REPLY COMMENTS OF CANTOR TELECOM SERVICES, L.P.

Cantor Telecom Services, L.P. ("Cantor Telecom") hereby submits these reply comments in response to the comments filed in the above-captioned proceeding, addressing discrete issues concerning a proposed secondary market structure.1

I. Introduction

Cantor Telecom envisions a spectrum exchange that would effectively facilitate a rapid, robust, open market transfer of Priority Access License ("PAL") spectrum as needs arise, providing significant benefits to consumers as well as the government in efficiency, transparency, and access to spectrum. Cantor Telecom maintains that a secondary market for PAL spectrum would increase spectrum capacity and efficiency. As discussed herein, Cantor Telecom envisions a spectrum exchange that focuses on facilitating a liquid and fair secondary market, and promotes transparency and interoperability with Spectrum Access Systems ("SAS"). Cantor Telecom also supports partitioning and disaggregation of PALs, so that spectrum rights may be used efficiently.

II. PAL Spectrum Offers Wireless Users a Degree of Availability and Spectral Integrity Unavailable Through GAA Spectrum

In its comments, Microsoft discourages the FCC from considering a secondary market for the transfer of PAL use rights, suggesting that GAA spectrum already serves the same policy goals that would be accomplished through implementation of more fluid and accessible secondary market mechanisms.\(^2\) Cantor Telecom respectfully disagrees. GAA spectrum, available only on a non-interference, sufferance-only basis, will not meet the performance needs of PAL users, who will require clean, known spectrum that can be used for carrier or carrier-like applications requiring a high quality-of-service (“QoS”). A guaranteed high QoS cannot be accommodated in unlicensed frequencies where the ambient levels of radiofrequency energy remain dynamic and unpredictable. As the Commission has recognized, carriers and spectrum users with carrier-grade performance expectations will be reluctant to invest in technology, infrastructure, and services if interference protection rights are not available through PAL licenses.\(^3\) Furthermore, given that the IEEE recently decided not to develop an 802.11/Wi-Fi standard,\(^4\) it remains unclear what transmission protocols will be available to GAA spectrum users and whether these transmission schemes will be spectrally efficient and employ politeness protocols.

In its comments, the Wi-Fi Alliance suggests that a secondary market would divert potential GAA use to PAL lessees.\(^5\) Contrary to this assertion, however, the 3.5 GHz band under the current rules is already heavily weighted in favor of GAA operations. Specifically, the current rules reserve at least 50% of the total available 3.5 GHz spectrum exclusively for GAA

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\(^3\) See Order & Second FNPRM, at ¶ 89 (citing comments of T-Mobile, Consumer Electronics Association and Google).


use and the other 50% may be available under appropriate circumstances if the PAL licensee has not yet deployed facilities.\(^6\)

Certain commenters also suggest that allowing a secondary market would encourage companies to obtain more PAL spectrum than they need in order to make a profit.\(^7\) Given the short license terms and small geographic coverage areas for PAL licenses, Cantor Telecom maintains that it will be nearly impossible for any licensee to speculatively warehouse spectrum. A more advanced secondary market, however, would allow unused PAL spectrum to be made available to entities that are unable to acquire PAL licenses during scheduled competitive bidding windows. For example, there might be parties who may intend to use PAL spectrum in the future as the ecosystem develops, but might not be ready to participate in the initial license auction. Cantor Telecom further agrees with Key Bridge's statements that because at least 50% of the total available spectrum is reserved for GAA use, the risk of PAL spectrum hoarding is minimal.\(^8\) Egregious offenders of spectrum hoarding would be readily discovered through a spectrum exchange, Spectrum Access Systems (“SASs”), and by public feedback to the Commission.\(^9\) A precertification requirement would also add an additional level of oversight to help ensure that SASs, spectrum exchanges, and the Commission can keep track of parties who are using PAL spectrum and participating in the secondary market, reducing the risk that any one party could hoard spectrum without detection.\(^10\)

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\(^6\) *Order & Second FNPRM*, at ¶ 60.

\(^7\) See, e.g., *Microsoft Comments*, at 6.

\(^8\) Comments of Key Bridge, GN Docket No. 12-354, at 9 (filed Jul. 15, 2015) (“Key Bridge Comments”).

\(^9\) *Id.*

III. A Complementary Spectrum Exchange Would Facilitate a Rapid and Open Secondary Market for PAL Spectrum

In its comments, Federated Wireless argues that a spectrum exchange is not needed because it would only perform functions already performed by the SAS and would add unnecessary complexity to SAS management and allocation of spectrum.11 Federated Wireless misunderstands the purpose of the proposed spectrum exchange. An SAS’s main purpose is to function as a geolocation database and to protect incumbent spectrum license holders. A spectrum exchange would focus on facilitating a market where individual licensees can obtain access to PAL spectrum rights tailored to their needs. This is distinct from the functions of the SAS, which while crucial, are not tailored to operate as a secondary market for PAL spectrum. Under the current framework, SASs do not have the ability or features to facilitate such a market.

Moreover, a spectrum exchange would not make SAS management unnecessarily complex. As discussed in earlier comments, the spectrum exchange envisioned by Cantor Telecom would be complementary to and interoperable with SASs, in order to provide a way for spectrum to be used efficiently in real time. Even Key Bridge, a FCC-certified operator of shared SASs, suggests that the Commission should assign all unsold PAL units to a secondary spectrum market operator for resale, indicating that a spectrum exchange can function and work with a SAS.12

Federated Wireless also argues that a spectrum exchange would not have sufficient knowledge of the radio environment and spectrum utilization to confirm whether the spectrum

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12 Key Bridge Comments, at 6.
meets the intended service requirements. However, the spectrum exchange envisioned would be interoperable with the SAS. By working with SASs, there is no reason why the spectrum exchange would not be able to provide the same kind of information to market participants that an SAS could.

In addition, Federated Wireless argues that there is a risk that a spectrum exchange would suffer from questionable privacy and security protections. These comments are unfounded. Cantor Telecom has a long history in operating and developing innovative electronic exchanges that enable participants to transact business online on a secure, private network. Cantor Telecom understands the importance and necessity for privacy and security with respect to spectrum issues. The spectrum exchange envisioned would include technologically-advanced security protections as well as stringent privacy policies. If the FCC chooses to implement a spectrum exchange proposal approval process, it may also require potential spectrum exchange operators to develop and demonstrate that the systems include robust information privacy and security features.

Finally, Cantor Telecom disagrees with WISPA’s comments that the secondary market should evolve based on market forces that may favor spectrum exchanges, brokers, principal to principal relationships, and other facilitators. A universal spectrum exchange working with SASs would provide for both clarity and consistency. Having multiple third parties facilitating

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13 Federated Wireless Comments, at 21.
14 Id.
15 For example, the FCC Personal Communication Services Auction in the 900 MHz band was conducted by Cantor Telecom. See Electronic Public Access Available For Nationwide Narrowband PCS Auction Results, Public Notice, PNWL 94-3 (rel. July 21, 1994); see also Auction Notice and Filing Requirements for Ten Nationwide Licenses for Personal Communications Services in the 900 MHz Band, Public Notice, Report No. AUC 94-01 (rel. May 23, 1994).
the sale or trade of spectrum would make it more difficult for any system or the Commission to keep track of the transactions taking place on the secondary market.

IV. Partitioning and Disaggregating Geographic Licenses Enhances Liquidity and Improves Demand, Encouraging the Most Efficient Use of Spectrum.

Cantor Telecom agrees with Google, Qualcomm, AT&T, WISPA and others who argue that license partitioning would facilitate a vibrant secondary market.\(^\text{17}\) Cantor Telecom disagrees with Federated Wireless’s claim that disaggregation of PALs into smaller spectrum blocks would not be useful.\(^\text{18}\) Cantor Telecom agrees with Professor Jon Peha’s comments and urges the FCC to consider that some census tracts may be partitioned without a strong risk of interference.\(^\text{19}\) Time, likewise, may be partitioned to give users who do not need an entire three years the opportunity to use the spectrum for the specific duration needed, promoting efficient use of spectrum. Finally, not all users will need a full 10 MHz of spectrum. Disaggregation is in the public interest because a secondary PAL buyer can make effective use of PAL rights in spectrum that would otherwise lie fallow.

Cantor Telecom disagrees with Federated Wireless’ comments that partitioning or disaggregating spectrum would result in administrative burden and inhibit secondary use of spectrum.\(^\text{20}\) A spectrum exchange could disaggregate and partition spectrum in near real-time while recording such information in a central database or within the SAS. Cantor Telecom urges the Commission to consider a precertification process, which combined with a spectrum


\(^{18}\) Federated Wireless Comments, at 22.


\(^{20}\) Federated Wireless Comments, at 22.
exchange’s ability to rapidly disaggregate or partition spectrum, would actually significantly reduce administrative burden and facilitate rapid secondary market transactions. By implementing a precertification process, the Commission would no longer need to review and approve every license transfer. At the same time, a precertification process would keep the Commission informed about who is participating in secondary market spectrum transactions.

V. Conclusion

For the foregoing reasons, Cantor Telecom urges the Commission to consider the use of a spectrum exchange in the 3.5 GHz spectrum.

Respectfully submitted,

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