service on their existing network. The competition objectives of section 22.817 are unlikely to be served by strict application in this case, since section 22.813(a)'s co-channel distance separation requirements would limit the ability of third parties to apply for new channels and put into operation a viable network.⁵⁷ We therefore find that the underlying purposes of sections 22.813 and 22.817(f) will not be undermined by grant of waiver as described herein and that extension of our previous waiver relief is therefore warranted.⁵⁸

23. Second, waiver of section 22.813 provisions—co-channel distance separation requirements and limits on the number of transmitters permitted within an area—to enable Petitioners' proposed deployment of a new, non-traditional general aviation air-ground service is consistent with the Commission's statutory mandate to “encourage the provision of new technologies and services to the public.”⁵⁹ Our waiver of part 22's channel assignment policies in the *2010 Order* was based in part on the anticipation that such relief would “increase the scope and quality of services offered,” and “stimulate the growth of additional products and services.”⁶⁰ The proposed new services Petitioners now seek to deploy would provide those exact public interest benefits on which we based our prior relief. We further find that there is little risk of co-channel interference from the new service offerings, since AURA will be able to avoid such risk as the sole operator in the band.⁶¹ We therefore waive section 22.813's co-channel distance separation requirements and limits on the number of transmitters permitted within a 320-kilometer radius to allow Petitioners to add new antenna locations for ground transmitters to operate on authorized channels and provide additional, non-traditional general aviation air-ground services, including data services to non-airborne aviation subscribers operating unmanned aircraft.

C. Process and Conditions for Implementing the Waiver

24. Below, we describe the process by which the waiver relief will be applied to both the existing general aviation air-ground deployment as well as the supplemental services that Petitioners seek to provide. The following also describes the conditions that Petitioners must meet, which consist of waiver and other standard Commission requirements as well as a provision that may set the stage for even greater flexibility for the operations in this band.

25. We will apply a waiver of sections 22.813 and 22.817(f) to all of Petitioners' existing 450 MHz band general aviation air-ground licenses.⁶² Petitioners may relocate existing general aviation air-ground ground stations as necessary to effectively manage the existing nationwide network and seek authorization for additional ground stations, even where such ground stations would be inconsistent with the co-channel distance separation and dispersion requirements of section 22.813. However, because relief is based largely on Petitioners' effectively having exclusive use of the band by virtue of their existing network deployment, to the extent that Petitioners relocate ground stations or modifies or ceases

⁵⁷ EWA Comments at 4-5 (explaining that, because Petitioners are now the sole licensees in the 450 MHz band, “there can be no competitive harm or disadvantage in waiving rules developed in a different market environment”). We note, however, as discussed below, we condition the waiver grant on the filing of a petition for rulemaking to make more flexible use of the band. To the extent that such rulemaking addresses technical rules, such as co-channel distance separation requirements for this spectrum, or other mechanisms associated with making flexible use available on a permanent basis (either to Petitioners or to potential new entrants), we note that the provisions of section 22.817 could find renewed applicability at some point in the future.

⁵⁸ Petitioners will not be able to apply for more than the six U.S. primary communication channels in the U.S.-Canada Sharing Zone.

⁵⁹ 47 U.S.C. § 157(a).

⁶⁰ *2010 Order*, 25 FCC Rcd at 8587, para. 14.

⁶¹ Edison Comments at 5; Xcel Energy Reply at 6.

⁶² See licenses listed at Appendix A of this Order.

operations in a manner that reduces their existing general aviation air-ground footprint, the waiver relief we grant herein would be terminated, with respect to both the general aviation air-ground network as well as the corresponding supplemental UAS operations, in the area in which the existing footprint has been reduced.⁶³ Petitioners may also seek authorization for additional channels within the same area as an existing authorized general aviation air-ground ground station, even where grant of such an application would result in assignment to Petitioners of more than six channels in the same area. We note, however, that the provisions of section 22.817 limiting channel assignments to one channel in the same area at a time⁶⁴ and requiring licensees to construct authorized channels prior to seeking additional channel authorizations in the same area⁶⁵ will continue to apply to any such applications. We also note that, consistent with the Commission's statutory requirements and general application rules, any applications to add or relocate ground stations or for additional channel authorizations would be deemed major modifications and therefore subject to 30-day notice prior to grant.⁶⁶

26. We also will apply a waiver of sections 2.106, 22.99, 22.107(d), 22.805, 22.809, and 22.813 for the limited purpose of allowing Petitioners to seek authorization for additional co-channel ground stations for the provision of new, non-traditional general aviation air-ground services on all authorized channels for which Petitioners are providing general aviation air-ground service. Specifically, where Petitioners hold channel authorizations for a given location and have demonstrated provision of general aviation air-ground service to subscribers,⁶⁷ Petitioners may file modification applications that seek authorization for an additional ground station to operate on any channels authorized by the license, so long as the new ground station is within 800 kilometers of the existing authorized ground station. Ground stations authorized pursuant to such a modification application will be permitted to operate aviation services other than general aviation air-ground services, including data services to non-airborne aviation subscribers operating unmanned aircraft. We note that such applications would be deemed major modifications and therefore subject to a 30-day petition to deny period prior to grant.⁶⁸ Further, any additional stations will remain subject to the construction requirements and additional channel policies in section 22.815 and 22.817, respectively, but Petitioners may demonstrate compliance with such requirements with services they provide pursuant to our waivers of the general aviation air-ground service requirements herein.

27. We note that any new or relocated ground stations, whether used to support the existing general aviation air-ground service or a supplemental service, must comply with all existing and any future international coordination requirements applicable to operations in the 450 MHz band. Additionally, in the event Petitioners seek to assign some or all of their licenses, Petitioners or their assignee will be required to seek separate approval for this waiver relief to be extended to the assignee. The applicant will be required to demonstrate that extension of the waiver relief is warranted and is consistent with the underlying basis and purpose of this waiver.

⁶³ See also *infra* para. 27 regarding assignment of licenses subject to this waiver.

⁶⁴ See 47 CFR § 22.817 (introductory text).

⁶⁵ *Id.* § 22.817(e).

⁶⁶ See 47 U.S.C. § 309(b)(1) (application “for an instrument of authorization” of a “station in the broadcasting or common carrier services” is a major application); 47 CFR § 1.929(e)(1) (requesting “an authorization to relocate an existing General Aviation ground station” is considered a major modification).

⁶⁷ See 47 CFR §§ 22.99, 22.815 (defining “ground station” as “a stationary transmitter that provides service to airborne mobile stations” and requiring licensees to construct ground stations within 12 months, respectively); *id.* § 22.317 (a ground station has permanently discontinued and is subject to cancellation if it has not provided service to subscribers in 90 days).

⁶⁸ See *id.*

28. For illustration purposes, we provide an example of how the above waivers will operate. If Petitioners hold authorizations for channels 1 through 6 at ground station A, and have demonstrated general aviation air-ground service to subscribers from that ground station operating on those channels, they may file a modification application to operate on a given channel 1 through 6 at ground station B, so long as ground station B is within 800 kilometers of ground station A. Petitioners may use non-traditional general aviation air-ground services to demonstrate compliance with the construction requirement for ground station B, and once they have done so, may seek additional channel authorization for operation of ground station B on a given channel 1 through 6. Petitioners may seek additional channel authorizations for ground station A, e.g., for channel 7, and—once it has demonstrated general aviation air-ground service to subscribers from ground station A—may file a modification application to operate ground station B on channel 7. If Petitioners permanently discontinue general aviation air-ground service from ground station A on any authorized channels, they would also lose authorization to operate ground station B on those channels.

29. We disagree with Boeing’s argument that we must first initiate a rulemaking on the AIA Petition before taking action on Petitioners’ request. Boeing argues that the Commission should act on the pending AIA Petition for Rulemaking asking the Commission to establish service rules to enable UAS command and control operations in the 5030-5091 MHz band before it resolves Petitioners’ request.⁶⁹ The issue of UAS-based service rules for the 5030-5091 MHz band—as well as the timing for initiating a rulemaking on changes to that band—is entirely distinct and separate from the issues presented in this request, and we are under no obligation to act in one preceding as a prerequisite to affording relief in response to AURA’s waiver petition.⁷⁰

30. Boeing further raises concerns related to the safety of UAS operations in the 450 MHz band and argues that such issues are more appropriately considered and addressed via rulemaking.⁷¹ Boeing does not cite any authority for this proposition, however, and several other commenting parties disagree that we are so constrained.⁷² We disagree with Boeing that a rulemaking is necessary to evaluate the safe use of this band for purposes of operating pursuant to waiver authority. Here, the record demonstrates AURA’s ability to safely operate new UAS services and manage its network in a manner that provides wide ranging public interest benefits warranting relief.⁷³ Moreover, we agree with AIA that

⁶⁹ Boeing Comments at 6-8; *see also* Petition of AIA to Adopt Service Rules for Unmanned Aircraft Systems Command and Control in the 5030-5091 MHz Band, RM-11698 (filed Feb. 8, 2018) (AIA Petition).

⁷⁰ We note, however, that we have specifically sought comment on several issues related to use of the 5030-5091 MHz band for UAS operations. *See Wireless Telecommunications Bureau and Office of Engineering and Technology Seek Comment on Unmanned Aerial System Operations in the 960-1164 MHz and 5030-5091 MHz Bands, Pursuant to Section 374 of the FAA Reauthorization Act of 2018*, GN Docket No. 19-356, Public Notice, 34 FCC Rcd 11038 (WTB/OET 2019).

⁷¹ Boeing Comments at 1-2, 4-6 (arguing Petitioners’ request to provide UAS service constitutes a fundamental change to the 450 MHz allocation that must be accomplished via rule change).

⁷² *See* DRONERESPONDERS Public Safety Alliance Comments at 2 (arguing waiver relief, rather than rulemaking “is in accordance with the FCC’s ‘longstanding market-oriented AGRAS policies’” (internal citations omitted)); EWA Comments at 5 (“[T]he FCC possesses and has chosen to use its broad authority to proceed by waiver versus rulemaking when it determines doing so would serve the public interest.”); Xcel Energy Reply at 6-7 (The fact that the Commission has not yet acted on the AIA Petition “is irrelevant and in no way precludes Commission action on other UAS-suitable spectrum blocks,” such as by granting the Waiver Request.).

⁷³ *See* NPSTC Comments at 2-3 (stating that it has analyzed the potential for harmful interference between the 450 MHz AGRAS band and the adjacent public safety channels in the 450-470 MHz band and found that potential for the proposed UAS operations to negatively impact public safety is unlikely); DRONERESPONDERS Public Safety Alliance Comments at 2 (asserting that UAS use of the 450 MHz band is not adverse to public safety); MetroAviation Comments at 2 (“Metro has committed aircraft and resources to conduct the necessary air to ground testing of the 450 MHz Radiotelephone System.”); University of Maryland UAS Test Site Comments at 1 (noting

(continued....)

AURA must, before commencing any new UAS operations, seek appropriate approval for such operation from the FAA to ensure “that operations meet the required reliability requirements in order to operate and ensure the safety of people and property.”⁷⁴ Petitioners indicate that AURA has already been consulting with the FAA and intends to continue doing so “to address potential aviation-related matters arising from the use of this band” for command and control UAS links.⁷⁵ Petitioners state that AURA is working with the Radio Technical Commission for Aeronautics (RTCA) Special Committee 228, the group designated by the FAA for developing safety standards for UAS command and control links, to develop a standard for airborne UAS terminals operating in the 450 MHz band.⁷⁶ They further state that AURA is planning “a comprehensive testing and analysis program” to demonstrate compliance with relevant RTCA safety standards.⁷⁷ While we support these planned measures, we note that the waiver relief being granted here is separate and apart from the FAA’s approval processes. As noted above, AURA will not be able to commence any UAS operations using 450 MHz general aviation air-ground spectrum until it has received the requisite authorization from the FAA and has met all applicable requirements.

31. We find that the current licensing status of the band, the limited amount of spectrum involved, and the present use of the frequencies all create unique circumstances in favor of granting the requested waiver and that, for the reasons set forth above, doing so would advance the public interest in making more efficient use of this spectrum and allowing for the deployment of new and innovative services. Notwithstanding the public interest benefit in providing the instant relief, however, we find that certain of the issues presented herein warrant a larger examination of the uses and rules associated with this band. While we waive on our own motion these rules to allow for the limited operations contemplated by the waiver request, Boeing has argued that the services Petitioners seek to provide may require an aeronautical mobile or mobile allocation.⁷⁸ A rulemaking proceeding would afford an additional opportunity for the Commission to receive comment on the legal, policy, and public interest implications associated with potentially allowing for more flexible use of the 450 MHz band via permanent rule changes. Accordingly, we condition the relief granted in this Order on Petitioners filing a Petition for Rulemaking, within 30 days from release of this Order, seeking rule changes that would permit more flexible use of the band, including for UAS. Specifically, any rulemaking petition should, at a minimum, request any and all rule changes that may be necessary to allow for UAS command and control services to be provided over this spectrum. Petitioners’ operation under this limited waiver will be contingent upon Petitioners filing a Petition for Rulemaking within 30 days of release of this Order.

32. Finally, and as a further express condition on the grant of relief afforded herein, Petitioners’ operations pursuant to this waiver grant are subject to their acknowledgement and acceptance that: (1) Petitioners’ operations pursuant to this waiver are undertaken at their own risk, that the Bureau or the Commission could revise our rules for this band at any time, and that nothing in this order creates an enforceable reliance interest in this waiver relief; and (2) in the event the Bureau or the Commission terminates or modifies the terms of this waiver, whether through a rulemaking proceeding or through

that Petitioners’ Waiver Request and supporting documentation demonstrates a viable solution to UAS needs “with no inherent or incidental risk or downside.”); Xcel Energy Reply at 7 (arguing that Boeing’s safety concerns are “vague” and “undefined” and pointing out that action on the Waiver Request “would not in any way affect FAA oversight or regulatory control over UAS operations, including issues related to safety and the integration of UAS into the national airspace”).

⁷⁴ AIA Comments at 4-5.

⁷⁵ AURA and A2G Reply at 8.

⁷⁶ *Id.* at 8-9; see also RTCA Special Committee 228, See RTCA Special Committee 228 (SC-228), *Minimum Performance Standards for Unmanned Aircraft Systems*, https://www.rtca.org/sites/default/files/sc-228_tor_rev_10_approved_06-11-2020.pdf, at 2 (June 11, 2020).

⁷⁷ AURA and A2G Reply at 9.

⁷⁸ Boeing Comments at 4-5.

some other means, such termination or modification would not effectuate a fundamental change to Petitioners' licenses subject to section 316 of the Communications Act.⁷⁹

IV. ORDERING CLAUSES

33. Accordingly, IT IS ORDERED, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and sections 1.3 and 1.925 of the Commission's rules, 47 CFR §§ 1.3, 1.925, that the request jointly filed by AURA Network Systems OpCo, LLC and A2G Communications, LLC for waiver of sections 22.805, 22.809, and 22.813 of the Commission's rules, 47 CFR §§ 22.805, 22.809, 22.813, is GRANTED to the extent described, and with the conditions specified, herein.

34. IT IS FURTHER ORDERED, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and sections 1.3 and 1.925(a) of the Commission's rules, 47 CFR §§ 1.3, 1.925, that the Wireless Telecommunications Bureau GRANTS ON ITS OWN MOTION a waiver of sections 2.106 NG32, 22.99, 22.107(f), and 22.817 of the Commission's rules, 47 CFR §§ 2.106 NG32, 22.99, 22.107(f), 22.817, to the extent described, and with the conditions specified, herein.

35. These actions are taken under delegated authority pursuant to sections 0.11, 0.231, 0.131, and 0.331 of the Commission's rules, 47 CFR §§ 0.11, 0.231, 0.131, and 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Roger Noel
Chief, Mobility Division
Wireless Telecommunications Bureau

⁷⁹ See Letter from Michele C. Farquhar, Counsel to AURA, and Elizabeth R. Sachs, Counsel to A2G, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 20-185 (filed Jan. 13, 2021).

APPENDIX A

Licenses Subject to Waiver

	Call Sign	Licensee
1	KCC793	A2G Communications LLC
2	KEC932	A2G Communications LLC
3	KED350	A2G Communications LLC
4	KGC406	A2G Communications LLC
5	KNKC473	A2G Communications LLC
6	KNKI632	A2G Communications LLC
7	KNKI838	A2G Communications LLC
8	KNKJ550	A2G Communications LLC
9	KNKK614	A2G Communications LLC
10	KNLW652	A2G Communications LLC
11	KOR443	A2G Communications LLC
12	KPE495	A2G Communications LLC
13	KQD306	A2G Communications LLC
14	KRS662	A2G Communications LLC
15	KSC881	A2G Communications LLC
16	KSJ612	A2G Communications LLC
17	KSW213	A2G Communications LLC
18	KUC859	A2G Communications LLC
19	KUC941	A2G Communications LLC
20	KUC982	A2G Communications LLC
21	KUC995	A2G Communications LLC
22	KUO576	A2G Communications LLC
23	KWB376	A2G Communications LLC
24	KWH337	A2G Communications LLC
25	KWT848	A2G Communications LLC
26	KWT849	A2G Communications LLC
27	KWU423	A2G Communications LLC
28	KWU424	A2G Communications LLC
29	KWU425	A2G Communications LLC
30	KWU426	A2G Communications LLC
31	KWU427	A2G Communications LLC
32	KWU428	A2G Communications LLC
33	KWU429	A2G Communications LLC
34	KWU431	A2G Communications LLC
35	KWU510	A2G Communications LLC
36	WPON853	A2G Communications LLC
37	WQKQ290	A2G Communications LLC

	Call Sign	Licensee
38	WQZP762	A2G Communications LLC
39	WQZP763	A2G Communications LLC
40	WQZP764	A2G Communications LLC
41	WQZP765	A2G Communications LLC
42	WQZP766	A2G Communications LLC
43	WQZP767	A2G Communications LLC
44	WQZP769	A2G Communications LLC
45	WQZP770	A2G Communications LLC
46	WQZP771	A2G Communications LLC
47	WQZP772	A2G Communications LLC
48	WQZP773	A2G Communications LLC
49	WXS445	A2G Communications LLC
50	WRFE609	Michael Gagne

Pending Applications for New Licenses Subject to Waiver

	ULS File No.	Licensee
51	0009042649	Michael Gagne
52	0009044234	Michael Gagne