



Federated Wireless, Inc.
4301 North Fairfax Drive
Suite 301
Arlington, VA 22203
www.federatedwireless.com

April 1, 2015

VIA ELECTRONIC FILING

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

Re: Notice of Ex Parte - *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band* - GN Docket No. 12-354

Dear Ms. Dortch:

On March 30, 2015, Iyad Tarazi and Kurt Schaubach of Federated Wireless, Inc., and Jennifer Richter and Benjamin Bartlett, their counsel, met with Louis Peraertz, Senior Legal Advisor to Commissioner Clyburn. Mr. Tarazi and Mr. Schaubach also met with John Leibovitz and Paul Powell of the Wireless Telecommunications Bureau. The discussions focused on the Commission's proposals to establish the Citizens Broadband Radio Service in the 3.5 GHz Band ("Citizens Band").¹

Federated Wireless emphasized the importance of ensuring that the Citizens Band will be open for utilization, investment and innovation by all users, and that non-carrier users are not disadvantaged in accessing and using Citizens Band spectrum. The topics discussed included the following:

- **The substantial pent up demand for LTE-based broadband for Contained Access Facilities ("CAF").** Only 1% of CAFs nationwide have internal access to LTE-based broadband today, resulting in robust broadband outside the CAF and inadequate broadband within the confines of the CAF. To address the pent up demand, Federated Wireless urges the Commission to reserve 30 MHz of spectrum for CAF operations, both inside CAF buildings and on contiguous outdoor property. For example, utility and manufacturing plants, as well as hospital campuses, educational campus and government campuses, all require seamless access to sufficient CAF spectrum and LTE technology, both inside buildings and between buildings, in order to support the continuous broadband needs of users in a CAF environment. As the Commission has emphasized in other proceedings, such as the E-rate proceeding, the need for broadband does not end at a building's front doors.²

¹ See *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Further Notice of Proposed Rulemaking, 29 FCC Rcd 4273 (2014).

² See *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Notice of Proposed Rulemaking, 28 FCC Rcd 11304, ¶ 320 (2013). See also *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Report and Order and Further Notice of Proposed Rulemaking, 29 FCC Rcd 8870,

- **The need for technology neutrality.** For the Citizens Band, this means not only that the FCC must not pick technology winners and losers, but that the FCC also must require certain fundamental attributes for technology in the band that ensures interoperability and technological fairness. The aim is that the entire band should be open and available, on an equal basis, to all users, without advantaging or disadvantaging one user group over another.
- **The importance of the three-tiered sharing paradigm.** The Commission should preserve the three-tiered sharing paradigm for the Citizens Band, which has been the subject of extensive comment and exploration.
- **The efficacy of Spectrum Access Systems to manage all tiers of the Citizens Band.** Spectrum Access Systems will effectively manage all three tiers of the Citizens Band, including providing continuity for PAL assignments from one geographic area to the next.
- **All Citizens Band users need access to fallow PAL spectrum together with the rest of the Citizens Band.** Citizens Band users should have access to PAL spectrum for sharing purposes when the Spectrum Access System and/or sensing technology ascertains that the PAL spectrum is not in use.

Federated Wireless also provided a copy of the attached *ex parte* letter, filed on March 18, 2015, and generally discussed the points addressed therein, including: insisting on interoperability, assigning no static frequencies in the Citizens Band, requiring transparency and standards-based SAS interfaces, ensuring that Citizens Band spectrum remains unlocked, satisfying the needs of Contained Access Facilities, and transitioning exclusion zones to dynamic management zones.

If implemented as envisioned by the Commission, preserving openness for both the spectrum in the band and the technology deployed, the Citizens Band can become a true “innovation band,” driving investment and innovation in sensor technologies, spectrum sharing and small cell systems while also protecting incumbent users.

Respectfully submitted,

_____/s/
Kurt Schaubach
Chief Technology Officer
Federated Wireless, Inc.

cc:
Louis Peraertz
John Leibovitz
Paul Powell

¶ 7 (2014) (“Today, students and teachers can and do take their devices with them wherever they go, which means they need to have Internet connectivity throughout their schools.”). If the school is in a campus environment, that access should be available to students between buildings.



Federated Wireless, Inc.
4301 North Fairfax Drive
Suite 301
Arlington, VA 22203
www.federatedwireless.com

March 18, 2015

VIA ELECTRONIC FILING

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

Re: Notice of Ex Parte - *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band* - GN Docket No. 12-354

Dear Ms. Dortch:

On March 16, 2015, Iyad Tarazi and Kurt Schaubach of Federated Wireless, Inc., John Serafini of Allied Minds, and Jennifer Richter and Benjamin Bartlett, counsel to Federated Wireless, met separately with Renee Gregory, Legal Advisor to Chairman Wheeler; Priscilla Delgado Argeris, Senior Legal Advisor to Commissioner Rosenworcel; Brendan Carr, Legal Advisor to Commissioner Pai; and Erin McGrath, Legal Advisor to Commissioner O'Rielly. The discussions focused on the Commission's proposals to establish the Citizens Broadband Radio Service in the 3.5 GHz Band ("Citizens Band").¹

Federated Wireless appreciates the significant time and attention devoted by Commission staff to this important proceeding, and commends the proposals set forth in the FNPRM. Backed by strong industry and government support, the Commission should feel confident moving forward expeditiously to adopt final rules for the Citizens Broadband Radio Service. If implemented as envisioned by the Commission, the Citizens Band will be a true "innovation band" that will drive investment and innovation in spectrum sharing and small cell technologies while also protecting incumbent users. In fact, as discussed in the meetings, what the Commission is contemplating for the Citizens Band could be transformational for the wireless industry, leading to new investment opportunities. In order to ensure realization of the band's full potential, and promote its successful launch, the following protections are important:

- **Insist on Interoperability.** The Commission must insist upon device interoperability across the entire Citizens Band to ensure the band is open for investment and innovation, and not foreclosed by larger carriers and equipment manufacturers. The Commission has the opportunity in this proceeding to require interoperability for Citizens Band equipment before device standards are set by 3GPP.

¹ See *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Further Notice of Proposed Rulemaking, 29 FCC Rcd 4273 (2014) ("FNPRM").

- **Assign No Static Frequencies.** The Commission does not want the Citizens Band to become another licensed band, which would limit innovation. Accordingly, Priority Access Licenses (“PALs”) should not be assigned static frequencies. Proposals to assign static frequencies for the PAL tier are entirely inconsistent with the Commission’s intention to authorize Spectrum Access Systems (“SASs”) to flexibly and dynamically manage and/or combine the PAL and General Authorized Access (“GAA”) tiers.
- **Require Transparency and Standards-Based SAS Interfaces.** To the extent carriers are permitted to operate SASs within their networks, the Commission should ensure that SAS management practices are transparent so that opportunities to warehouse spectrum or reduce competition in the Citizens Band are prevented. Requiring standardized and fully interoperable SAS interfaces will ensure equal access to spectrum for all PAL and GAA users, as envisioned by the Commission, and also will enable other SAS users to detect any discriminatory or anticompetitive SAS practices by carriers or PAL licensees.
- **Ensure that Citizens Band Spectrum Remains Unlocked.** The Commission must not permit the use of Licensed Assisted Access – LTE technology (“LAA-LTE”) in the Citizens Band. The use of the proposed LAA-LTE standard cuts against the Commission’s mandate for technology neutrality by locking up the Citizens Band, favoring incumbent carriers who can concatenate use of the Citizens Band with their licensed spectrum, thereby dominating the Citizens Band and foreclosing use by competitive carriers and other GAA users that do not own spectrum.
- **Straightforward Use Cases, Such as Contained Access Facilities, Should Come First.** There is strong support for progressive commercialization in the Citizens Band to enable validation of the spectrum sharing framework defined in the rules. The straightforward use cases, such as Contained Access Facilities (“CAF”), should come first. As discussed during the meetings, only 1% of CAFs in the country have internal access to LTE technology today, representing meaningful pent-up broadband demand. In addition, eligibility for CAFs should be extended to commercial uses approved by the Commission based on ownership rights to a contiguous property. The definition of a CAF should be expanded to include any contiguous boundary that encompasses both indoor and outdoor locations. Doing so will result in significant enterprise investment and deployment of more robust and lower-cost in-building wireless solutions.
- **Exclusion Zones Should Transition to Dynamic Management Zones.** Federated Wireless recognizes the importance of exclusion zones for incumbent protection, but it encourages the Commission to adopt flexible rules that permit true spectrum sharing within exclusion zones. SAS and sensor technology, such as the technology invented by Federated Wireless, can fully protect incumbents from interference while also dynamically permitting the use of spectrum within exclusion zones by other users. The Commission should set performance requirements to transition static exclusion zones to dynamic management zones now, so that future action by the Commission is not required to unlock more of the band for sharing.

Federated Wireless, Inc.
March 18, 2015

Most of the above concepts, discussed during our meetings, also are discussed in greater detail in prior Federated Wireless ex parte presentations that can be found here: <http://apps.fcc.gov/ecfs/document/view?id=60001039277> and <http://apps.fcc.gov/ecfs/document/view?id=60001025730>. Federated Wireless urges the Commission to stay the course and expeditiously adopt final rules for the Citizens Broadband Radio Service that will unleash investment and innovation in the band as envisioned.

Respectfully submitted,

_____/s/
Kurt Schaubach
Chief Technology Officer
Federated Wireless, Inc.

cc:
Renee Gregory
Priscilla Delgado Argeris
Brendan Carr
Erin McGrath