

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Promoting Investment in the 3550-3700 MHz	)	GN Docket No. 17-258
Band	)	
	)	

**COMMENTS OF FEDERATED WIRELESS, INC.**

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December 28, 2017

## **EXECUTIVE SUMMARY**

In response to the NPRM, Federated Wireless urges the Commission to: (1) act expeditiously to resolve issues raised in the NPRM, while simultaneously and vigorously supporting final certifications for SAS administrators and ESC operators by no later than June 30, 2018; (2) leverage the capabilities of the SAS and exercise a light regulatory touch to enable and encourage a broad range of secondary markets transactions for the CBRS that will ensure intensive use of the spectrum; and (3) protect the information privacy of CBRS users by only allowing public disclosure of aggregated, anonymized and/or obfuscated CBRS data, unless a CBRS user “opts-in” to more fulsome data disclosures for business reasons (such as serving as a neutral host).

Together, these actions will build upon the significant momentum behind, and investment in, the CBRS ecosystem by ensuring that commercial operations can commence on GAA spectrum at the earliest opportunity, while also resolving the remaining few CBRS issues that are important to stakeholders. Valuable CBRS spectrum should be put to its best and highest use as quickly, widely, and as densely as possible, all to the benefit of consumers across the country. Federated Wireless is confident that the Commission will strike the right balance to promote these benefits, and stands ready to continue assisting the Commission and industry as commercial launch of CBRS operations draws near.

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**COMMENTS OF FEDERATED WIRELESS, INC.**

**I. INTRODUCTION AND SUMMARY.**

In response to the notice of proposed rulemaking (“NPRM”) issued by the Federal Communications Commission (“Commission”) in the above-captioned proceeding,<sup>1</sup> Federated Wireless, Inc. (“Federated Wireless”) urges the Commission to: (1) act expeditiously to resolve issues raised in the NPRM, while simultaneously and vigorously supporting final certifications for Spectrum Access System (“SAS”) administrators and Environmental Sensing Capability (“ESC”) operators by no later than June 30, 2018; (2) leverage the capabilities of the SAS and exercise a light regulatory touch to enable and encourage a broad range of secondary markets transactions for the Citizens Broadband Radio Service (“CBRS”) that will ensure intensive use of the spectrum; and (3) protect the information privacy of CBRS users by only allowing public disclosure of aggregated, anonymized and/or obfuscated CBRS data, unless a CBRS user “opts-in” to more fulsome data disclosures for business reasons (such as serving as a neutral host).

**II. IT IS PARAMOUNT THAT CONSIDERATION OF ANY POTENTIAL CHANGES TO THE CBRS RULES NOT DELAY COMMERCIAL LAUNCH OF SERVICE ON GAA SPECTRUM, SQUANDERING SIGNIFICANT INDUSTRY MOMENTUM.**

In the NPRM, the Commission seeks comment on a number of potential changes to the existing CBRS rules related to Priority Access License (“PAL”) spectrum, including increasing the

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<sup>1</sup> See *Promoting Investment in the 3550-3700 MHz Band*, GN Docket No. 17-258, Notice of Proposed Rulemaking and Order Terminating Petitions, FCC 17-134 (2017).

size of PAL license areas from census tracts to Partial Economic Areas, lengthening PAL license terms, and adding a renewal expectancy to PALs. The Commission also is considering changes to the rules governing allocation of PALs by auction, and technical rules relating to out-of-band emissions.<sup>2</sup> Federated Wireless trusts the Commission will strike the appropriate balance with respect to these issues, and emphasizes that whatever decisions are made, the Federated Wireless SAS technology will readily respond and implement any necessary changes.

Although the issues surfaced in the NPRM are of concern to a number of stakeholders, and should be addressed expeditiously, there is even greater urgency to ensure launch of General Authorized Access (“GAA”) service in 2018. None of the issues raised in the NPRM affect SAS and ESC functionality and, as a result, the Commission can—and, indeed, should—do all it can to support final certification of SAS administrators and ESC operators by June 30, 2018, whether or not the items under consideration in the NPRM are resolved. The Commission must support, and not stand in the way of, the tremendous momentum that has built for CBRS.

Since the adoption of the 3.5 GHz Order,<sup>3</sup> industry interest in, and momentum toward, the dense, widespread commercial use of CBRS spectrum has grown at an exponential rate. The CBRS Alliance, founded just over a year ago,<sup>4</sup> has seen its membership grow from the seven founding companies to nearly 80 companies across the CBRS ecosystem, including wireless carriers, cable operators, wireless Internet Service Providers, device and equipment manufacturers, tower companies, and prospective SAS administrators and ESC operators.<sup>5</sup>

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<sup>2</sup> See NPRM at Sections III.A and B.

<sup>3</sup> *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, FCC 15-47 (2015) (“3.5 GHz Order”).

<sup>4</sup> See *Industry Leaders Launch Alliance to Drive Deployment of LTE-based Solutions for the US 3.5 GHz Citizens Broadband Radio Service*, BUSINESS WIRE (Aug. 23, 2016); available at <http://www.businesswire.com/news/home/20160823005517/en/Industry-Leaders-Launch-Alliance-Drive-Deployment-LTE-based>.

<sup>5</sup> See CBRS Alliance, “Members,” available at <https://www.cb rsalliance.org/>. Sponsor Members include: Access Technologies (Alphabet), Ericsson, Inc., Federated Wireless, Intel Corporation, Nokia, Qualcomm, and Ruckus

Moreover, the Wireless Innovation Forum—a consensus group comprised of stakeholders across the CBRS ecosystem—has developed and is now finalizing the standards and protocols to enable the CBRS sharing framework.<sup>6</sup> CBRS stakeholders have engaged in a wide variety of trials, including large-scale field trials, in preparation for the commencement of commercial operations in the near term.<sup>7</sup> Indeed, as previously explained to the Commission, Federated Wireless alone has conducted more than 30 technical trials, and has a number of important field trials underway with a variety of CBRS stakeholders, including Charter, Verizon, American Tower, and ARRIS / Ruckus Wireless. Federated Wireless and its partners are also testing CBRS equipment compatibility with eight different OEM vendors, and through its trials, Federated Wireless presently has over 200 Citizens Broadband Service Devices (“CBSDs”) on the air and connected to its SAS. Federated Wireless is already processing more than 18,000 spectrum grant requests per week.<sup>8</sup>

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Wireless; Full Members include: Airspan Networks, Alpha Wireless, American Tower Corporation, Askey Computer Corp., AT&T, Boingo Wireless, Cable Television Laboratories, Charter Communications, Cisco Systems, Comcast Corporation, CommScope, Crown Castle, CTIA, ExteNet Systems, Frontier Communications, Fujitsu Network Communications, Huawei Technologies USA, ip.access Limited, Ligado Networks, Mavenir, Mobilitie, Motorola Solutions, Rise Broadband, Samsung, Seowonintech, SerComm USA, Sony Corporation, SpiderCloud Wireless, Sprint Corporation, Technicolor Connected Home, Telrad Networks, T-Mobile USA, US Cellular, Verizon Communications, Vivint, and ZTE USA; Adopter Members include: 3<sup>rd</sup> Net, LLC, Accelleran, ATN International, Baicells Technologies, BLinQ Networks, Casa Systems, Cohere Technologies, Contela, DEKRA, Druid Software, GemTek Technology, Infomark, Juni, Keysight Technologies, NetComm Wireless Limited, Nsight/Cellcom, PCTEL, QuadGen Wireless, QUCCELL, Quortus, Radisys, Rivada Networks, SBA Communications, Sequans Communications, Shenzhen Gongjin Electronics, Syniverse Technologies, Tembo Systems, TESSCO, The Antenna Company International, Transit Wireless, Vertical Bridge Holdings, Virtual Network Communications, Wave Wireless, Windstream, and Zinwave.

<sup>6</sup> Indeed, the final technical specification needed to complete certification of SAS administrators is currently in ballot at the Wireless Innovation Forum.

<sup>7</sup> See, e.g., Monica Allevin, *A Year in, What’s Happening with Google, Verizon, Nokia and the 3.5 GHz CBRS Band?*, FIERCEWIRELESS (published Apr. 7, 2017), available at <http://www.fiercewireless.com/wireless/a-year-what-s-happening-google-verizon-nokia-and-3-5-ghz-cbrs-band> (stating that it is “remarkable how far the 3.5 GHz sector has come in one year”); Monica Allevin, *Verizon Aims to Deploy Small Cells in 3.5 GHz When Practical*, FIERCEWIRELESS (published Mar. 10, 2017), available at <http://www.fiercewireless.com/tech/verizon-aims-to-deploy-small-cells-3-5-ghz-when-practical>; Monica Allevin, *AT&T Continues Quest to Test at 3.5 GHz*, FIERCEWIRELESS (published Mar. 7, 2017), available at <http://www.fiercewireless.com/tech/at-t-continues-quest-to-test-at-3-5-ghz>.

<sup>8</sup> See Letter from Ross Vincenti, Chief Legal Officer, Federated Wireless, Inc. to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 17-258, 15-319 (filed Dec. 5, 2017).

It is imperative that the Commission set a deadline for, and work to support, the final certification of SAS administrators and ESC operators by no later than June 30, 2018.<sup>9</sup> The industry has built considerable momentum and is ready—indeed, anxious—to begin using GAA spectrum. CBRS spectrum, enabled with SAS and ESC technology, will bring to market much-needed spectrum to meet the ever-growing demand for broadband connectivity. As soon as GAA operations commence, CBRS users will be able to provide consumers up to 150 MHz of additional bandwidth to meet this demand. Consumers and businesses in unserved and underserved locations, in rural areas, and in buildings or campuses that lack robust, high-quality connections, all will benefit. Finalizing SAS administrator certifications by June 30, 2018, and clearing the way for GAA operations, will ensure that CBRS spectrum is promptly made available to consumers and businesses alike, and put to the widespread, dense, shared use the Commission envisioned in the *3.5 GHz Order*.

**III. THE COMMISSION SHOULD PERMIT STREAMLINED AND FLEXIBLE SECONDARY MARKETS TRANSACTIONS FOR USE OF PAL SPECTRUM, AUTOMATED THROUGH THE SAS, TO ENABLE READY SPECTRUM ACCESS FOR A VARIETY OF CBRS USE CASES.**

In the NPRM, the Commission proposes to allow partitioning and disaggregation of PAL licenses and seeks comment on how to promote an active secondary market for CBRS spectrum.<sup>10</sup> The Commission posited, and Federated Wireless agrees, that “the ability to partition and disaggregate a PAL will be an effective way to improve spectral efficiency and facilitate targeted network deployments, particularly if the Commission adopts a longer license term or larger license area for PALs.”<sup>11</sup>

Federated Wireless also agrees with the Commission that it is crucial to provide mechanisms to enable PAL use by third parties who require reliable spectrum but may not have the need or

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<sup>9</sup> *Id.* at 2.

<sup>10</sup> NPRM at ¶ 31.

<sup>11</sup> *Id.*

resources to obtain a license for a Partial Economic Area or other larger license area. Permitting secondary markets access to PAL spectrum is critical to ensuring that high quality, reliable spectrum is made available to entities that are unable to acquire PALs through competitive bidding. For example, building owners or enterprise users, and entities that only need access to PAL spectrum for short periods of time (e.g., for a special event) do not need—and may not have the resources to acquire—access to PAL spectrum covering an entire license area or an entire term. For these entities, having assured use of PAL spectrum in an organized and non-opportunistic manner makes sense.

The Commission should therefore authorize as many secondary markets mechanisms for PAL spectrum as possible, exercising a light regulatory touch to promote maximum flexibility to CBRS users. To accomplish this goal, in addition to the existing streamlined spectrum manager leasing mechanism available to CBRS users,<sup>12</sup> the Commission should (1) permit partitioning and disaggregation of PAL licenses; (2) allow streamlined *de facto* leasing arrangements; (3) provide PAL licensees maximum flexibility in determining where they lease spectrum and the interference protections governing those lease arrangements; and (4) incent PAL licensees to engage in secondary markets transactions.

**A. The Commission Should Provide for Streamlined Processing and Approval of All CBRS Secondary Markets Transactions, Leveraging the SAS to Automate Partitioning and Disaggregation Transactions, Spectrum Manager Leases and *De Facto* Transfer Leases.**

First, Federated Wireless wholeheartedly supports Commission adoption of rights to partition and disaggregate PAL licenses in secondary markets transactions (sales and leases) to enable spectrum access for more localized use cases. These types of transactions can be readily handled by the SAS.

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<sup>12</sup> See 47 C.F.R. § 1.9046.



Second, Federated Wireless supports expansive streamlined processing for CBRS secondary markets transactions, including both spectrum manager leases and long term *de facto* transfer leases. As Federated Wireless has emphasized in prior filings, it is imperative that the Commission use a light touch with respect to secondary markets CBRS transactions to ensure PAL spectrum access is promptly enabled with minimal regulatory barriers. Under the Commission's existing secondary markets rules, entities seeking secondary access to PAL spectrum through mechanisms other than spectrum manager leases would be forced to engage in a cumbersome process requiring lengthy negotiations with licensees to reach an agreement for a transaction that complies with Commission's rules, and then to prepare and file applications for Commission approval of the long term *de facto* lease. Requiring CBRS users to undertake this lengthy process is inefficient, and contravenes the Commission's goals for the CBRS, which are aimed at enabling rapid spectrum access for users of all types. Instead of using the traditional secondary markets mechanisms for all transactions except spectrum manager leases, the Commission should further leverage the capabilities of the SAS to automate all such transactions, including *de facto* leases, and facilitate a robust secondary market for CBRS spectrum.

For long term *de facto* leases, the Commission could employ the user certification process already in place for spectrum manager leases of PAL spectrum. Under this process, an entity is able to certify to the Commission in advance of entering a spectrum manager leasing arrangement that it meets the qualifications for holding a license, including those related to foreign ownership, character and other requirements.<sup>13</sup> The Commission will promptly process such certifications and publish a list of entities that have made the requisite certifications. These entities may then enter into leasing arrangements with PAL licensees and, under the streamlined process, the licensee notifies the SAS

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<sup>13</sup> See *id.*; *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Order on Reconsideration and Second Report and Order, GN Docket No. 12-354, FCC 16-55, at § 217 (2016) ("*Second Report and Order*").

of the leasing arrangement and provides certain lease-specific information and certifications.<sup>14</sup> Upon confirmation from the SAS that the notification has been received and the lease meets the requirements of section 96.66 of the Commission's rules,<sup>15</sup> the lessee may immediately commence operations.<sup>16</sup> The Commission found that this approach "balances the Commission's oversight obligations while still permitting an efficient leasing process that places lessees in a position to offer service upon confirmation from the SAS."<sup>17</sup>

Federated Wireless agrees, and urges the Commission to extend this balanced approach to other secondary markets transactions, including long term *de facto* transfer leases, PAL transfers and assignments. Doing so will provide maximum optionality to PAL licensees and those requiring access to interference-protected PAL spectrum. The SAS's capabilities can automate such transactions and aid the Commission in ensuring compliance with the CBRS rules, thereby promoting a robust secondary market for CBRS spectrum.

Extending this procedure to enable streamlined *de facto* leasing, transfers, and assignments requires little, if any, modification to the processes already established for CBRS spectrum manager leases. The pre-certification process noted above is already designed to gather the requisite certifications establishing an entity's eligibility to hold a license and, just as with spectrum manager leases, the Commission's rules already provide for immediate approval of certain *de facto* transfer leasing arrangements, as well as license transfers and assignments.<sup>18</sup> The notification is already required to identify, among other items, the call sign of the license and the specific spectrum, in

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<sup>14</sup> 47 C.F.R. § 1.9046(c).

<sup>15</sup> *Id.* § 96.66.

<sup>16</sup> *Second Report and Order* at ¶ 218.

<sup>17</sup> *Id.* at ¶ 217.

<sup>18</sup> *See* 47 C.F.R. §§ 1.9030(e)(2); 1.9035(e); 1.948(j)(2).

terms of both geography and bandwidth, at issue.<sup>19</sup> Moreover, the Commission has found that, in the CBRS, “[d]ue to the absence of specific build-out requirements and inapplicability of the spectrum screen, the presumption is that leasing agreements are in the public interest if the parties follow the proper procedure.”<sup>20</sup> Because the spectrum screen does not apply to CBRS, there is little reason for the Commission to apply different mechanisms for approval of spectrum manager and *de facto* leases for CBRS spectrum; this is not true for other spectrum bands.

In addition, this approach will provide licensees and their prospective lessees and transaction partners with the necessary optionality to enter into, and quickly execute, transactions that both support the parties’ individual use cases and ensure that CBRS spectrum is widely and densely used to consumer benefit. For instance, there are likely to be transactions under which both the licensee and its counterparty agree that responsibility for compliance with the Commission’s rules, such as the rule requiring professional installation of Category B CBSDs,<sup>21</sup> would more appropriately reside with the counterparty. Under the existing rules for streamlined CBRS secondary markets transactions, however, that responsibility must remain with the licensee; if the parties wish for the responsibility to lie with the counterparty, they must instead undertake a traditional secondary markets application. As demonstrated above, such a bifurcation between spectrum manager leases and other secondary markets transactions in the CBRS is unnecessary. The Commission should, therefore, extend the streamlined spectrum manager leasing mechanisms to all CBRS secondary markets transactions. Just as with spectrum manager leasing, under a fully SAS-enabled secondary markets regime that allows for streamlined processing of *de facto* leases, the SAS would aid the Commission in enforcing the CBRS rules, as it would “function and communicate with CBSDs in the same manner it would in the absence” of the transaction and would “communicate directly with

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<sup>19</sup> *Id.* § 1.9046(c).

<sup>20</sup> *Second Report and Order* at § 220, n.504.

<sup>21</sup> 47 C.F.R. § 96.45(a).

all CBSDs, regardless of whether they are operated by a licensee or lessee, thereby facilitating a lessee's compliance with technical and service rules and safeguarding other users.”<sup>22</sup>

**B. PAL Licensees Should Be Provided Maximum Flexibility to Negotiate and Enter Into Leasing Arrangements that Meet Their and Prospective Lessees' Needs.**

Presently, PAL licensees are prohibited from entering into leasing agreements that would enable third-party spectrum use within that licensee's PAL Protection Area.<sup>23</sup> There is no need to prohibit such leases, however, and PAL licensees should be permitted to enter into leasing arrangements throughout their Service Areas, regardless of whether the proposed lease would cover the licensee's PAL Protection Area. The Part 96 rules have already established a mechanism by which an incumbent Fixed Satellite Service (“FSS”) licensee can agree to CBRS operations within its protection contour by registering those agreements with the SAS.<sup>24</sup> Providing this same optionality to PAL licensees would serve to further facilitate a robust secondary market for CBRS spectrum. For example, this would enable a PAL licensee to lease spectrum within a building or on a campus while continuing to operate its deployment throughout the remainder of its PAL Protection Area.

In addition, the Commission should permit PAL licensees to enter into lease agreements that specify different PAL protection requirements than those provided in the Part 96 rules. This would allow the PAL licensee and lessee to reach leasing agreements, as appropriate for them, which may require more or less protection than the rules provide. The SAS would then enforce the terms of the agreement. As above, such a mechanism is already available to incumbent FSS licensees,<sup>25</sup> and the same flexibility should be provided to PAL licensees to maximize their ability and incentive to engage in secondary markets transactions.

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<sup>22</sup> *Second Report and Order* at ¶ 216.

<sup>23</sup> 47 C.F.R. § 96.32(c).

<sup>24</sup> *Id.* § 96.17(e).

<sup>25</sup> *Id.* § 96.17(e)-(f).

**C. The Commission Should Incent PAL Licensees to Engage in Secondary Markets Transactions.**

In the NPRM, the Commission seeks comment on whether the addition of performance requirements for PAL licensees would aid in promoting a robust secondary market for CBRS spectrum.<sup>26</sup> Whether it is performance or other requirements, Federated Wireless agrees that it is important to incent PAL licensees to make their spectrum available for use by others via secondary markets mechanisms. Should the Commission choose to adopt performance requirements for PAL licensees, Federated Wireless suggests that the Commission could offer as an incentive that any use of PAL spectrum by lessees would count toward a licensee's satisfaction of its performance obligations. Properly incenting PAL licensees to enter into secondary markets transactions will promote dense, meaningful use of CBRS spectrum, including by those who do not or cannot acquire PALs at auction.

Moreover, enabling frictionless secondary markets transactions for PAL spectrum through the SAS will encourage PAL licensees to make their spectrum available when not needed for their own operations.

**IV. THE COMMISSION SHOULD PROTECT SENSITIVE CBRS USER INFORMATION BY ONLY ALLOWING PUBLIC DISCLOSURE OF AGGREGATED, ANONYMIZED AND/OR OBFUSCATED CBRS DATA UNLESS A CBRS USER "OPTS-IN" TO MORE FULSOME DATA DISCLOSURES FOR BUSINESS REASONS.**

In the NPRM, the Commission proposes to "amend the current rules to prohibit SASs from disclosing publicly CBSD registration information that may compromise the security of critical network deployments or be considered competitively sensitive."<sup>27</sup> Federated Wireless wholeheartedly agrees, and fully supports information privacy for CBRS users.

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<sup>26</sup> NPRM at ¶ 32.

<sup>27</sup> *Id.* at ¶ 37.

As the Commission has previously noted, the type of CBRS user information that may be shared and the circumstances under which it may be exchanged requires that the Commission strike an appropriate balance between the legitimate data privacy and security concerns of CBRS users and the need for current and prospective users to effectively plan their future deployments.<sup>28</sup> To this end, Federated Wireless urges the Commission to adopt a framework that would only allow public disclosure of aggregated, anonymized and obfuscated information that would not reveal any CBSD- or licensee-specific data. Such aggregated, anonymized and obfuscated data would provide prospective users general information about CBRS spectrum use while withholding potentially commercially sensitive or security-related, licensee-specific information, and thus would serve to balance the needs of licensees and prospective users.

SAS administrators would only be permitted to publish, for instance, a graphical mosaic or heat map—based on certain aggregated, anonymized or obfuscated registration information—showing the level of spectrum use in a given area and the amount of spectrum available (or in use). Such information would not reveal the licensee identity, specific location of any CBSD, specific frequencies in use, or the tier of user. It also would address the security concerns raised by CTIA and the carriers, as the licensee, location, and operational information for any given CBSD would be withheld from public disclosure, while permitting current and prospective users to better plan for future deployments.

The only circumstance under which CBRS data could be publicly disclosed beyond aggregated, anonymized and obfuscated data, would be pursuant to a specific CBRS licensee or lessee “opt-in” to more detailed disclosures based on their business needs. Certain licensees and lessees, such as those wishing to provide neutral host services, may wish to publicize their location and other information that would otherwise be withheld from disclosure to attract potential

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<sup>28</sup> 3.5 GHz Order at ¶ 322.

customers. The Commission should, therefore, clarify that SAS administrators may offer an “opt-in” mechanism that will allow more detailed public disclosures for certain licensees and lessees. To the extent a CBRS user is offering neutral host services, and “opts-in” to more detailed public disclosures, the availability of that information for planning deployments may lead a prospective user to contract with the neutral host provider rather than pursuing its own license, which both accrues to the licensee’s benefit and allows other users to operate on the spectrum that the prospective user would otherwise have used.

## **V. CONCLUSION.**

Federated Wireless commends the Commission on its innovative efforts in developing the CBRS, and stands ready for certification and commercial launch of CBRS operations in 2018. With respect to the issues raised in the NPRM, Federated Wireless urges the Commission to: (1) act expeditiously to resolve the issues under consideration in the NPRM while in parallel vigorously supporting final certification of SAS administrators and ESC operators by June 30, 2018 so that GAA operations can commence; (2) exploit the SAS’s capabilities and use a light regulatory touch to facilitate a wide range of secondary markets transactions for CBRS spectrum; and (3) protect the information privacy of CBRS users by only allowing public disclosure of aggregated, anonymized and/or obfuscated CBRS data, unless a CBRS user “opts-in” to more fulsome data disclosures for business reasons (such as serving as a neutral host)

Respectfully submitted,

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