

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Office of Engineering and Technology)	ET Docket No. 10-123
Requests Information on Use of)	
1675-1710 MHz Band)	

COMMENTS OF VERIZON WIRELESS

Verizon Wireless hereby responds to the Office of Engineering & Technology’s Public Notice requesting information on use of the 1675-1710 MHz band.¹

Verizon Wireless agrees with the Federal Communications Commission (“FCC” or “Commission”) that “[w]ireless broadband is poised to become a key platform for innovation in the United States over the next decade,”² and commends the FCC for quickly identifying specific spectrum bands that may be used for future mobile use. As the National Broadband Plan found, “[t]he growth of wireless broadband will be constrained if government does not make spectrum available to enable network expansion and technology upgrades . . . [resulting in] higher prices, poor service quality, an inability for the U.S. to compete internationally, depressed demand and, ultimately, a drag on innovation.”³

¹ *Office of Engineering & Technology Requests Information on Use of 1675-1710 MHz Band*, ET Docket No. 10-123, *Public Notice*, DA 10-1035 (rel. June 4, 2010) (“1675-1710 MHz Public Notice”).

² Federal Communications Commission, *Connecting America: The National Broadband Plan*, at 75 (rel. Mar. 16, 2010) (“FCC National Broadband Plan”).

³ *Id.* at 77. See also The White House, *Presidential Memorandum: Unleashing the Wireless Broadband Revolution* (rel. June 28, 2010) (“Spectrum Presidential Memorandum”) (“America’s future competitiveness and global technology leadership depend, in part, upon the availability of additional spectrum. . . . Expanded wireless broadband access will trigger the creation of innovative new businesses, provide cost-effective connections in rural areas, increase

The identification of the 1675-1710 MHz band as a potential source of spectrum for wireless broadband services is an important step in fulfilling this need. The Commission's identification of additional spectrum for mobile broadband use, however, should not stop here. To the contrary, the Commission should be exhaustive in its efforts to identify and reallocate additional spectrum for mobile broadband use. For example, we recommend that a contiguous block of 25 MHz in the 1755-1850 MHz band be reallocated and paired with the 2155-2180 MHz band that is currently allocated for AWS but not yet assigned.⁴ This would provide 50 MHz of new AWS spectrum that is aligned with the current AWS band plan and fully compatible with AWS networks that are currently being designed and built. Only with the reallocation of this and other substantial blocks of spectrum for future mobile use will the mobile broadband market realize its full potential.

I. THE COMMISSION SHOULD REALLOCATE THE 1675-1710 MHZ BAND FOR COMMERCIAL MOBILE USE.

Numerous studies demonstrate that demand for mobile broadband products and services has grown at a dramatic rate, and that it will likely grow at an even more rapid pace in the future.⁵ As a result of this accelerating growth, and despite the substantial efforts that Verizon Wireless and other wireless carriers continually make to increase the efficiency of their wireless

productivity, improve public safety, and allow for the development of mobile telemedicine, telework, distance learning, and other new applications that will transform Americans' lives.”).

⁴ See FCC National Broadband Plan at 86-87.

⁵ See, e.g., *id.* at 76-77; Comments of Verizon Wireless on Spectrum for Broadband, GN Docket Nos. 09-47, 09-51, and 09-137, at 3-5 (filed Oct. 23, 2009); *Cisco Visual Networking Index: Forecast and Methodology*, 2008-2013, Cisco Systems, Inc., June 9, 2009, available at http://www.cisco.com/en/US/netsol/ns827/networking_solutions_sub_solution.html (estimating that mobile data and Internet traffic will double every year through 2013); *Managing Growth and Profits in the Yottabyte Era*, Chetan Sharma Consulting, July 2009, available at <http://www.chetansharma.com/yottabyteera.html> (estimating that mobile data traffic will increase by a factor of 145x by 2013, and by a factor of 300x by 2014).

networks and their underlying spectrum, significant allocations of additional spectrum will be needed in the future.⁶ To respond to this need, the FCC’s National Broadband Plan calls for the reallocation of 500 MHz of spectrum for mobile broadband in the next ten years.⁷ Verizon Wireless fully supports this goal and encourages the Commission and National Telecommunications and Information Administration (“NTIA”) to identify and reallocate significant amounts of spectrum that may be repurposed for wireless broadband.

The 1675-1710 MHz band is suitable for mobile use and its reallocation would assist the Commission in achieving its goal of 500 MHz of new spectrum.⁸ Among other things, this band is between 400 MHz and 5 GHz, which the ITU has concluded is the spectrum most suitable for mobile communications.⁹ Spectrum bands in this range allow sufficient mobility, while also affording an acceptable trade-off between coverage and cost. Spectrum below 2 GHz is highly desirable for serving low-density areas, such as rural communities, as these lower frequency bands typically require fewer cell sites to cover a defined area and are, thus, less costly to deploy.

In addition, the 1675-1710 MHz band is adjacent to the existing AWS-1 band at 1710-1755 MHz. Such proximity would allow licensees to leverage existing technology, network

⁶ In 2006, the International Telecommunication Union (“ITU”) determined that the total spectrum requirements for a single network in a country would be 840 MHz in 2010, 1,300 MHz in 2015, and 1,720 MHz in 2020. *Estimated Spectrum Bandwidth Requirements for the Future Development of IMT-2000 and IMT-Advanced*, Report ITU-R M.2078, 25 (2006). These estimates clearly outpace the Commission’s current allocation of spectrum for commercial wireless use.

⁷ FCC National Broadband Plan at 84-93. *See also* Spectrum Presidential Memorandum (directing NTIA to collaborate with the FCC “to make available a total of 500 MHz of Federal and nonfederal spectrum over the next 10 years, suitable for both mobile and fixed wireless broadband use”).

⁸ *See* 1675-1710 MHz Public Notice at 2.

⁹ Technical and Operational Information for Identifying Spectrum for the Terrestrial Component of Future Development of IMT-2000 and IMT-Advanced, Report ITU-R M.2079, 6 (2006).

investments, and research and development. Industry has invested significant capital in the research and development of mobile systems that are capable of operating in the 1710-1755 MHz AWS band. Such investments could be extended to the development of mobile systems and devices for the 1675-1710 MHz band.

Further, this band provides a large amount of contiguous spectrum, which would facilitate the delivery of higher throughput data services and promote greater network efficiency. The current LTE standard supports configurations up to 2 x 20 MHz, with peak data rates exceeding 100 Mbps.¹⁰ Future enhancements to the standard (LTE-Advanced) are expected to support even larger contiguous blocks of spectrum with correspondingly higher data rates.¹¹ To ensure adequate spectrum is available for these enhancements, many experts support a minimum band configuration of 2 x 20 MHz for each licensee.¹² Thus, the 1675-1710 MHz block, if paired with another 35 MHz block, would be well suited for LTE and other 4G technologies that require large swaths of spectrum to provide high data rates.

II. ANY ENCUMBRANCES TO EXCLUSIVE USE OF THE 1675-1710 MHZ BAND SHOULD BE REMOVED.

The 1675-1710 MHz band is allocated on a co-primary basis for both federal and non-federal use for the meteorological aids service and the meteorological satellite service. Despite this shared use, the Public Notice states that this band is expected to be lightly used, both

¹⁰ See Comments of Verizon Wireless, GN Docket Nos. 09-157, 09-51, at Attachment A – LTE: The Future of Mobile Broadband Technology (filed Sept. 30, 2009).

¹¹ Third Generation Partnership Project, *3GPP Partners Propose LTE-Advanced Radio Technology*, Press Release, available at <http://www.3gpp.org/3GPP-Partners-propose-IMT-Advanced>.

¹² Testimony of Bill Stone, Executive Director – Network Strategy for Verizon Wireless, FCC’s Broadband Workshop on Spectrum, Sept. 17, 2009, available at http://www.broadband.gov/ws_spectrum.html; Testimony of Kris Rinne, Senior Vice President, Architecture and Planning, AT&T, Inc., FCC’s Broadband Workshop on Spectrum, Sept. 17, 2009, available at http://www.broadband.gov/ws_spectrum.html.

geographically and temporally.¹³ With regard to non-federal uses specifically, the Public Notice indicates that the Commission’s database shows no active licensees but posits that the band may be used on a receive-only basis by universities, private sector weather forecasters, and other non-federal users. The Public Notice seeks information about current uses in the band.

In order for wireless broadband providers to make the most efficient and effective use of the 1675-1710 MHz band, it is important that the spectrum be fully cleared of incumbent uses. Clearance of the band will minimize the potential for interference and ensure that new licensees have exclusive use over their licensed spectrum. History has shown that by granting licensees exclusive use of their spectrum, the Commission has fostered highly efficient and innovative uses of spectrum.¹⁴ Indeed, the Commission’s exclusive use licensing model has provided carriers with a powerful incentive to upgrade technology to increase the quality of their services and to expand the number of users and devices that communicate on their spectrum.

The Commission should use this licensing model to ensure the most effective use of the 1675-1710 MHz band by working with NTIA to clear the band of any incumbent uses. The thorough review of current uses that the Commission is undertaking in the Public Notice will facilitate this clearance process, and Verizon Wireless applauds the Commission’s efforts in this regard.¹⁵

If the Commission and NTIA determine that full clearing is not possible, Verizon Wireless encourages the Commission and NTIA to consider alternative ways to facilitate

¹³ 1675-1710 MHz Public Notice at 1.

¹⁴ See, e.g., Thomas W. Hazlett, *A Law and Economics Approach to Spectrum Property Rights: A Response to Wiser and Hatfield*, 15 Geo. Mason L. Rev. 975, 1005 (2008) (“With broad, exclusive spectrum rights, de facto owners invest aggressively in wireless infrastructure complementary to their airwaves and then promote intense utilization of the opportunities thereby afforded.”).

¹⁵ 1675-1710 MHz Public Notice at 2.

exclusive use. For example, as the Public Notice proposes,¹⁶ information from existing meteorological satellites could be transmitted to only a few receive sites (ideally located in remote areas) on a subset of the currently allocated spectrum and retransmitted to all existing users via alternative means (including potentially over wired facilities that do not require spectrum). The Commission could then reallocate this band for exclusive commercial use in all areas that do not surround these receive sites. While Verizon Wireless urges that the 1675-1710 MHz band be fully cleared, geographic sharing might be a way to promote broader access to the spectrum for wireless broadband, while still accommodating some use of the spectrum by incumbent users in limited geographic areas.

III. THE COMMISSION SHOULD CONSIDER THE REALLOCATION AND USE OF 1675-1710 MHZ IN THE CONTEXT OF OTHER EXISTING AND POTENTIALLY AVAILABLE SPECTRUM.

The Public Notice seeks comment on how the 1675-1710 MHz band could be used, what other spectrum could be used in combination with 1675-1710 MHz, and what specific band plan might best facilitate the introduction of wireless broadband services.¹⁷ Given its proximity to spectrum already allocated and licensed for AWS, Verizon Wireless believes that there would be significant benefits to using 1675-1710 MHz in a manner that is compatible with the current AWS band plan. These benefits include enabling current AWS licensees to use the spectrum in conjunction with existing spectrum to offer more advanced services and the ability for new broadband providers to leverage the significant research and development already underway to deploy AWS equipment. Put simply, Verizon Wireless believes that 1675-1710 MHz should be considered as an extension of the AWS band and should be configured in a way that promotes the greatest level of compatibility possible with existing AWS spectrum.

¹⁶ 1675-1710 MHz Public Notice at 2.

¹⁷ *Id.*

In its National Broadband Plan, the FCC recognized the significant benefits associated with reallocating additional federal spectrum for use with existing AWS spectrum. However, the Plan identified spectrum in the 1755-1850 MHz band as being the federal spectrum most suitable for such a reallocation, and recommended that NTIA, in conjunction with the FCC, conduct an analysis of the possibility of reallocating a portion of that band by October 1, 2010.¹⁸

Verizon Wireless agrees that a reallocation of some portion of the 1755-1850 MHz band is the best way to extend the AWS band and promote the deployment of wireless broadband services. Specifically, we recommend that a contiguous block of 25 MHz in the 1755-1850 MHz band be reallocated and paired with the 2155-2180 MHz band that is currently allocated for AWS but not yet assigned. This would provide 50 MHz of new AWS spectrum that is aligned with the current AWS band plan and fully compatible with AWS networks that are currently being designed and built. It would also promote the more effective use of the 2155-2180 MHz band and avoid potential incompatibilities with existing AWS-1 spectrum.¹⁹

The reallocation of some spectrum at 1755-1850 MHz and the pairing of that spectrum with 2155-2180 MHz would also promote greater harmonization of spectrum use around the world since both bands are identified globally for use with advanced mobile services. The benefits of global harmonization, coupled with the standardization of wireless technologies, are significant. As an initial matter, global harmonization allows for seamless roaming between the United States and other parts of the world. In addition, global harmonization is critical in driving

¹⁸ FCC National Broadband Plan at 86-87.

¹⁹ See, e.g., *Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands*, Notice of Proposed Rulemaking, 19 FCC Rcd 19263 (2004); *Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*, Notice of Proposed Rulemaking, 22 FCC Rcd 17035 (2007).

greater economies of scale, a benefit repeatedly acknowledged by the Commission and others.²⁰ The telecommunications market is vastly different than it was twenty, or even ten, years ago. It is a global market, with manufacturers around the world selling their equipment in the U.S. and elsewhere. Establishing technology standards and harmonizing spectrum uses across the world enables manufacturers to build equipment that addresses market needs in the United States, as well as many other nations around the world, driving down the price of telecommunications equipment. These benefits are only going to increase as mobile traffic grows across the world. Given these considerable benefits, Verizon Wireless recommends that the Commission and NTIA make every effort to reallocate a significant portion of the 1755-1850 MHz band for commercial use.

If spectrum in the 1755-1850 MHz band cannot be reallocated for commercial use, the pairing of 2155-2180 MHz with 25 MHz of spectrum in the 1675-1710 MHz band represents a viable alternative for extending the AWS band. While 1675-1710 MHz is not globally harmonized, it is comparable in other ways to 1755-1850 MHz, and could accommodate the development of wireless broadband services (as long as the spectrum can be effectively cleared of incumbent uses). The fact that the spectrum is not globally harmonized, however, could result in more expensive equipment or delays in the availability and deployment of that equipment (as

²⁰ See, e.g., *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, Second Report and Order, 17 FCC Rcd 23193, ¶ 17 (2002) (“conclud[ing] that it is beneficial to allocate spectrum for AWS use in the United States that has been identified by the ITU for AWS use globally, both because doing so will facilitate roaming and because there are other benefits of harmonized spectrum (such as lower equipment costs)”); *The FCC's Advisory Committee for the 2003 World Radiocommunication Conference Approves Draft Proposals*, Public Notice, 17 FCC Rcd 14336, 12 (2002) (noting that “harmonized worldwide bands . . . facilitate the implementation of [services] and maximize the extent to which users in administrations around the world would be able to benefit from global access and economies of scale”).

compared to 1755-1850 MHz).

Even if a portion of the 1755-1850 MHz band can be reallocated and paired with 2155-2180 MHz for commercial use, Verizon Wireless still urges the FCC and NTIA to reallocate the 1675-1710 MHz band. The need for additional commercial spectrum in the future will be considerable, and the availability of additional spectrum that is in close proximity to and aligned with spectrum already allocated and used for wireless broadband will provide significant advantages.

Importantly, the FCC's Spectrum Task Force recently announced its intention to initiate a proceeding in July that is designed "to increase value, utilization, and investment in mobile satellite service (MSS) bands,"²¹ including MSS spectrum in the 2000-2020 MHz and 2180-2200 MHz bands that is adjacent to AWS. We support the Commission's review of MSS and its consideration of rules that will promote the use of current MSS spectrum for terrestrial wireless broadband uses. However, the FCC's review of MSS spectrum, like its review of 1675-1710 MHz, should take into account how any reallocated or re-purposed spectrum could be aided by an alignment with AWS or other currently licensed commercial spectrum.

Verizon Wireless urges the Commission to take a holistic approach in conducting its various reviews of spectrum bands and in considering what spectrum can be reallocated or re-purposed for wireless broadband services. The entire 1675-2200 MHz band is ideally suited for such services. Today, it includes 220 MHz of AWS and Personal Communications Service ("PCS") spectrum that represents a significant portion of the commercial spectrum that will accommodate wireless broadband growth over the next several years. However, the amount of spectrum available for wireless broadband can be expanded considerably with the reallocation

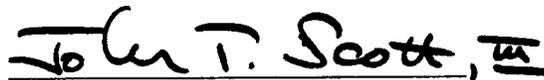
²¹ *FCC Spectrum Task Force Announces Plan to Unleash Additional Spectrum for Mobile Broadband*, News Release (rel. June 18, 2010).

and/or re-purposing of federal spectrum in the 1675-1710 MHz and 1755-1850 MHz bands and MSS spectrum in the 2000-2020 MHz and 2180-2200 MHz bands. Verizon Wireless urges the Commission not to consider these various bands in a vacuum, but rather to consider how all of these bands can be used in conjunction with existing spectrum to promote their most efficient and effective use and to ensure the continued growth and innovation of wireless broadband services into the future.

IV. CONCLUSION.

Verizon Wireless concurs with the Commission that a significant amount of spectrum should be allocated for wireless broadband use over the next ten years and that the 1675-1710 MHz band should be reallocated for commercial wireless use. However, the search cannot end here. Consequently, we urge the Commission and NTIA to continue to consider reallocating other bands, particularly spectrum in the 1755-1850 MHz band, for wireless broadband use. Failure to do so, as Verizon Wireless has previously shown, risks stalling the continued growth of mobile broadband products and services in the United States, foregoing the significant economic and public benefits associated with such products and services, and falling behind those nations that compete with the United States in the global economy.

Respectfully submitted,



John T. Scott, III
Vice President & Deputy General Counsel

Catherine M. Hilke
Counsel

VERIZON WIRELESS
1300 I Street, N.W.
Suite 400 West
Washington, D.C. 20005

Filed: June 28, 2010