



REDACTED, FOR PUBLIC INSPECTION

Federated Wireless, Inc.  
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September 10, 2018

**VIA ECFS AND HAND FILING**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Accepted / Filed **ORIGINAL**

SEP 10 2018

Federal Communications Commission  
Office of the Secretary  
**DOCKET FILE COPY ORIGINAL**

**RE: Request for Confidential Treatment**

**Federated Wireless, Inc. Proposal for Initial Commercial Deployment in the Citizens Broadband Radio Service**

***Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System (SAS) Administrator(s) and Environmental Sensing Capability (ESC) Operator(s) Applications, GN Docket No. 15-319***

Dear Ms. Dortch:

Federated Wireless, Inc. ("Federated Wireless") hereby submits the attached proposal ("Proposal") for its Initial Commercial Deployment ("ICD") in the Citizens Broadband Radio Service ("CBRS") in response to the Public Notice issued by the Federal Communications Commission ("Commission" or "FCC") requesting proposals from conditionally approved Spectrum Access System ("SAS") Administrators in the above-captioned proceeding.<sup>1</sup> Pursuant to 47 C.F.R. §§ 0.457, 0.459, Federated Wireless requests confidential treatment for the company-specific, highly sensitive and proprietary commercial information in the attached Proposal and accompanying attachments. The confidential information constitutes highly sensitive commercial information that falls within Exemption 4 of the Freedom of Information Act and has been redacted from the version electronically filed with the Commission.

In support of this request and pursuant to Section 0.459(b) of the Commission's rules, Federated Wireless hereby states as follows:

**1. Identification of the specific information for which confidential treatment is sought.**

Federated Wireless requests confidential treatment with respect to the confidential information contained in Attachments 1 and 2 to the Proposal and redacted from the version filed electronically with the Commission.

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<sup>1</sup> *Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System Initial Commercial Deployment Proposals, GN Docket No. 15-319, Public Notice, DA 18-783 (WTB/OET 2018).*

**2. Identification of the circumstance giving rise to the submission.**

Federated Wireless is providing its Proposal for CBRS Initial Commercial Deployment in an open Commission proceeding.

**3. Explanation of the degree to which the information is commercial or financial or contains a trade secret or is privileged.**

The confidential information in the Proposal and associated attachments is highly sensitive commercial information specific to the proprietary research, development, and strategies of Federated Wireless. This information is generally safeguarded from competitors and is not made available to the public.

**4. Explanation of the degree to which the information concerns a service that is subject to competition.**

The confidential information details the functioning of the Federated Wireless SAS and location of CBRS user sites, and Federated Wireless and other SAS Administrators will compete vigorously on the basis of the sensing and spectrum management services provided through their products.

**5. Explanation of how disclosure of the information could result in substantial competitive harm.**

Disclosure of the redacted information could cause substantial competitive harm to Federated Wireless, because it would provide competitors insight into confidential research, development, operational, and strategic information that would not otherwise be available, which would work to Federated Wireless's severe competitive disadvantage.

**6. Identification of any measures taken to prevent unauthorized disclosure.**

Federated Wireless routinely treats the redacted information as highly confidential and exercises significant care to ensure that such information is not disclosed to its competitors or the public.

**7. Identification of whether the information is available to the public and the extent of any previous disclosure of the information to third parties.**

Federated Wireless does not make the redacted information available to the public, and this information has not been previously disclosed to third parties.

**8. Justification of the period during which the submitting party asserts that the material should not be available for public disclosure.**

Federated Wireless requests that the redacted information be treated as being confidential on an indefinite basis as it cannot identify a date certain on which this information could be disclosed without causing competitive harm to Federated Wireless.

Respectfully submitted,  
/s/ Kurt Schaubach  
Kurt Schaubach  
Chief Technology Officer  
Federated Wireless, Inc.  
3865 Wilson Boulevard  
Arlington, VA 22203



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**RE: Federated Wireless, Inc. Proposal for Initial Commercial Deployment in the Citizens Broadband Radio Service**  
***Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System (SAS) Administrator(s) and Environmental Sensing Capability (ESC) Operator(s) Applications, GN Docket No. 15-319***

Dear Ms. Dortch:

Federated Wireless, Inc. ("Federated Wireless") is pleased to submit this proposal ("Proposal") for its Initial Commercial Deployment ("ICD") in the Citizens Broadband Radio Service ("CBRS") in response to the Public Notice issued by the Federal Communications Commission ("Commission" or "FCC") requesting proposals from conditionally approved Spectrum Access System ("SAS") Administrators.<sup>1</sup> In response to considerable market demand from Federated Wireless' partners, and in order to fulfill the purpose of this ICD, the Federated Wireless Proposal is unquestionably forward leaning and will help achieve two important goals: 1) testing thoroughly the SAS under real-world conditions to address proactively all questions and concerns prior to certification; and 2) maintaining the significant momentum reached by the CBRS industry in preparation for a full-scale commercial launch in the CBRS band.

This Proposal presents a true initial commercial deployment of CBRS, with Federated Wireless and its partners collaborating to deploy CBRS solutions across more than 15,000 sites in 47 states and the District of Columbia, representing all major use cases and industry segments in the band. The scope of this Proposal is illustrative of the intense interest and investment in the band, and it is critical that the Commission and industry take advantage of the opportunities ICD presents to confirm the scalability of the CBRS ecosystem, build confidence across industry and government stakeholder groups, and maintain momentum toward full commercialization as the regulatory review process concludes. These goals can only be accomplished, and the data to confirm such accomplishment and compliance with the Commission's Part 96 rules can only be generated, if ICD is conducted at scale and in all CBRS deployment scenarios. This Proposal will do just that. Federated Wireless is fully committed to continuing its partnership with the Commission, the National Telecommunications and Information Administration ("NTIA"), and

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<sup>1</sup> *Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System Initial Commercial Deployment Proposals, GN Docket No. 15-319, Public Notice, DA 18-783 (WTB/OET 2018) ("ICD PN").*

the Department of Defense (“DoD”) to see CBRS through to full commercialization and ensure its success.

It is Federated Wireless’ strong belief that only testing of CBRS operations, across diverse stakeholders and geographies, and under realistic conditions will yield the kind of operating environment the Commission, NTIA, and DoD need to truly assess the functioning and performance of SAS technology at scale and grant final certification for SAS Administrators. The principal focus of ICD is to resolve questions related to the scalability, interoperability, and reliability of the CBRS ecosystem. Neither laboratory testing nor discrete, limited field testing can address these questions. The best—indeed, the only—means of testing the scalability and reliability of the SAS and CBRS ecosystem under commercial load is to place them under load during ICD, in real-world operational environments. ICD must be used to discover and address all potential deficiencies within the CBRS ecosystem before final certification of SAS Administrators and full commercialization of the band, at which point any deficiencies will be far more impactful to users and incumbents alike. It is imperative, therefore, that ICD testing address every possible deployment scenario, including edge and corner cases, rather than serving as a discrete field testing activity that would mask or fail to surface issues. Because the SAS handles all scenarios—whether real-world or emulated in a laboratory—if the ICD is placed under artificial limitations, the operations will yield the same results as in the lab, and will fail to identify issues that will be raised and resolved through deployments intended to test all possible scenarios.

In keeping with this philosophy, the scope of the Federated Wireless ICD Proposal is focused on demonstrating the scalability, interoperability, and reliability of the CBRS ecosystem. While ambitious, the Proposal will not create any administrative burden for the Commission or its federal partners. Instead, the Federated Wireless SAS will maintain, monitor, manage, and report on the operations of Citizens Broadband Service Devices (“CBSDs”) in real time, providing accounts for Commission staff so that they, too, can monitor the system.

As the Commission knows, the beauty of the Federated Wireless SAS system is that it is entirely software-based. In the event issues arise, Federated Wireless will be able to implement updates and corrections instantaneously for every CBSD connected to the Federated Wireless SAS – whether that is 15 CBSDs or 15,000. It will not be necessary, in the face of identified problems related to SAS operation, for Federated Wireless to physically touch each and every CBSD. The ease of fixing, testing, and validating a cloud-based software system, without labor in the field, is a major difference and benefit of this new generation of wireless technology. Additionally, as noted above, during ICD the Commission can easily direct Federated Wireless, as a conditionally certified SAS Administrator, to terminate spectrum grants should any concerns arise. Nonetheless, this Proposal also provides the Commission with detailed location and contact information for each of Federated Wireless’ partners should retrieval of any equipment, while unexpected, become necessary.

As envisioned and proposed by Federated Wireless, ICD will serve as a true bridge from field trials and laboratory testing to full-scale, commercial access to 150 MHz of much-needed 5G spectrum. As the Commission knows, Federated Wireless has engaged in more than four years of research and development, and more than 50 technology trials and field deployments with its partners since the CBRS proceeding was first initiated. These partners have thoroughly tested the Federated Wireless SAS for more than a year. Federated Wireless is not expecting

huge surprises in the field as a result of the contemplated ICD deployments, and ICD will serve to confirm what years of field trials and laboratory testing have already demonstrated—that the CBRS is ready for full commercialization. Rather, the Federated Wireless Proposal is an opportunity for all stakeholders to gain further confidence, valuable learnings, and plan for future commercial success. To limit the scope of ICD would be to squander this opportunity to build confidence and experience throughout the ecosystem as the administrative review process concludes.

Excitement for the CBRS band is building and the Commission soon will see the benefits of its leadership to adopt an innovative sharing framework that governs the CBRS, and its expeditious movement to enable consumer access to CBRS services. Industry and the SAS technology are both ready for the initiation of commercial operations, and Federated Wireless commends the Commission for taking another critical step toward full commercialization of the band. This Proposal illustrates, unequivocally, the intense, pent-up demand for CBRS spectrum that has accelerated as full commercialization nears.

Turning to the detail of this ICD proposal, Federated Wireless is proud that its ICD will encompass operations of 15 commercial partners, including top-tier Mobile Network Operators, cable service providers, fixed wireless broadband providers, managed service providers, and a major tower company. These commercial partners will deploy CBRS solutions across 15,773 total sites in 47 states and the District of Columbia. The anticipated deployments reflect the full breadth of CBRS use cases, with partners deploying wireless carrier, MVNO, private LTE, and fixed wireless broadband access systems in indoor, outdoor, and combined configurations. These deployments include, among others:

- Carrier network densification supporting additional LTE coverage and capacity;
- Fixed wireless access to extend the reach of existing cable operator networks;
- Fixed wireless access in rural Iowa, Idaho, and Minnesota;
- Private LTE to support Internet of Things operations in a California port; and
- Neutral host and Private LTE to provide event venue and in-building connectivity for marquee venues.

Approximately 55% of Federated Wireless ICD sites will be outdoors and 45% indoors. The breadth of these deployments will provide final confirmation for the Commission, NTIA and DoD that SASs will function at scale and comply with the Commission's Part 96 requirements – a result that cannot be accomplished through laboratory testing or limited test bed deployments.

There will, of course, be a logical phasing of these partner deployments throughout the course of the ICD, as partners work through their site preparation processes. Details of this phasing are in large part dependent on the timing of the commencement of ICD operations. As a result, once such timing is clarified, Federated Wireless will provide the Commission with more detailed information on the sequencing of partner deployments at the Commission's request.

The Federated Wireless ICD represents the tip of the iceberg of the demand to deploy CBRS solutions and indicates just how prepared industry is for full commercialization of the

band.<sup>2</sup> Federated Wireless' partners have proposed deployments they envision as necessary in anticipation of final certification of SAS Administrators. They have identified the sites, CBSD types and configurations, and necessary bandwidth without reference to the possible presence of incumbents or other operators. They are relying on the Federated Wireless SAS to determine which devices can and cannot be deployed or operated based on the incumbent protection obligations of the SAS. The data generated by these operations will provide the FCC, NTIA and DoD with an essential window into how a complex CBRS / SAS operation will be conducted, and how it will conform to the Commission's Part 96 requirements, paving the way for final certification and full commercialization of the band.

Success of the ICD will put the punctuation on the sea change created by the Commission in the way scarce spectrum resources are managed – this is a moment of pride for the Commission, the Chairman and Commissioner O'Reilly. Federated Wireless looks forward to demonstrating, in collaboration with its partners, the commercial readiness of both its SAS and the CBRS industry through this ICD, and to hosting the Commission at ICD locations so it can see the CBRS system at work. As launch of the CBRS nears and as uses in the band evolve, Federated Wireless will continue to work with all stakeholders, DoD, NTIA, and the Commission to ensure CBRS is a success.

### INITIAL COMMERCIAL DEPLOYMENT PROPOSAL

As requested in the ICD PN, this Proposal demonstrates the means by which the Federated Wireless SAS complies with the Commission's rules, particularly those requirements and core functions described in Part 96, subpart F. During the ICD, the Federated Wireless SAS will provide service throughout the ICD markets and implement all required functions of a SAS, including acting as a data repository and providing registration, channel availability calculations, and query services. The Federated Wireless SAS fully implements the SAS capabilities defined in Part 96, Subpart F of the Commission's rules, including:

- Enacting and enforcing all policies and procedures developed by the SAS Administrator pursuant to section 96.63;<sup>3</sup>
- Determining and providing to Citizens Broadband Radio Service Devices ("CBSDs") the permissible channels or frequencies at their location;
- Determining and providing to CBSDs the maximum permissible transmission power level at their location;
- Registering and authenticating the identification information and location of CBSDs;
- Retaining information on, and enforcing, Exclusion Zones and Protection Zones in accordance with sections 96.15 and 96.17;<sup>4</sup>

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<sup>2</sup> While the number of sites identified in this Proposal is significant, it represents a limited initial deployment, as in the aggregate Federated Wireless's customers plan to deploy CBRS across millions of sites following final certification of SAS Administrators and full commercialization of the band.

<sup>3</sup> 47 C.F.R. § 96.63.

<sup>4</sup> *Id.* §§ 96.15, 96.17.

- Communicating with the Federated Wireless ESC to obtain information about federal Incumbent User transmissions and instructing CBSDs to move to another frequency range or cease transmissions when federal incumbent operations are detected;
- Ensuring that CBSDs operate in geographic areas and within the maximum power levels required to protect federal Incumbent Users from harmful interference, consistent with the requirements of sections 96.15 and 96.21;<sup>5</sup>
- Ensuring that CBSDs protect non-federal Incumbent Users from harmful interference, consistent with the requirements of sections 96.17 and 96.21<sup>6</sup>
- Protecting Priority Access Licensees (“PALs”) from interference caused by other PALs and from General Authorized Access (“GAA”) users, including the calculation and enforcement of PAL Protection Areas, consistent with section 96.25;<sup>7</sup>
- Facilitating coordination between GAA users operating Category B CBSDs, consistent with section 96.35;<sup>8</sup>
- Resolving conflicting uses of the band while maintaining, to the extent feasible, a stable radio frequency environment;
- Ensuring secure and reliable transmission of information between the SAS and CBSDs;
- Protecting GWBLs consistent with sections 90.1307, 90.1338, and 96.21;<sup>9</sup>
- Implementing the terms of current and future international agreements as they relate to the CBRS; and
- Receiving reports of interference and requests for additional protection from Incumbent Access Users and promptly addressing interference issues.

### Testing Scenarios

The ICD PN requires that each ICD Proposal include “detailed descriptions of the specific testing scenarios that the SAS Administrator intends to run during ICD, which may include operational parameters (e.g., the number, locations, and configuration of CBSDs).”<sup>10</sup>

Attachment 1 provides the detailed descriptions of the processes and functionalities through which the Federated Wireless ICD will demonstrate the Federated Wireless SAS’s compliance with the Commission’s Part 96 requirements. Throughout Attachment 1, Federated

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<sup>5</sup> *Id.* §§ 96.15, 96.21.

<sup>6</sup> *Id.* §§ 96.17, 96.21.

<sup>7</sup> *Id.* § 96.25.

<sup>8</sup> *Id.* § 96.35.

<sup>9</sup> *Id.* §§ 90.1307, 90.1338, 96.21.

<sup>10</sup> ICD PN at ¶ 8.



Wireless describes the testing scenarios that will be used to demonstrate the Federated Wireless SAS's implementation of the required functions identified in the ICD PN.

### **User Registration Process**

Attachment 1 provides the required detailed description of the process by which users can register with the SAS, receive authentication, and obtain user IDs during ICD.<sup>11</sup>

During ICD, Federated Wireless will also establish accounts for federal and non-federal Incumbent Users upon request, enabling such users to access certain obfuscated information about spectrum use. Federated Wireless will also establish accounts for staff involved with the review of ICD Proposals to access the Federated Wireless SAS and data generated by the SAS during ICD.<sup>12</sup>

### **SAS-CBSD Communications**

Attachment 1 describes in detail the processes that the Federated Wireless SAS will follow to communicate with and manage multiple CBSD and/or Domain Proxy ("DP") products, including the protocols for SAS-CBSD communications for registration, channel grant, and channel release.<sup>13</sup>

Attachment 2 identifies each of Federated Wireless's commercial ICD partners.

### **Professional Installation**

Attachment 1 describes the process that a certified professional installer (CPI) will follow to register CBSDs and/or DPs during ICD and provide an explanation regarding how the professional installation process will ensure the Federated Wireless SAS can accurately locate devices in compliance with Part 96.<sup>14</sup>

### **SAS-SAS Interoperability**

Attachment 1 provides a detailed explanation of how Federated Wireless will demonstrate the SAS's ability to correctly synchronize and exchange information with other SASs and correctly apply information security procedures and incumbent protection methods during ICD.<sup>15</sup>

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<sup>11</sup> *Id.* at ¶ 7.

<sup>12</sup> *Id.* at ¶ 8.

<sup>13</sup> *Id.* at ¶ 7.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

### **SAS Utilization of Commission Databases**

Attachment 1 describes in detail the processes that the Federated Wireless SAS will follow to access, read, and use data directly from FCC databases during ICD, pending database availability.<sup>16</sup>

### **Dynamic Protection Area (“DPA”) Protection**

Attachment 1 provides the required declaration that the Federated Wireless SAS is DPA-enabled and includes a description of how Federated Wireless will demonstrate the SAS’s ability to implement notification-based DPA protection using a portal.<sup>17</sup>

### **Incumbent Protection Implementation**

Attachment 1 describes the processes that Federated Wireless will use to ensure the correct implementation of all relevant interference protection criteria, including how the Federated Wireless SAS’s over the air propagation testing will address the protection of Fixed Satellite Service (“FSS”) earth station sites, federal inland radar test sites, and area-based protections (e.g., Grandfathered Wireless Protection Zones).<sup>18</sup>

### **Interference Reports and Mitigation**

Attachment 1 provides a description of Federated Wireless’s proposed real-world interference mitigation demonstration and the performance of its reporting requirement, including details regarding whether the real-world testing will or will not include incumbents such as FSS licensees or federal inland radar test sites.<sup>19</sup>

### **ICD Data Output and Final Report**

Attachment 1 describes the technical data Federated Wireless will provide to verify the proper operation of its SAS with respect to the above-listed required functions, including a description of the report that Federated Wireless will produce at the conclusion of its ICD period to demonstrate compliance with the Commission’s rules and the requirements of the ICD PN.<sup>20</sup>

Respectfully submitted,  
/s/ Kurt Schaubach  
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Chief Technology Officer  
Federated Wireless, Inc.  
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Arlington, VA 22203

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<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

**ATTACHMENT 1**

**[REDACTED]**

## **ATTACHMENT 2**

**[REDACTED]**