



April 3, 2017

TO: Members, Subcommittee on Communications and Technology

FROM: Committee Majority Staff

RE: Legislative Hearing on “Fueling the 21st Century Wireless Economy”

I. INTRODUCTION

The Subcommittee on Communications and Technology will hold a legislative hearing Wednesday, April 5, 2017, at 10:00 a.m. in 2123 Rayburn House Office Building on “Fueling the 21st Century Wireless Economy.” One panel of witnesses will testify:

II. WITNESSES

- Scott Bergmann, Vice President, Regulatory Affairs, CTIA;
- Jared Carlson, Vice President, Government Affairs and Public Policy, North America, Ericsson;
- Jennifer Manner, Senior Vice President, Regulatory Affairs, EchoStar Corporation and Hughes Network Systems; and
- Dave Wright, Director, Regulatory Affairs and Network Standards, Ruckus Wireless.

III. BACKGROUND

The United States’ economy is moving rapidly in the direction of connectivity and digitalization, as evidenced by the emergence of the Internet of Things and smart cities. One of the key components of this evolution is wireless service. In addition to the more familiar uses of wireless technology, wireless connectivity is increasingly impacting a variety of sectors, including energy, transportation, education, and healthcare, creating new opportunities and in many cases, economic efficiencies. The emergence of 5G also will likely create a system of connected sensors and devices that range far beyond traditional phones and tablets.

Because of these existing and emerging uses, wireless communications networks are expanding at a rapid rate, requiring greater inputs than ever before. This includes not only physical infrastructure, like towers and fiber, but also the need for additional spectrum, the radio frequencies that power wireless connectivity. In order to develop a consistent and reliable pipeline of this finite resource, policy-makers have focused efforts on promoting efficient use of spectrum, through mandates, incentives, and other frameworks that ensure that airwaves are utilized effectively.

Congress has taken several steps in recent years to address the need for additional spectrum for commercial use. In 2012, the Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act) authorized the auction of spectrum in the 600 MHz band currently used by broadcast television, as well as an additional 65 MHz of spectrum in 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz, collectively known as Advanced Wireless Service-3 (AWS-3) and in 1915-1920 and 1995-2000, known as H-Block.¹ The FCC completed the auction of AWS-3 in January 2015, reallocating the formerly federally-used spectrum for commercial wireless use. The FCC completed the auction of the 600 MHz band in March 2017, clearing an additional 70 MHz of spectrum for commercial use.

Moreover, in 2015 Congress mandated the identification and auction of an additional 30 MHz of spectrum below 3 GHz by 2024 in the Bipartisan Budget Act.² In addition to specifically requiring auction of frequencies, Congress has acted to adopt policies that will promote efficient spectrum use and better technologies, including changes to the Spectrum Relocation Fund and incentives for agencies that relinquish their unused spectrum.³

While these steps have provided valuable additional spectrum for wireless services, the demand continues and more spectrum will be needed. From 2008 to 2015, mobile data usage increased from 15 million MB to 9.6 trillion MB, with predictions that there will be a 5 times increase in data usage over the next six years.⁴ Meeting this demand will require a two-sided solution; continued deployment of new spectrum for wireless data services, and more efficient technologies for utilizing existing allocated spectrum.

As the world moves towards 5G mobile service, there will be continued growth in demand for spectrum of all frequencies, including low, mid, and high-band allocations.⁵ Traditionally, spectrum below 3GHz has been viewed as most valuable for mobile broadband services because of the propagation characteristics—it can travel longer distances and is less susceptible to being blocked by physical obstacles such as trees or walls. However, with the evolving service offerings of mobile technology, particularly that of 5G, the need for more diversified frequencies increases. Low band spectrum (below 1 GHz) has long been considered “beachfront” spectrum for the capability to efficiently extend network coverage. While higher frequencies are less able to travel over distance, they have far greater capacity—allowing for data intensive applications, including high-definition video, and latency sensitive applications like telehealth services. Mid-band spectrum between 1 GHz-6 GHz, which offers a blend of distance coverage and capacity, and high-band spectrum above 6 GHz, which can only travel

¹Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, (2012)(“Middle Class Tax Relief Act”).

² Bipartisan Budget Act of 2015, Pub. L. No. 114-74, Sec. 1004, (2015)(“Bipartisan Budget Act”).

³ Id. at Sec. 1005.

⁴ Testimony of Roger Entner, Senate Commerce Committee Hearing “Exploring the Value of Spectrum to the U.S. Economy,” March 2, 2017, <http://www.commerce.senate.gov/public/index.cfm/2017/3/exploring-the-value-of-spectrum-to-the-u-s-economy>.

⁵ 5G Spectrum Public Policy Position, GSMA, November 2016, <http://www.gsma.com/spectrum/wp-content/uploads/2016/06/GSMA-5G-Spectrum-PPP.pdf>.

short distances but offers very high capacity and low latency, will likely play a role in any 5G service spectrum portfolio because of their unique characteristics. Advancements in technology have created new opportunities for use of spectrum bands previously considered less desirable. In 2016, the FCC voted to adopt new service rules to govern the use of four spectrum bands above 24 GHz for advanced mobile services, spectrum once thought unusable for these operations.⁶

Another component of wireless service is the use of unlicensed spectrum, or frequencies that are available for use by any device that is certified as complying with the FCC's Part 15 rules.⁷ Unlicensed spectrum supports services like Wi-Fi, as well as devices like security alarms, garage door openers, and keyless car entry systems.⁸ In addition to these services, commercial wireless providers also use unlicensed frequencies to support their services, including as a data traffic offload tool.

Policymakers continue to search for creative ways to meet consumer demand for wireless services. This hearing will examine a variety of issues and challenges that face wireless service providers, whether commercial mobile, unlicensed, or satellite, as well as potential solutions.

IV. DISCUSSION

Hearing witnesses will be questioned on a number of policy matters related to spectrum, including those set forth in the legislation available at this link:
<https://energycommerce.house.gov/hearings-and-votes/hearings/facilitating-21st-century-wireless-economy>.

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact David Redl or Kelsey Guyselman of the Committee staff at (202) 225-2927.

⁶ In the Matter of Use of Spectrum Bands Above 24 GHz for Mobile Radio Services et al, Report and Order and Further Notice of Proposed Rulemaking, Federal Communications Commission, July 14, 2016, https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-89A1.pdf.

⁷ Accessing Spectrum, Federal Communications Commission, <https://www.fcc.gov/general/accessing-spectrum>.

⁸ Understanding the FCC Regulations for Low-power, Non-licensed Transmitters, OET-Bulletin No. 63, Federal Communications Commission, http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet63/oet63rev.pdf.