

Attachment—Additional Questions for the Record

**Subcommittee on Communications and Technology
Hearing on
“Legislating to Secure America’s Wireless Future”
September 27, 2019**

Mr. Harold Feld, Senior Vice President, Public Knowledge

The Honorable Anna G. Eshoo (D-CA)

- 1. The Prague Proposals appear to be a good first step in outlining a framework for how countries should think about network security as we transition to 5G. Please explain why this agreement is important, what it accomplishes, and where it falls short.**

Response: The Prague Proposals are important because they provide a sensible framework for international norms on cybersecurity, balanced with respect for principles of free trade. Numerous trade agreements contain telecommunications chapters that prohibit discrimination against telecommunications equipment providers or service providers. The Prague Proposals recognize that the potential influence of third-party countries on providers should be considered when weighing cybersecurity concerns.

The provision of the Prague Proposals on “the economy” may have impact on programs to fund deployment of broadband networks, or require changes in the financial oversight of 5G network providers. Existing SEC filings which do not require financial management of 5G networks to be broken out separately, or 5G network deployments by non-publicly traded companies, may not comply with the Prague Proposal requirement for “transparent” financial records. As with all broad statement of principles, much will depend on implementation.

Attachment—Additional Questions for the Record

Mr. Harold Feld, Senior Vice President, Public Knowledge

The Honorable Yvette D. Clarke (D-NY)

- 1. As we think about encouraging the development of new technology, services, and millions of IoT devices that will transform our communities into 21st Century ‘Smart Cities’:
 - a. Mr. Feld, how critical will it be for policymakers to identify new spectrum that can support unlicensed operations?****

Response: Identifying new spectrum for unlicensed use, particularly spectrum capable of supporting large, contiguous channels, is critical both to achieving future economic growth and innovation in wireless connectivity and even to simply maintaining the high level of connectivity available today. As an initial matter, the exponential increase in the number of devices connecting through unlicensed protocols such as Wi-Fi and Bluetooth, and the demand for low-cost access and flexibility to create custom-designed networks, increasingly strain the capacity of existing unlicensed bands. In crowded urban environments in particular, the rise of home networks and proliferation of “smart” devices requires greater unlicensed access in the same way that the rise in mobile broadband through cellular services requires greater access to licensed spectrum. Indeed, it is a tribute to the innovative strength of the unlicensed equipment industry that the existing allocations of unlicensed spectrum support the enormous amount of activity we rely on daily for everything from the trivial to life saving technologies.

Looking to the future, unlocking the true value of the 5G revolution requires significant expansion of unlicensed spectrum. It is well documented that the rise of 4G networks was made possible through the synergistic combination of licensed spectrum and unlicensed spectrum.¹ Specifically, licensed networks are dependent on “Wi-Fi hand off” to balance load and capacity, and without the availability of Wi-Fi licensed 4G would have collapsed under the weight of its own demand.² Unlicensed spectrum has also proven to be an indispensable tool for bringing affordable broadband to rural areas and poorer urban communities, where carriers using licensed spectrum do not find the rate of return sufficient to deploy.³ We can expect a similar synergy for

¹ See, e.g., Mark Cooper, “Efficiency Gains and Consumer Benefits of Unlicensed Access to the Public Airwaves,” (2012) available at: <https://ecfsapi.fcc.gov/file/7521479487.pdf>

² Mark Cooper, “The Consumer Benefits of Expanding Shared use of Unlicensed Radio Spectrum: Liberating Long-Term Spectrum Policy From Short Term Thinking,” (2011) Available at: <https://consumerfed.org/pdfs/Consumer-Benefits-of-Shared-Use-Spectrum.pdf>

³ See Carl Weinschenk, “Latest Airband Project: Microsoft, ARK Multicasting Seek To Ease Rural Congestion,” Telecompetitor (October 15, 2015). Available at:

unlicensed spectrum and licensed spectrum in 5G, amplified by the greater capacities of new technology developed over the last decade.

In particular, the allocation of wide swaths of new spectrum for unlicensed use, such as the proposed use of the 6 GHz band, is critical to the success of Wi-Fi 6. Like the licensed 5G protocol (3GPP Release 15), Wi-Fi 6 is about much more than simply boosting speed (although it does that as well). Wi-Fi 6 has been optimized to support a vastly larger number of connected devices, providing necessary support for the rise of IoT.⁴ To function effectively, however, Wi-Fi 6 requires greenfield spectrum for deployment – and specifically greenfield spectrum capable of supporting large, contiguous channel blocks for maximum efficiency.

In short, opening new spectrum for unlicensed use will supercharge our 5G deployment and may provide a key advantage in our “race to 5G” against countries such as China that have no unlicensed strategy. By contrast, failure to make new spectrum available for unlicensed access will deprive us of a crucial component for 5G success.

b. How do you see unlicensed technologies supporting the development of Smart Cities?

Response: Unlicensed access supports the development of smart cities in several ways. First, enhanced unlicensed access provides flexibility for cities to customize their IoT and other networks to their specific needs, without the need to find a licensee willing to contract with them for each project and purpose. Second, unlicensed spectrum reduces the price of developing smart technology dramatically by reducing the transaction cost of contracting with a licensee, and by generating economies of scale in the equipment market.

Additionally, the availability of unlicensed spectrum access allows cities to migrate traffic that does not require the interference protection of licensed spectrum to unlicensed spectrum. This frees licensed spectrum for more sensitive traffic, enhancing overall spectrum efficiency. By matching the nature of the traffic with the appropriate level of interference protection, cities can ensure sufficient spectrum access for a wide range of projects that would simply not be achievable through reliance on licensed spectrum alone.

Smart cities, or smart roads or smart homes or smart anything for that matter, rely on unlicensed access. Already our world of connected devices assumes access through an unlicensed connection, creating a demand that has brought the price for Wi-Fi chips down to almost

https://www.telecompetitor.com/latest-airband-project-microsoft-ark-multicasting-seek-to-ease-rural-isp-network-congestion/?utm_source=sendgrid&utm_medium=email&utm_campaign=Newsletters&mc_cid=fb6e9480db&mc_eid=bf11efc24c

⁴ See Jacob Kasternakes, “Wi-Fi 6: Is It Really That Much Faster?” The Verge (February 21, 2019). Available at: <https://www.theverge.com/2019/2/21/18232026/wi-fi-6-speed-explained-router-wifi-how-does-work>

Mr. Harold Feld

Page 6

nothing. To continue this connected revolution, Congress and the FCC must ensure an adequate supply of quality unlicensed spectrum – both in the short term and in the “pipeline” for the long term.