

Brad Gillen Responses to Questions for the Record

House Energy & Commerce Communications and Technology Subcommittee Hearing:
“Strengthening American Leadership in Wireless Technology”

The Honorable Russ Fulcher

1. Can you build on your points about the impact on rural areas from a lack of additional wireless spectrum? Specifically, those areas with remote populations and the added challenge of heavy early investment requirements due to federal and other public lands?

The skyrocketing growth in wireless data traffic—with 2023 representing the largest single-year increase in wireless data ever—demonstrates the importance of wireless broadband to U.S. consumers. This is especially true for the 15 percent of adults nationwide and the 18 percent of adults in rural areas who rely on wireless as their sole or primary broadband connection. Given the essential nature of wireless to Americans, nationwide, regional, and rural wireless providers alike continue to invest billions of dollars annually to bring faster speeds, more coverage, new services, and lower prices to communities across the country. This includes areas where economic and physical challenges can make it markedly more difficult to serve customers. As a result of industry’s investments, approximately 88 percent of the U.S. rural population had access to 5G at minimum speeds of 7/1 Mbps as of the end of 2023, roughly five years after initial launch, and 71 percent of rural Americans had access to 5G at minimum speeds of 35/3 Mbps.

The wireless industry is playing a significant role in expanding home broadband access in unserved and underserved parts of the country as well. Fixed wireless home broadband offers a fast and reliable solution that is vital to closing the digital divide: 95 percent of net new fixed broadband subscribers since 2022 chose 5G home service, one out of every five of net 5G home adds were entirely new home broadband subscribers, and fixed wireless has brought broadband choice to 23 percent of rural households. Importantly, constructing or upgrading cell sites to enable fixed wireless broadband is cost-effective and can enable more rapid connectivity than may be available with other technologies. Less expensive and faster deployments are particularly key to bringing high-speed connectivity to rural areas, where fiber may not be economically feasible to deploy.

Each of these benefits turns on the availability of licensed spectrum, which is the essential input for wireless networks. Licensed spectrum allows the holder to manage interference to its network and provide a high and consistent level of service, and it enables secure connectivity that is necessary to support mission- and safety-critical operations. Moreover, licensed spectrum offers certainty of access, which is necessary to promote investment and buildout decisions. In rural areas, small population densities and challenging terrain can make it difficult to reconcile the costs of siting additional infrastructure and installing new equipment. And in rural areas that include federally managed lands, these costs can be compounded by the need to engage with additional regulators. Where every dollar and every extra day to deploy impacts service, it is essential that providers know when they will have access to secure, exclusive airwaves for deployment—and only licensed spectrum can do that.

To ensure continued deployment of wireless solutions to support businesses and consumers in all parts of the country, including rural areas, additional full-power spectrum must be made available in the mid-band frequency range for commercial licensed wireless use. Mid-band spectrum properties promote both coverage and capacity for wireless services. Without additional mid-band spectrum, U.S. networks will invariably struggle to meet growing demands for advanced connectivity. In fact, providers are already facing a 400-megahertz spectrum deficit in the next two years, which will expand to a more than 1,400-megahertz deficit by 2032 absent decisive action by Congress and the Administration.

2. I am also concerned about the lack of new innovations you raised. Can you expound upon that when it comes to AI and any wireless technology to support UAVs or other aerial vehicles?

Wireless innovation is driving enterprise, industrial, and consumer developments across the country today, and these technology advancements are set to benefit our economy and national security beyond 5G. Spectrum is critical to all of the innovations that 5G and beyond can enable for our economy and industries, whether to advance Artificial Intelligence (“AI”) and machine learning (“ML”), enhance telemedicine and other healthcare access opportunities, make manufacturing, agriculture, and critical infrastructure industries more efficient, or expand connectivity for aerial and roadway vehicles. The wireless industry invests billions of dollars annually to operate and expand commercial mobile wireless networks that support safe, reliable, and secure nationwide operations to advance each of these uses.

Among other benefits, these networks provide the coverage, redundancy, and interoperability necessary for safe and secure unmanned aerial vehicles operations. As a result, commercial wireless networks can support high-bandwidth and high-quality drone video streams, for example, enabling first responders to share critical information and improve decision-making in the field. Providers are also deploying drones to advance efficient cellular network infrastructure monitoring and rolling out drone offerings that can provide cellular coverage where cell towers may be knocked out during a storm or disaster. Wireless providers are also leveraging AI and ML technologies on their networks to optimize deployments and operations, strengthen cybersecurity and national security, and mitigate spam and scam robocalls and robotexts.

5G’s powerful network capabilities are enabling integrated wireless connectivity in key sectors of our economy, and flexible and forward-looking spectrum policies will remain critical to supporting these use cases in the future using licensed commercial wireless networks.

3. Given the lack of spectrum authorization, what kinds of problems are we going to see on the international and domestic stages? This is in part based on your testimony where you noted demand for data in the wireless space has grown by 87% in just the past two years. But that three times the amount of spectrum will be needed by 2029. Meanwhile, China has four times the spectrum we do.

The linchpin for U.S. wireless leadership is a pipeline for secure, reliable, full-power licensed spectrum in globally harmonized frequency ranges. This roadmap led to U.S. wireless leadership in the 4G decade, prompted nationwide 5G deployment faster than any other generation of wireless, and is foundational to further success in 5G and beyond. At the heart of this tried-and-

true approach is a spectrum framework grounded in competitive auctions. Some 30 years ago, the U.S. set itself on a path to becoming the global leader in wireless when Congress authorized the FCC to conduct auctions to assign spectrum licenses. Since then, the FCC has conducted 100 auctions and raised more than \$230 billion for deficit reduction and to support essential national priorities such as broadband deployment and modernization of national defense systems. That does not include the additional \$705 billion the wireless industry has invested in their networks over the lifetime of the industry. With the nearly two-year lapse in FCC spectrum auction authority, however, the U.S. is at a standstill in terms of making new spectrum available for licensed commercial use. While wireless providers have increased their ability to efficiently use spectrum with every generation of technology, efficiencies are not enough to support the skyrocketing demand for wireless services. Meanwhile, as the U.S. faces a more than 1,400-megahertz spectrum deficit in the next seven years, other nations are not slowing down. This puts other nations at a competitive advantage in terms of the innovation and economic benefits that wireless connectivity brings—not to mention the wide array of benefits for consumers and businesses.

Moreover, where the U.S. leaves a vacuum, other nations are happy to fill the void. This, in turn, risks putting nations like China at the helm when it comes to spectrum harmonization and technology advancements that they can then export across the globe—to the benefit of state-backed industries. This is both an economic and national security risk that the U.S. can address by renewing the FCC's general auction authority and creating a pipeline of additional licensed, mid-band spectrum.

4. My takeaway from your testimony is that we need to extend the FCC's auction authority so that there is more clarity for the wireless industry to identify and access new bands of the spectrum. Thinking of the investments required for adequate data throughput needs in areas like Telehealth, and other services, what suggestions do you have to identify the bands to help address these market needs – both in 5G and preparing for 6G?

Licensed spectrum fuels wireless networks, and to keep up with data demands, more licensed spectrum is needed. To ensure the wireless industry has the spectrum it needs to remain globally competitive, advance secure, reliable connectivity, and promote innovations across industries, the U.S. must focus on three key elements in its spectrum policies.

First, the need for new 5G spectrum is undebated, and the U.S. must make hundreds of megahertz of spectrum available in the near term. The demand curve for wireless data continues to accelerate, and even with densified networks, current spectrum holdings are not physically capable of satisfying that consumer growth.

Second, we must focus on making mid-band spectrum available for licensed use, as it is fundamental to 5G and next-generation wireless growth. There are a number of potential candidates for meeting the needs of 5G and beyond. The lower 3 GHz band (3.3-3.45 GHz) holds potential for a substantial swath to be made available for commercial use while providing funding to upgrade federal military systems. The upper C-band (3.98-4.2 GHz) can be made available through auction, once the FCC's auction authority is restored, for expanded operations alongside record-setting spectrum that is already available in the marketplace. And the 4 GHz and 7/8 GHz bands account for more than 1,800 megahertz of spectrum that should be explored

for repurposing for commercial licensed wireless use. Every 100 megahertz of mid-band spectrum licensed for wireless networks can bring \$260 billion in benefits to our economy and support 1.5 million new jobs. These benefits are substantial and should be a primary driver of mid-band reallocation efforts.

Third, the U.S. must ensure wireless providers and equipment manufacturers have certainty and predictability as to when new spectrum will be made available for licensed use. As operators and vendors plan for future U.S. networks and equipment, they need to know what spectrum bands will be available to support innovation and connectivity, and when that spectrum will be available for use. This creates investment certainty for our wireless future.

The Honorable Kathy Castor

1. Mr. Gillen, over recent years how has the race to 5G between the U.S. and China developed?

The United States has been a global leader in wireless and we can continue that position – with the right policies. With 5G, the U.S. was the first large country to have three nationwide 5G networks, fostering investment, innovation, and deployment in a robustly competitive marketplace. The linchpin for continued wireless leadership is a pipeline for secure, reliable, full-power licensed spectrum in globally used frequency tuning ranges. However, the standstill in our national spectrum policy and pause in the FCC’s spectrum auction authority has put the U.S. behind other nations in making spectrum available for wireless growth. Already, the U.S. trails peer and rival nations by an average of more than 200 megahertz of mid-band spectrum for commercial wireless use—a figure that could grow to roughly 520 megahertz relative to five leading nations in the next few years. We strongly encourage Congress and the Administration to swiftly correct course if U.S. economic and national security interests are to be advanced in our wireless future.

China, meanwhile, has accelerated efforts to open new airwaves for next-generation wireless use and increased its presence in the supply chain. Spectrum is a key aspect of China’s initiative, and it is using the international spectrum allocation process to advance its interests and undermine U.S. capabilities and leadership. Indeed, China is already on pace to have more than 2.5x the amount of licensed mid-band spectrum than the U.S. in the next two years. With its spectrum position clear, China is expanding its global presence in harmonized spectrum and international standards setting bodies. China is also executing a comprehensive initiative that assists recipient nations in improving their telecommunications networks and digital capabilities, which in turn garners allies for China’s effort to align global technology standards with its own interest. Put simply, these efforts give Chinese firms an advantage over trusted suppliers and puts the global ecosystem at risk.

The U.S. cannot lead in standards-setting bodies and ensure a trusted supply chain for wireless networks at home and abroad if it is not present in global wireless spectrum bands. It is therefore critical that the U.S. implement a comprehensive spectrum policy, with directed auctions for new licensed, full-power and internationally used mid-band spectrum, to advance these efforts.