

August 6, 2015

VIA ELECTRONIC FILING

Ms. Marlene Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

***RE: Reply to Comments in ET Docket No. 15-105: Office of Engineering and Technology and Wireless Telecommunications Bureau Seek Information on Current Trends in LTE-U and LAA Technology***

Dear Ms. Dortch:

As a consultant in the telecommunications industry, I have been following closely the current proceedings regarding the potential impact of allowing new wireless technologies like the proposed LTE-U and LAA mobility options to utilize unlicensed spectrum in conjunction with current consumer services like WiFi deployed in such spectral bands. To date, all of the comments and trials/simulations of these new technical options have focused strictly upon their technical characteristics and projected performance in comparison to primarily WiFi technical options in the same spectrum.

I believe that proceeding with strictly a technically based analysis and evaluation of the various current and potential consumer options here may be too narrow a view of this critical issue of spectral usage, and what may be lacking here is a broader consumer perspective from a regulatory point of analysis. In particular, I believe that the framework determined for Network Neutrality (or **NN** for reference going forward) decided upon earlier this year and described in FCC GN Docket No. 14-28 on March 12, 2015 may well serve as an appropriate context for coordinating and filtering the deliberations extant in comments on ET Docket No.15-105. In this context, perhaps ET Docket 15-105 could serve as an important “litmus” test for practical and balanced assessment of proposed new technologies like LTE-U and LAA that will have direct and significant impact on NN wireless access and services. The LTE-U and LAA technical issues are likely to be only the first in an ongoing series of potential new wireless technologies requiring access to and balanced use of scarce wireless spectrum – as should be anticipated in such a vibrant, competitive marketplace for such technical innovations.

The FCC has effectively taken two critical steps in 2015 towards realizing the evolution to and establishment of a structure to enable and manage market-based regulation of ongoing Internet services growth relative to evolving wireless technologies deployed in U.S. spectrum. The first critical step in constructing an appropriate regulatory framework for NN was the issuance of GN Docket 14-28, which was the result of intensive and inclusive participation by the Internet

community at large – both consumer and provider perspectives – over the better part of 2 years of input and resolution.

The report issued on March 12, 2015 provides the background and rationalization for market-based regulation of the Internet to achieve the stated NN goals. The key consumer protection guidelines for NN are encapsulated in subsection A of the Executive Summary of GN Docket No.14-28 (pages 7-10), viz.:

- a) Clear, bright-line rules
- b) No reasonable interference/disadvantages to consumers or EDGE providers
- c) Enhanced transparency
- d) Scope of the rules
- e) Enforcement

These guidelines thoughtfully incorporate the core principles and goals for managing the ongoing organic growth and evolution of the Internet environment for consumers and all competitive entities participating in fostering and sustaining its health going forward.

Based upon this market and regulatory evolution framework for NN, the current FCC proceeding on assessing the impact of introducing new technologies like LTE-U and LAA into existing unlicensed spectrum in ET Docket No. 15-105 may require consideration of the above guidelines as an initial “litmus” test of NN policy. Taking such a perspective by the FCC and industry participants may then provide a better *consumer context* for evaluating the actual impact of what appears to be a very complex – and somewhat arcane – technical discussion of an issue that will have significant – and potentially irreversible – impact on the best use of a critical and scarce public resource like unlicensed spectrum

A reasonable approach could entail an initial review of the questions posed in FCC Docket No.15-105, as they relate to the core NN principles entrenched in GN Docket No.14-18 and characterized by the above referenced consumer protection guidelines. This may well provide some useful insight into the critical regulatory and consumer/competitive industry issues involved.

For example:

1. Related to Question 3 regarding the relationship between 3GPP and IEEE efforts to standardize and coordinate the implementation of technologies deployed in unlicensed spectral bands, how are consumer requirements for service access and provider selection being factored into such technical considerations? Such considerations would appear to be directly relevant to all five of the NN guidelines in GN Docket No. 14-128. For example, consumers currently may select any equipment they choose to support Wifi device and access service selection and with recent enhancements to WiFi they may now securely select any WiFi service provider in dynamic fashion.
2. Related to Question 4 on the anticipated characteristics of the LTE-U and LAA technical proposals – and as they relate to current IEEE specifications and commercial WiFi operations – how do such proposals support /conform to the critical NN guidelines in GN

Docket No.14-28? In particular, how are the consumer protection guidelines b), c) and d) above addressed?

3. Related to Question 6 on LAA integration of licensed and unlicensed carriers, the same set of consumer concerns in point 2 above pertain here also i.e. guidelines b), c) and d).
4. A more significant set of NN issues arise concerning Question 7 related to the standalone form of LTE-U (and LAA by extension). If there is no technical nor market option for a standalone form of LTE-U or LAA that is not tightly coupled exclusively to a licensed mobile operator, would this not effectively violate the core principles of NN embodied in GN Docket No.14-28. By contrast, current IEEE (and IETF) standard products for WiFi inherently embody conformance to all of the prosed NN principles in their intrinsic design and market implementation.
5. Following on point 4 above, one should expect the question of software (or firmware/hardware) upgrades to LTE-U/LAA and coexistence in unlicensed spectral bands with other wireless technologies to apply to all current wireless broadband service equipment indiscriminately in an open competitive marketplace relative to the issues raised in Questions 8 and 9 of ET Docket No.15-105.
6. Question 10 related to deployment of pre-standard LTE-U and LAA in unlicensed spectral bands would appear to be a critical consideration of NN principles in toto.

Beyond the initial set of technical questions encompassed by the FCC in ET Docket No.15-105, one may also need to consider related and impending technical issues that could impact and even support broader consumer access to and utilization of such new technologies to enable improvements to broadband wireless services. For example, recent development of so-called “embedded” SIM cards may well enable true consumer selection of a service provider and associated access services in a manor not currently supported in an environment of “locked codes” for such carrier selection. This in fact may be a necessary requirement for deployment of general LTE-U and LAA technologies by any Internet service provider – fixed or mobile, in licensed or unlicensed spectrum – ultimately controlled directly by the consumer and their chosen device. This would also appear to be related to the resolution of providing a standalone LTE-U/LAA option for all service providers. We have come a long way from the Carter Phone ear of telecommunications, and we should not allow any backsliding into a similar Internet situation.

Similarly, the FCC may wish to also consider evolution and appropriate modification of historical and existing spectrum regulation guidelines and practices in light of the new issues raised by NN overall and specific instances of new technologies proposed of deployment in unlicensed spectrum like LTE-U/LAA. In particular one may need to revisit the appropriateness of current FCC rules like Part 15, which has been referenced by several respondents in the current proceedings. It is not reasonable to assume that Part 15 envisaged the broader set of issues encapsulated in the current deliberations of ET Docket No.15-105, considering for the first time access to and utilization of unlicensed spectrum in association with what appears to be asymmetric access from licensed spectrum by a subset of broadband wireless service providers – and the subsequent diminished consumer choice resulting from such an arrangement.

These considerations are offered in the spirit of resolving fairly and broadly the issues raised in the current FCC notice for consideration of allowing deployment of the new LTE-U and LAA wireless options in potential unlicensed spectrum, and within the context of Network Neutrality per se.

Sincerely,

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